services. As a result, it tends to purchase fewer services than would a competitive purchaser.

As noted in the CRA Ownership Report, the history of program service entry and expansion suggests that program costs do not rise rapidly or at all as the number of services has increased. Thus, this type of monopsony power is unlikely to be of substantial competitive significance.[13]

In addition, concerns that program quality will fall as a result of increased cable bargaining power may be misplaced. Indeed, when program quality considerations are important, cross-ownership may result in reduced incentives to bargain for a lower programming price.[14] A cable operator with no such financial interests will ignore the effects on other cable operators of any reduction in quality induced by a lower programming price that it is able to extract. However, a cable operator with financial interests will take into account its share of the profits of other operators, and hence, has a smaller incentive to bargain for a lower programming price that reduces program quality. In other words, financial interests may mitigate incentives that cable operators have to exert monopsony power.

Finally, the ability to wield buyer power is diminished by the availability of alternative distribution outlets to whom program suppliers can turn if a single

[13] Even if the production of additional program services requires incurring higher costs than previous services, the monopsonist could continue paying the inputs of the previous services their opportunity cost, i.e., the minimum they would be willing to accept for their service, while paying the additional services a fee that reflects their higher costs. More technically, the monopsonist may be able to engage in first-degree price discrimination among program services, which eliminates the distortion that could otherwise accompany monopsony.

[14] In this report, "cross-ownership" means the acquisition of a financial interest in one cable operator by another cable operator or by an input supplier, such as a program service.

operator, or collection of operators, attempts to exercise such power. In particular, the rapid growth of DBS provides program suppliers with an increasingly important alternative to cable operators for the sale of their services.

In sum, the effects of increased buyer power are not necessarily adverse to consumers. Further, the conditions required for the exercise of harmful monopsony power may not be satisfied in this industry. Finally, the growth of alternative distribution outlets for program services limits the ability of large MSOs to exercise monopsony power. The examples presented below suggest that even large financial interests may not engender significant competitive harm.

The acquisition of large financial interests by one cable operator in another may not have adverse competitive consequences. Even if the implications of monopsony were unambiguously harmful to consumers, the acquisition of large financial interests by one cable operator in another may not be competitively significant. This is most evident in the case of silent financial interests, but it can also be true with interests that convey partial control. This section provides a number of illustrative examples of these possibilities.

At the outset, we require a metric to measure the effects of an acquisition of a financial interest because they cannot be evaluated in isolation from the share of the acquiring firm, the share of the acquired firm, and the shares of the other firms in the industry. As a result, we rely on a modification of the Herfindahl-Hirschman Index (HHI) to illustrate the point that large financial interests may not adversely affect competition in the purchase of program services. The HHI is generally accepted by economists as a measure of

concentration for the purpose of evaluating horizontal competition. The HHI is equal to the sum of the squared market shares (measured in percentage terms) of all the firms in an industry. It ranges from near zero, when there are many firms with very small shares, to 10,000, under monopoly. The higher is the HHI, the more concentrated is the market, and the less competitive the market is thought to be. The HHI is proportional to the share-weighted sum of the percentage margins of competing firms under a particular economic theory of oligopoly.[15] In other words, a higher value of the HHI can be interpreted as a higher average margin in the industry.[16]

One attractive characteristic of the HHI is that it places proportionately more weight on firms with larger market shares (because the shares are squared). For example, consider a market with three firms, one of which has a 50% market share and two of which have 25% shares. In this case, the HHI is 3750. The contribution of the firm with the 50% share to the HHI is 2500 (50 x 50) while the combined contribution the firms with 25% shares is only 1250 (2 x 25 x 25).

Note that if the two smaller firms merge, the potential exists for the firms in the market to behave less competitively even though the share of the largest firm remains at 50%. This potential exists because of the possibility that these firms will collectively set prices. Reflecting that potential, the HHI rises after the merger from 3750 to 5000.

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[15] The relationship between the MHHI and competitive effects in the context of monopsony is discussed in Appendix A.

[16] This relationship between the HHI and average margin holds for firms that compete as Cournot oligopolists in a final product market.

