The Strategic Effects of Vertical Market Structure: Common Agency and Divisionalization in the U.S. Motion Picture Industry

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Abstract: I examine the release date scheduling of all motion pictures that went into wide release in the US in 1995 and 1996 to investigate the effects of vertical market structure on competition. The evidence suggests that complex vertical structures involving multiple upstream or downstream firms generally do not achieve efficient outcomes in movie scheduling. In addition, analysis of the data suggests that the production divisions of the major studios act as integrated parts of the studio, rather than as independent competing firms.

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1. Introduction

A wide variety of vertical market structures characterize different industries: for example, a small set of highly integrated firms historically dominated the steel industry, a few big suppliers sell key components to many fragmented assemblers in the personal computer industry, and numerous small producers make films that they distribute through a few large Hollywood studios in the motion picture industry. While the literature offers many possible explanations for why these structures arise (up- and down-stream scale economies, transaction cost rationales for vertical integration, strategic motivations discussed below, and so on), it is not clear whether or how this diversity of vertical structures affects competition. At one extreme, Coasian reasoning suggests that with complete contracts feasible among all parties in a vertical structure, the efficient outcome (for the firms) should always prevail, regardless of how many up- and down-stream firms comprise the structure. At the other extreme, a bilateral vertical structure--one composed of a single upstream firm and a single downstream firm--would maximize its profits over its full set of products and achieve the efficient outcome (for that structure) even if only bilateral vertical contracts were feasible. However, the first case is certainly unrealistic, given that antitrust law severely limits contracts across structures, and the second case fails to account for the many structures in which firms have multiple up- and down-stream trading partners. The leaves open the question of how observed vertical structures affect competition and limit or facilitate the implementation of efficient outcomes. Moreover, it may not even be clear what constitutes a distinct firm in a vertical structure, given the multitude of corporate structures complicated by various divisionalization schemes, alliances, and so on. This paper empirically explores competition in the US motion picture industry to illuminate the effect of vertical market structure on competition. In particular, it addresses two questions: first, do vertical structures that involve multiple up- and down-stream firms achieve efficient outcomes for the structure; second, do divisionalized firms act like fully integrated firms or like competing independent firms? The empirical evidence suggests that, in this industry, these more complex vertical structures generally do not achieve efficient outcomes for the structure, and that divisionalized firms generally behave like integrated firms, not like competitors.

In their first paper on “common agency,” Bernheim and Whinston (1985) argue that firms

might implement a jointly efficient outcome by delegating marketing and pricing decisions to a common sales agent, recognizing that such vertical contracts are more likely to escape antitrust scrutiny than horizontal contracts that achieve the same end. Bernheim and Whinston show that, in equilibrium, firms use sell-out contracts to give the common agent the full residual profit claim, thereby inducing the common agent to internalize the competitive externalities and choose the joint profit-maximizing outcome. Thus, Bernheim and Whinston show that bilateral vertical contracts with a common agent suffice to implement the efficient outcome. If horizontal contracts are prohibited, then their results suggest that vertical market structure does matter: firms without common agents do not achieve efficient outcomes, while firms with common agents do.

In more general settings, bilateral contracts with a common agent may be insufficient to achieve efficient outcomes. In a second paper on common agency, in which the model includes noisy outcomes and risk-averse agents, Bernheim and Whinston (1986) show that the optimal contract is not a sell-out contract and therefore does not implement the efficient outcome. In such a case, vertical market structure might still matter for competition, but it would not be true that having a common agent leads to an efficient outcome. In addition, Segal (1999) shows that when the terms of a contract with one firm affect the reservation values of other firms, bilateral contracts will not lead to efficient outcomes, since the firm making public contract offers will distort the terms of its offers in order to induce contract acceptances by other firms on more favorable terms. Finally, O'Brien and Shaffer (1992), McAfee and Schwartz (1994), and Segal (1999) demonstrate that when contract offers are unobservable to non-parties, bilateral contracting does not implement efficient outcomes because the contract-accepting firm cannot be compensated for externalities that may be imposed on it by other firms' contracts. In all of these cases, bilateral vertical contracting, even with common agents, does not achieve an outcome that is efficient for the vertical structure.

This paper explores the effect of vertical market structure on competition, specifically on release date scheduling, in the US motion picture industry in 1995 and 1996. This industry features many production companies (as many as 80 during this period, depending on how one counts), whose films are distributed through 13 distributors, many of whom have their own (sometimes multiple) in-house production companies. One important strategic variable in this

industry is the release date, since demand is highly variable (with big spikes at holidays, for example) and movies that are released close together are likely to impose negative externalities on each other's revenues. The basic empirical test in this paper focuses on how vertical market structure affects the scheduling of a pair of films. It is easiest to conceptualize the test by focusing on two extreme cases: a pair of purely competitive films, that share neither a producer nor a distributor in common, should not be scheduled in a way that internalizes the negative externalities and thus should be relatively close together; a pair of films that are both jointly produced and jointly distributed should certainly have these externalities internalized, should be scheduled in a way that is efficient for the vertical structure, and should therefore be relatively farther apart. The question that remains is then, is it enough to be jointly distributed *or* jointly produced? Is having *one firm* in common sufficient to implement the efficient scheduling decision through bilateral vertical contracts, as in Bernheim and Whinston's first common agency model? The evidence suggests that it is not.