The current attribution and horizontal ownership limit rules do not rely on the HHI. However, for the illustrative purposes here, it is useful to draw an inference from these rules about the degree of concentration as measured by the HHI that the current rules permit. Under the 30% ownership limit, the highest value the HHI could reach is 2800. This level would be reached if there were four MSOs, three with shares of 30% and one with a share of 10%. In other words, one interpretation of the current rules is that they would permit ownership patterns that lead to HHIs no higher than 2800.

The effect on concentration of an acquisition of a partial ownership interest by one rival in another is similar but not identical to that of a merger between the two rivals. When firm A merges with firm B, its competitive incentives may change. Prior to the merger, the owner of firm A will not account for the effects of its pricing and output decisions on the profits of firm B because it receives no benefit from doing so, nor, for the same reason, will firm B account for the effects of its actions on A's profits in B's pricing and output decisions.

After the merger, however, the owner of the combined firms will take only those actions that increase the combined profits of A and B. Thus, firm A will take some actions that benefit firm B that it would not have taken prior to the merger because now all of the profits from those actions accrue to the single owner of A and B. For similar reasons, firm B will now take some actions that benefit firm A that would not have been profitable pre-merger.

For example, if firms A and B are purchasers of the same input but do not compete in any output market, the merger may increase firm A's incentives to

seek lower input prices to benefit firm B. Prior to the merger, A would choose the price it was willing to offer input suppliers based only upon the effect of that price on its own profits. While some of the benefit of lower prices might accrue to B, A does not consider those benefits prior to the merger. After the merger, A will capture all of those benefits and have incentives to bargain more aggressively with input suppliers.

The qualitative logic of the preceding paragraph continues to apply when firm A takes a non-controlling partial interest in firm B, but the quantitative effect is substantially reduced. For example, if firm A takes a 5% interest in firm B, then firm A's owner receives only 5% of the benefits to firm B from any actions that firm A takes. This gives the owner of firm A substantially lower incentives to take actions that benefit firm B than the incentives it would have if it owned 100% of firm B.

The appropriate way to account for the effects of partial financial interests is through the construction of the concentration index. We are aware of only one index that does in any rigorous way: the modified Herfindahl-Hirschman index, or "MHHI."[17]

The MHHI recognizes that three factors are important for measuring concentration: ownership, control, and market shares. Like the HHI, the index places greater weight on firms with larger shares. In addition, the index properly accounts for how partial ownership interests affect incentives. In one case of concern – a silent financial interest – the MHHI is simple to calculate. If firm A

[17] See T. Bresnahan and S. Salop, "Quantifying the Competitive Effects of Production Joint Ventures," International Journal of Industrial Organization (1986), pp. 155-175.

takes a silent financial interest of α% in firm B, and the firms have no other partial ownership interests, the MHHI is calculated as:

$$MHHI = HHI + (\alpha/100) \times S_A \times S_B$$

where S_A and S_B are the market shares of firms A and B respectively. That is, the MHHI is equal to the HHI ignoring the financial interest plus an amount equal to the fractional partial ownership interest times the share of firm A times the share of firm B.

A simple way to think about the MHHI in the context of attributing interests that are silent is as follows. Absent any partial ownership interests, the MHHI is equal to the standard HHI. If firm A takes an α% interest in firm B, the MHHI increases by $(\alpha/100) \times S_A \times S_B$.[18] If firm A takes a series of partial ownership interests in several firms, the MHHI rises by the sum over all the partial interests of the fractional ownership interest times the share of firm A times the share of the firm in which it is taking an interest. If firm A had instead merged with firm B, the HHI would have increased by $2 \times S_A \times S_B$.

A numerical example helps illuminate the difference between the HHI, which is appropriate for 100% ownership interests, and the MHHI, which is appropriate for partial ownership interests. Suppose that firms A and B each have 30% market shares. If firm A merges with firm B, the HHI increases by 1800 (= 2 x 30 x 30) points. If firm A takes a 5% silent financial interest in firm B, however, the MHHI rises by only 45 (=.05 x 30 x 30) points. In this example,

[18] If Firm A acquired a 50% silent financial interest in Firm B and Firm B acquired a 50% silent financial interest in Firm A, the MHHI would rise by the product of the two shares.

attributing the full amount of a 5% silent financial interest would overstate the impact of the acquisition on concentration by 4000%!

To understand the implications of the preceding analysis for the attribution rules, it is helpful to consider the effects of cross-ownership in a hypothetical industry that is probably somewhat more concentrated than the current cable industry. Consequently, the effects of any given amount of cross-ownership on concentration in such an industry are worse than the effects would in fact be in the cable industry. Thus, any cross-ownership that is benign in the hypothetical industry should also be benign in the cable industry.

Imagine an industry with six firms, two of which have a market share of 30%, and four of which have market shares of 10%. Initially, none of the firms have partial ownership interests in the others. The HHI in this market is 2200, indicating that concentration is below the implicit threshold of 2800 that is permissible under the Commission's current rules.

Consider the effects of one of the firms with a 30% share taking a 5% silent financial interest in one of the firms with a 10% share. The current rules would prohibit this investment because the 5% interest would be fully attributable and would put the firm above the 30% horizontal ownership limit. However, the investment would raise the MHHI by a very small amount, from 2200 to 2215 (=2200 + .05 x 30 x 10), which is still well below the 2800 threshold implied by the rules.

There are two problems with the current rules in this example, one concerning the change in concentration that is precluded and the other relating to

the level that is considered unacceptable. First, the increase in the MHHI of 15 points is *de minimis* and hence does not raise significant competitive concerns. For example, a 15 point change would fall under the safe-harbor in the DOJ/FTC Merger Guidelines in every case.

Second, the set of rules intended to protect competition prevents transactions that are less concentrating than other, permitted transactions. Perhaps the starkest illustration of this point is that the rules would allow a complete merger between three of the four firms with 10% shares with an associated increase in concentration of 600 points (the HHI rises from 2200 to 2800) [19] while preventing a transaction that increases concentration by only 15 points. The problem is that the attribution rules do not correctly "count" subscribers for partially owned systems.

The preceding example illustrates that when a large firm (by the Commission's standards) takes a small interest in a relatively small firm (which is still large by cable industry standards), the acquisition has a small impact on concentration, and hence a small impact on competition and diversity. Moreover, the large firm could take a silent financial interest much larger than 5% without raising concentration beyond the threshold implied by the Commission's rules. Suppose, for example, that the 30% firm were to take a 40% silent financial interest in one of the small firms. This investment would raise the MHHI to only

[19] If the potential for monopsony power were a significant antitrust concern, we would not expect that this merger would go unchallenged by the FCC and/or the antitrust agencies. Thus, large changes in the HHI (or MHHI), such as some of those described in the text, could cause the FCC or the antitrust agencies to examine the transaction, a backstop the FCC can continue to rely on if the Commission were to substantially relax its attribution rules. These agencies may not conduct the examination however, because they believe that monopsony is a remote concern or because

2320 (= 2200 + .4 x 30 x 10), which would still be well below the permissible level of 2800.

It is interesting to note that, in this example, any silent financial interest of 50% or less by any one firm in any other would leave concentration below the permissible level. For example, suppose that one of the large firms takes a 50% silent financial interest in the other large firm. This would raise the MHHI to only 2650 (= 2200 + .5 x 30 x 30) – still below the 2800 level.

All the examples presented to this point assume that the partial ownership is silent, i.e., non-controlling. An alternative assumption is that the control or "influence" that an owner has over the manager of the firm in which it has a partial ownership interest is proportional to the owner's partial interest.[20] More precisely, we might assume that the manager of a partially owned firm maximizes a weighted average of the owners' profits, where the weight given to each owner's profits is equal to its ownership interest. The MHHI makes it possible to account for ownership this way, as shown in Appendix A.

We have conducted an analysis of the effects of proportional control in the context of the example in this subsection. Under proportional control, <u>any</u> investment by a firm with a 30% share in a firm with a 10% share leaves the MHHI below 2800. For example, when a firm with a 30% share takes a 40% interest in a firm with a 10% share and has proportional control, the MHHI rises

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they believe that the change in the MHHI overstates the competitive implications of the financial interest acquisition.

[20] In the spectrum of control possibilities between a financial interest that is silent and one that conveys complete control, there are many possible ways to characterize the effect of partial control. Depending upon the particular interest acquired, whether there is another owner with a larger interest that is effectively controlling, the size of the interests of the other major investors,

by about 350 points to 2550. This is not surprising because a complete merger would have raised the MHHI by 600 points from 2200 to 2800, and a complete merger is equivalent to a 100% investment with proportional (i.e., complete) control. Thus, any partial investment less than 100% by a firm with a 30% share in a firm with a 10% share in the example will leave the MHHI below 2800.