The fact that the production operations of most of the major studios are divisionalized and/or work in collaborative agreements with other production companies offers an opportunity to address an additional question about vertical market structures. Specifically, do divisions compete like independent firms or do they jointly maximize like an integrated firm? Is a vertical structure composed of Disney's distribution arm and the production companies Hollywood Pictures and Touchstone Pictures, both owned by Disney, a fully integrated structure or a structure of common agency? This is an important question because a significant theoretical literature (Schwartz and Thompson (1986) and Baye, Crocker, and Ju (1996)) has argued that divisionalization may be an important commitment device because the divisions will compete fiercely among themselves and not behave as an integrated firm. In contrast, Hadfield (1991) and Corts and Neher (2000) argue that this assumption may not be justified, especially when firms may renegotiate or sign unobservable contracts with their divisions. An empirical test similar to the one described above sheds light on the divisionalization question by assessing whether films that are jointly distributed and produced *by different divisions of the same studio* are scheduled more efficiently than purely competitive films. The evidence suggests that they are, and that in fact the multiple divisions of a studio act more like a single integrated entity than like competing

firms.

Section 2 describes the motion picture industry, the typical contracts between producers and distributors, and the importance of release date scheduling. Section 3 describes the data and presents descriptive statistics, while section 4 presents the empirical analysis and results. Section 5 concludes.

2. The US Motion Picture Industry

2.1 Types of firms

The process of making a major motion picture is a long and complicated one involving many different entities. For present purposes, it is important to understand broadly the roles of producers and distributors, and also the contracts between them. Generally, production companies are responsible for the creative aspects of making a movie. They acquire, write and edit a screenplay; they cast and contract with actors; they physically shoot the film footage, and so on. The distributor contracts with theaters for exhibition of the film, physically reproduces and distributes the film, and promotes and advertizes the film. Distribution companies are typically part of a major studio (Warner Brothers, Sony, Paramount, Universal, etc.), but all studios also run substantial production companies. Some studios have several production companies that operate under different names--Sony's Columbia and TriStar, for example, or Disney's Touchstone and Hollywood.

2.2 Contractual relationships

Financing and distribution arrangements between motion picture producers and distributors take one of five basic forms (Cones, 1997): in-house production/distribution, production-financing/distribution agreements, negative pickups, acquisition deals, and rent-a-distributor deals. In this order, these arrangements involve decreasing levels of financial involvement from a major studio/distributor, which becomes involved at a correspondingly later stage of the production process. While the first four forms involve print and advertising (P&A) funding from the studio/distributor, only the first 2 forms involve production funding from the studio/distributor. The first two are distinguished by whether the film is already "packaged" when acquired by the distributor, i.e., whether the underlying story has been acquired and a screenplay

and outline prepared. The third and fourth are distinguished by whether the film is completed before the acquisition occurs. In a negative pickup deal, an agreement to distribute the film is reached before principal photography. This agreement is then used in negotiating production financing from third parties. In an acquisition deal, the distribution agreement is not signed until the film is "in the can," production financing having been arranged through other sources. Because the film is a more well-defined product at the time of the transaction under these two forms, and especially under the latter, it is easier for the producer to shop the film around and solicit competitive offers from rival distributors, potentially securing more favorable terms.

There are at least two distinct sets of rights to a film that are at stake in such a relationship: the ownership of the copyright to the film, and the rights to distribute it in a specific territory, which may be assigned to other parties by the film's owner. The studio/distributor is more likely to control the film's copyright the earlier and more significant is its involvement in the film's production and funding. An independent production company, an individual producer, or an independent financing entity is likely to retain control of the copyright if it provides production funding.

The copyright owner has a clear claim to residual profits, as it shares the net proceeds after distribution fees and expenses with actors, directors and other "profit participants." The copyright owner also earns profits through distribution in foreign territories and subsequent fees for cable and broadcast television exhibition, which are closely related to first-run success in the U.S. market. The distributor, however, also has a partial claim to profits through the structure of standard contracts. The most common form for a distribution deal (the contract governing theatrical exhibition in a specific territory) is the "net deal," in which the distributor collects a "distribution fee" of (typically) 30% of gross rentals, then recoups its print and advertising expenses from the remaining sum before distributing the net proceeds to the production company and other profit participants. Thus, sell-out contracts allocating the full residual profit claim to a single party are basically non-existent, except of course in the case of a vertically integrated studio that both produces and distributes a particular film. As discussed in the introduction, the absence of such contracts tends to undermine the role of common agency in achieving efficient outcomes for the firms.