Partial investments with proportional control are more problematic when both firms involved are large, but investments much larger than 5% can still leave the MHHI below 2800. For example, when a firm with a 30% market share takes a 25% interest in the other firm with a 30% market share, the MHHI rises by 585 points to 2785.

Summary. Because cable systems do not directly compete for subscribers or advertisers, financial interests acquired by one cable system in another do not result in any reduction in downstream competition. Thus, the only horizontal competitive concern is the accretion of buyer power, and the Commission appears to recognize the ambiguous implications of buyer power for consumer interests. Whether or not a particular financial interest results in buyer power that harms or benefits consumers can only be determined on a case-by-case basis. However, the ambiguity of effects indicates that the attribution rule should be relaxed in circumstances when the only relevant horizontal issue is one of buyer power.

Finally, even if buyer power were unambiguously harmful to consumers, the examples in this section illustrate how stringent the current rules are. When

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the significance of public stockholders, and other factors, the extent of partial control may be more or less than proportional.

the acquired partial interest is silent, even very large interests can have small competitive significance when measured against the HHI threshold of 2800. This is also true of partially controlling interests, although not surprisingly, the effects are larger than for comparable silent interests. But both sets of examples suggest that the current rules can be relaxed substantially without adversely affecting horizontal competition.

C. Even Large Financial Interests May Not Increase the Likelihood of Vertical Foreclosure

A second policy rationale underlying the attribution and the subscriber cap rules is vertical foreclosure. There are two related possibilities to consider. First, a cable operator with programming interests may acquire a financial interest in another cable system unaffiliated with any rival program services. That interest may increase the ability and incentives to the investing cable operator to deny access by its program service rivals to its system and the acquired system. If the strategy is successful in weakening or eliminating the rivals, the investing operator will be able to raise the price of its program services to other cable operators.

Second, a cable operator may acquire a financial interest in another system with ownership interests in program services. As a result, the investing operator may have the ability and the incentive to foreclose rivals to the acquired system's program services. If the strategy is successful, the acquired system can raise the price of its program services to other operators, and the investing operator will share in the higher profits to the extent of its financial interest, although it will also pay higher prices for those services.

At the outset, it should be noted that the ability of any cable operator to foreclose program services has likely diminished substantially over the past five years because of the availability and growth of DBS in particular. If any particular cable operator attempts to deny access to a program service, the service can seek distribution on one of the DBS services.

Moreover, the empirical evidence to date also suggests that the likelihood of foreclosure is small. As noted in the CRA Ownership Report, the bulk of the empirical evidence indicates that vertically integrated cable operators do not disfavor non-pay program services in which they do not have ownership interests. In particular, carriage rates for these services by vertically integrated systems are generally not lower than those of systems that are not vertically integrated. Moreover, even where the carriage rates by vertically integrated operators are found to be lower, the differences are generally small when compared either to the universe of cable subscribers or to the total number of subscribers with access to the service.

The evidence for pay services is similar. While most studies find that cable systems that are integrated with pay services tend to carry rival pay services somewhat less frequently than do unintegrated systems, the extent to which "disadvantaged" rivals are denied access to the subscriber universe is quite small.

In addition, financial interests acquired by one cable operator in another can have significant benefits when one or both cable operators also have other upstream interests, such as programming. Indeed, it is well known in the

economics literature that vertical integration can generate substantial benefits, and there is a general presumption that vertical mergers are more likely than not to benefit consumers. The reasons for this, as discussed in more detail below, relate to the efficiencies that accrue from the alignment of incentives between upstream suppliers and downstream purchasers.

As a result, the best policy for addressing the vertical effects of financial interest acquisitions is to evaluate only unusual acquisitions on a case-by-case basis. Such an approach would be consistent with the lack of evidence of economically meaningful foreclosure in the cable industry, the growth of the DBS alternatives, and the benefits that can accrue from vertical integration.

Where the investor and the acquired system have no programming interests, there should be no attribution based on vertical concerns. Nor should there be any attribution when one cable operator takes a silent financial interest in another cable system that is affiliated with a program service since the investing operator could have acquired the program service interest without also acquiring the cable interest.

The conclusion that the Commission should take a more relaxed stance towards the attribution of acquisitions of financial interests that raise vertical concerns is reinforced by a series of examples we have created to investigate the foreclosure incentive. We find that even a large financial interest by one operator in another will not significantly increase incentives to foreclose, even if one assumed that the ability to foreclose was present. These examples are motivated by TCI's recent acquisition of a 33% interest in Cablevision Systems,

which has interests in a number of program services, most notably American Movie Classics (AMC) in which Cablevision has a 75% interest. Of course, TCI has ownership interests in a number of basic and pay services, one of its most popular being Discovery (in which it has a 49% interest). We now turn to a discussion of these illustrations, using Discovery and AMC as examples of affiliated program services.

A 33% interest in Cablevision does not provide TCI with significantly increased incentives to deny access to TCI's subscribers by programming services that rival those affiliated with TCI. As our benchmark for evaluating the incentive effects, we have simulated what TCI's incentives might be to deny access to a rival of Discovery prior to the acquisition of the Cablevision interest. The increase in these incentives that arise from the acquisition of the interest in Cablevision can then be compared against these incentives. If TCI's interest in Cablevision is silent, TCI has no increased ability to foreclose. Thus, if the concern is that a cable operator will have an increased ability to foreclose to benefit its services as a result of acquiring an interest in another system with no rival services, silent interests should be excluded from consideration. Thus, the example here focuses on the acquisition of an interest that would provide TCI with partial or total control over Cablevision.[21]

The complete details of this analysis are provided in Appendix B and are summarized here. For purposes of this analysis, we have assumed that TCI accounts for 40% of all multichannel subscribers. The example begins by

[21] We take no position on whether this accurately describes the relationship between TCI and Cablevision.

assuming that if TCI were to deny Discovery rivals access to its cable subscribers, Discovery could raise prices by 5% to all cable systems.[22] While this strategy results in TCI cable systems paying higher prices for Discovery, TCI also shares in the additional profits earned by Discovery, through its ownership interest. However, if TCI drops the rival service without replacing it with another service, it avoids the cost of paying for that service but it also will lose some subscribers. Because the gross profit margin on cable subscribers is substantial, very few subscribers would have to terminate their cable service for the strategy to be unprofitable to TCI. In the example in the appendix, TCI would have to lose only .64 of a percentage point of its subscribers for the strategy to be unprofitable prior to acquiring the Cablevision interest.

If TCI acquires a 33% interest in a cable system the size of Cablevision, the effects on TCI's incentives depend upon whether the interest conveys partial or total control over the Cablevision systems. For the former case, the example assumes that TCI controls Cablevision systems accounting for one-third of Cablevision's subscribers (i.e., control in proportion to its financial interest) and can deny Discovery's rival access to those subscribers. As a result of the greater foreclosure to Discovery's rival, the example assumes that Discovery can raise its price by 10% instead of 5%.[23] Discovery's profits rise, and TCI shares in those profits to the extent of its ownership interest.

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[22] Of course, this assumes that there are few if any good substitute services for Discovery.
[23] The number of Cablevision's subscribers is only about 9.12% of the number of TCI's subscribers. Thus, the assumption that the price increase is twice as large is likely to overstate any foreclosure incentives.

However, the subscriber losses to TCI also increase, because it is denying more subscribers access to the rival service that they value. The losses experienced by TCI on its Cablevision subscribers are less than the losses it experiences on its own subscribers because it has only a 33% financial interest in Cablevision. The remaining two-thirds of the lost revenues are borne by Cablevision's other shareholders.[24] TCI must now lose .70% of its subscriber base (including its share of Cablevision subscribers) for foreclosure to be unprofitable, rather than the .64% loss for the stand-alone case. Because this amount is small, foreclosure is unlikely to be a profitable strategy in this case as well.

If TCI's partial financial interest in Cablevision provided it with complete control over Cablevision, the rival to Discovery might be weakened even further. Our calculations assume that as a result of denying Discovery's rival to all of Cablevision's subscribers, Discovery can raise its price to cable operators by 20%. [25] Even in this extreme case, TCI would have to lose only about .82% of its subscribers to eliminate the incentive to foreclose. The incentive to foreclose remains small because TCI must also pay Discovery's higher program fees for subscribers on systems wholly-owned by TCI.[26]

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[24] In what is likely to be an unrealistic case, TCI is assumed to be able to force Cablevision to bear a substantial fraction of the costs of denying carriage to Discovery's rival without sharing any of the benefits of that denial with Cablevision.

[25] The assumption that the price increase is four times as high when Cablevision and TCI subscribers are denied access to the Discovery rival than when only TCI subscribers are denied access is likely to overstate the foreclosure incentives, for the same reason as discussed above.

[26] For any given percentage increase in the price of the affiliated service, the percentage of subscribers that must be lost to eliminate the incentive to foreclose will tend to rise as the number of subscribers controlled by the cable operator falls. In these examples, the incentive effects appear to remain small as the number of controlled subscribers falls. In complete-control scenario described in the text, TCI would have to lose about .9% of the subscribers to render the

A partial interest in Cablevision does not provide TCI with significantly increased incentives to deny access to TCI's subscribers by programming services that rival those affiliated with Cablevision. The previous examples considered cases in which TCI might use any control it might have over Cablevision to benefit TCI's program services. In the following discussion, we develop an illustrative example to consider whether TCI's partial interest in Cablevision provides it with incentives to deny access to its subscribers to benefit AMC, a program service affiliated with Cablevision. Of course, absent the partial interest, TCI has no incentive to take any actions that benefit AMC. The question is whether this incentive becomes economically meaningful when TCI acquires the interest.

If its financial interest in Cablevision is silent, TCI could still benefit AMC if TCI's subscriber base alone is sufficient to weaken a rival to AMC. In this case, TCI could deny AMC's rival access to TCI's subscribers, thereby weakening the rival. AMC could then raise prices to cable operators by 5%.[27] TCI would then share in AMC's higher profits by the amount of its financial interest in Cablevision. In this case, any incentive that TCI might have to foreclose an AMC rival is offset if, as a result of its failure to carry the rival, TCI loses only .61% of its subscriber base.

In the case of partial control, TCI is assumed to deny AMC's rival access to one third of all Cablevision subscribers in addition to the access denial on TCI

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strategy unprofitable if it accounted for about 30% of all subscribers instead of the 40% assumed in the text.

[27] Whether AMC has the ability to raise price depends on the availability of substitutes for AMC. This example assumes that there is only one such good substitute.

systems. AMC is then assumed to be able to increase its price by 10%. As with the case of Discovery, TCI is assumed to control systems that contain one-third of Cablevision subscribers. However, since TCI has only a one-third financial interest in those subscribers, it bears only a third of the losses experienced by Cablevision for every subscriber that terminates its Cablevision service.

Although other Cablevision shareholders bear two-thirds of the subscriber losses, TCI's incentive to foreclose falls with partial control. TCI needs to lose only.60% of its subscribers to completely offset the gains experienced by AMC from the higher prices. The most important reason why the threshold subscriber loss declines slightly is because of TCI's relatively low share of AMC's profits. When AMC increases its price, TCI experiences a cost increase on the 41% of all subscribers that it controls. However, it receives only about 25% of the additional profits earned by AMC as a result of the price increase.[28] Thus, TCI tends to lose more through its cable interests than it gains through its programming interests.

If we assume that TCI has complete control over Cablevision, denying AMC's rival access to all of Cablevision is assumed to permit AMC to raise its price by 20%. In this case, the incentive to foreclose falls even further. In this case, TCI would have to lose only .58% of its subscribers to eliminate any incentive it might have to foreclose.

Summary. To the extent that the attribution rules are intended to prevent vertical foreclosure, the rules should be substantially more lenient than is

[28] That is, Cablevision has a 75% interest in AMC and TCI has a 33% interest in Cablevision.

currently the case. The rules are clearly too stringent because they limit the stake that one cable operator can have in another even if neither operator has programming interests. Similarly, if an operator affiliated with a program service acquires a silent financial interest in an operator with no programming interests, there is no effect on the investing operator's ability to foreclose and the incentive to foreclose falls. Moreover, even substantial financial interests that convey some control over the acquired cable system may not result in a significant incentive to foreclose. Despite that fact, the current attribution rules would limit those investments.

There is no empirical evidence to date that cable operators affiliated with program services have engaged in any meaningful way in vertical foreclosure. Further, the ability and incentive to foreclose has been weakened by the growth of DBS as an alternative distribution channel for programmers and the likelihood that most if not all program services confront too many rivals to permit foreclosure to result in higher prices. Thus, even considerably more liberal attribution rules are not likely to result in any substantial increase in the risk of foreclosure.

D. Implications for Diversity

The analysis of buyer power suggests that one cable operator taking a partial financial interest in another will not likely affect the number or quality of program services available. Thus, a significant relaxation of the rules will not likely affect the range of program services available to consumers.

Similarly, the analysis illustrated how even the acquisition of large financial interests may leave the MHHI below 2800, a level of ownership concentration consistent with the current 30% homes passed cap. Thus, the analysis illustrates how even large financial interests would not reduce ownership diversity to unacceptably low levels.

The discussion of vertical foreclosure also suggests that program diversity will not be impaired by a relaxation of the attribution rules. The examples used here suggest that the acquisition of a large financial interest by one cable operator in another is unlikely to have a significant effect on the incentive to foreclose rival program services. Thus, the acquisition of a financial interest is unlikely to reduce the number or quality of program services.

It is also possible, however, that a cable operator may "slant" programming towards the preferred perspective of its owners, even if it is unprofitable to do so. However, it is important to note at the outset that this possibility is most likely to arise with a financial interest in a cable system that conveys control. In addition, there are a number of safeguards against "slanting." First, other large shareholders, or a coalition of smaller shareholders, can thwart behavior that reduces the profits of the cable system by bringing shareholder suits. Second, persistent behavior that significantly reduces the profits of the cable system will likely be corrected by the acquisition of a large enough interest by a new owner to compel the operator's managers to return the system to profitability. [29]

[29] Ironically, the ability of the market for "corporate control" to discipline non-profit maximizing behavior would be greater with more lenient attribution rules. The current attribution rules may be

IV. The Benefits of Cross-Ownership

The preceding section explained why the current attribution rules in cable are more restrictive than is warranted to address the Commission's monopsony and foreclosure concerns. This analysis, by itself, provides a strong case for relaxing the rules. In this section, we explain why cross-ownership can have substantial benefits for consumers. This makes the case for relaxing the rules even stronger.

A. By Increasing Their Bargaining Power, Cross-Ownership Among Cable Operators Can Lower Programming Prices and Benefit Consumers

As we indicated in the preceding section, bargaining power by cable operators, to the extent that it exists, can lead to lower programming prices and lower prices for cable service. If lower programming prices do not lead programmers to reduce efforts to develop programming, increased bargaining power may permit cable operators to capture some of the excess profits earned by program services. In this case, lower programming prices lead to lower prices for cable service and benefits for consumers. Indeed, large MSOs may have smaller incentives to demand lower program prices if the effect of the lower price is to reduce the quality of the program service. As we suggested in the preceding section, this implies that cross-ownership that yields greater bargaining power for cable operators raises less concern than cross-ownership among firms that compete in output markets.

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sufficiently stringent that some MSOs would not be able to acquire the financial interest necessary to thwart the unprofitable "slanting" of another operator's programming.

B. Equity Investments By Cable Operators in Other Cable Operators May Entail Partial Vertical Integration That Can Have Several Benefits.

An equity investment by one cable operator in another is a form of vertical integration when one or both cable operators have programming interests. It is well known that vertical integration can have substantial efficiency benefits.[30] The benefits of vertical integration arise because the integration helps to resolve one or more contractual difficulties between vertically related firms that prevent them from achieving a more efficient quantity, quality, or both.

There are two types of contractual inefficiencies between cable operators and programmers (or other input suppliers) that vertical integration may help attenuate: double marginalization and under-investment in services or new technology that enhances demand. The remainder of this subsection explains how these inefficiencies may arise in the context of cable services and how an acquisition of financial interests falling short of complete vertical integration may mitigate them.[31]

The elimination of double-marginalization can benefit consumers by lowering program prices. Double-marginalization refers to the successive mark-ups over marginal cost that can occur when a programmer and cable operator make independent pricing decisions based on their own profits without

[30] A useful overview of the benefits (and costs) of vertical integration can be found in Dennis Carlton and Jeffrey Perloff, Modern Industrial Organization (1994), pp. 499-552. A seminal paper on the benefits of vertical integration is that of Ronald Coase, "The Nature of the Firm," Economica (1937), pp. 386-405.

[31] The mitigation of these problems through the acquisition of a financial interest may encourage a cable operator to carry a newly-affiliated program service. Other things equal, economists would regard this behavior as advancing the interests of consumers because it will tend to lower the price of cable service and/or improve the quality of the program service. In addition, by

accounting for the effects of their decisions on the profits of the other. For example, when an independent programmer raises its price, it is concerned with how the price increase affects its own profits, not the profits of the cable operators that buy its service. This causes the programmer to charge a higher price than it would if it owned one or more cable operators. Similarly, when setting the price of cable service, an independent cable operator will ignore the impact of its decision on programming profits. All else equal, this causes the cable operator to charge a higher price than it would if it owned one or more programming services.[32]

The extent to which cable cross-ownership mitigates double-marginalization generally depends on the degree of integration of the acquiring and acquired cable operators and whether the cross-ownership confers control. It is convenient to distinguish between two cases: 1) a programmer takes an interest in a cable operator with no program services, and 2) an unintegrated cable operator takes an interest in a program service.[33]

The first case arises when a cable operator that owns and controls programming interests takes an interest in another cable operator. The investing firm is thus a supplier of programming to the (partially) acquired cable operator.

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increasing the attractiveness of cable service to subscribers, financial interests may encourage the cable operator to increase the number of services carried.

[32] In principle, double-marginalization could be eliminated contractually if the programmer sold the service for a fixed dollar amount plus a per-subscriber charge equal to the marginal cost of serving an additional subscriber. We understand that these kinds of contracts are rarely executed in practice, suggesting that the costs of reaching an agreement with each cable operator on the appropriate fixed dollar amount may be substantial.

[33] The program service in each case might be a vertically integrated cable operator. The language in the text helps to clarify that the incentives described below sometimes arise from the programming interests and sometimes from the cable interest.

If the investment is a silent financial interest, the cable programmer will still take into account that lower prices for program services lead to higher profits for the cable operator and a higher return on the programmer's financial interest in the cable operator. As a result, the cable programmer will charge lower prices to the cable operator than it would without the partial interest, which will reduce the price that the cable operator charges to cable subscribers.

A silent financial interest by a programmer in a cable operator mitigates double-marginalization by altering the programmer's incentives. The only impact on the cable operator's incentives comes from the lower programming price. It is not difficult to see that double-marginalization might be further attenuated if the partial interest gives the programmer some control over the cable operator. The reason is that control over the cable operator allows the programmer to reduce the price of cable service for any given programming price, which benefits the programmer by expanding its sales. In effect, ownership gives the programmer an incentive to account for the cable operator's interest when setting price, and control enables the programmer to induce the cable operator to account for the programmer's profits when setting the cable price.[34]

Cross-ownership can also mitigate double-marginalization when it involves a cable operator taking an interest in a programmer. However, the incentives are more complicated than when the investment is in the other direction. The

[34] The details of the interaction between ownership and control when a programmer takes a partial interest in a cable operator are presented in Appendix C.

principal factor determining whether there will be benefits in this case is degree of control that cross-ownership confers.

Consider first a silent financial interest by a cable operator in a program service. For any given programming price, such an investment gives the investing cable operator an incentive to reduce the price of cable service. This occurs because a lower price for cable service increases the number of subscribers and hence the profits of the programmer, in which the investor shares. However, the increased incentive for the cable operator to lower its price may be partially or fully offset by the programmer, who may have an incentive to respond by increasing the programming price. This incentive may arise because the reduction in the cable price (for any given programming price) caused by the silent financial interest expands the demand for the programmer's service at any given price of programming.

Although the operator's investment may not eliminate double marginalization, it may still mitigate its effects, and to that extent, the investment will benefit cable subscribers.[35] The likelihood of mitigation is increased if programmers cannot discriminate in setting prices to cable operators because of FCC regulation or Most Favored Nations clauses.

Note that the reason that the silent financial interest by the cable operator may fail to mitigate double-marginalization is its inability to prevent the programmer from responding to the cable operator's price reduction by raising

[35] It does not appear that such an investment could ever increase the distortions from double marginalization. If the programmer were to increase the effective price to the operator above that which it was paying prior to the acquisition of the financial interest, the operator's profits would fall. Knowing this, the operator would never take an interest in such program services.