2.3 Demand cyclicality and release date competition

I focus specifically on one important dimension of competition in this industry: the battle for favorable release dates. Large seasonal fluctuations in demand, media attention to 'hits,' and favorable contractual provisions for opening weekends together lead to intense competition for the best weekend release slots. Barry Reardon, Warner Brothers' president of distribution, states flatly: "If you don't pick the right release date, you can destroy a movie." (*WSJ*, 1991) And, the *Wall Street Journal* (1991) asserts that

> studio executives insist the release date is critical, in part because a film's opening weekend is usually the most lucrative one for its studio. Financial agreements with theaters normally give the filmmaker a greater percentage of the box office during the first weeks of release. And in this glutted market, studio executives also worry that theaters will replace a film with another if it doesn't win audiences quickly.

In fact, the fraction of a film's box office take accounted for by its opening week increased steadily throughout the 1990s. According to *Variety* (1997), this figure increased from 27% in 1990 to 34% in 1997. Over that same period, the total accounted for by the opening weekend alone rose from 20% to 25%.

The conventional wisdom on release date competition is limited to the observation that this competition seems excessive from a joint-profits point of view, leading to crowding of releases in peak periods and a dearth of films in off-peak periods. Trade journals and industry executives term this clustering of films "self-destructive" and "a nightmare for all parties." (*Variety*, 1996) The *Wall Street Journal* came to the following conclusion when confronted with weak box office totals in the summer of 1995: "What went wrong? Executives blame too many expensive movies stacked too close together at the beginning of the season. The result was that one big movie was 'cannibalized' by the next one." (*WSJ*, 1995) Such perspectives support the idea that efficient outcomes for a vertical structure involve reduced clustering of its films, compared to a competitive benchmark.

3. The U.S. Motion Picture Industry: Data

3.1 Seasonality

Attendance patterns in the US motion picture industry are highly seasonal, with marked

demand spikes coinciding with holiday weekends and school vacations. I rely on A. D. Murphy's historical index (reported in Vogel (1994)) of average film attendance to divide the calendar year into distinct demand "windows" by two different criteria. Method #1 partitions the weeks of the year into 10 annual windows by starting a new window every time total revenue reaches a trough in Murphy's data. This creates 20 windows of varying length over the course of the two years of data. Because the window containing the Christmas and New Year's holidays extends through week 4 of the following year, the period to be studied here begins with the fifth weekend of 1995 and extends through the fourth weekend of 1997. Method #2 creates 8 seasons per year by centering 5-week windows on each of the 8 peaks identified by Murphy: President's Day, Easter, Memorial Day, Independence Day, Midsummer, Labor Day, Thanksgiving, and Christmas/New Year. This method creates a total of 16 seasons, covering a strict subset of the weeks included in Method #1. For each of these window definitions, Table 1 shows the mean and standard deviation of weekly total US box office revenue, by window, and demonstrates the presence of significant variation in demand both between and across windows. The ratio of the standard deviation to the mean ranges from 3% for Fall window #1 in 1995 to 41% for Christmas/New Year 1996-97, and generally falls in the 10-20% range.

This division of the year into demand windows is important because the empirical analysis focuses on *pairs* of films. To analyze film pairs, one must define the set of films from which pairs will be created. One could consider every pair of films in the data, but it is unlikely that all of these pairs are of equal interest. For example, the most salient case of competitive business-stealing occurs when two films are released on the same weekend. Films one week apart presumably cut into each other's attendance, but less so than if they were released head-to-head, and so on. If one studies all possible pairs within the sample, a pair of films released at Memorial Day of 1995 and at Thanksgiving of 1996 will enter the analysis with the same implicit importance as a pair of films released on the same weekend. I address this issue by defining demand windows and then pairing movies only when both are released in the same window. This yields 2524 pairs of movies under Method #1 and 1611 pairs of films under Method #2. Because Method #2 excludes some weeks altogether (mostly in the fall when demand is relatively steady), it generates fewer pairs than Method #1.

3.2 Film Characteristics

The title, genre, distributor, and producer of all major films released in 1995 and 1996 (and the first four weeks of 1997) were obtained from the box office reports in *The Hollywood Reporter*. To focus the analysis on the films with the broadest appeal, for which release-timing issues are likely to be most salient, I focus on films that reach "wide release" at some point in their theatrical run. "Wide release" is understood in the industry to be achieved when a film is playing on at least 600 screens simultaneously. This yields a set of 300 films for analysis.

Release dates of these films are typically straightforward to determine, as most major films open on a large number of screens on a Friday. Two complications arise. First, some films open on a limited number of screens and then ramp up to "wide release," especially near the end of the year, when a limited opening secures Academy Award candidacy in the previous year, but mitigates head-to-head competition with major holiday releases. These are coded as if they opened on the first weekend they surpass 600 screens. *Ghosts of Mississippi*, for example, played on 21 screens for the last two weeks of 1996, but is coded as opening on the first weekend of 1997, when it abruptly broadened its showing to 1268 screens. Second, some films open earlier in the week, especially around holidays. These are assigned to the first weekend they are in wide release. *Independence Day*, for example, opened on Wednesday, July 2, 1996, but is coded as opening on the following Friday, July 4.

The 300 films in the dataset were released by a total of 13 distributors. These distributors, the number of films they released, and the numbers of producers responsible for these films are listed in Table 2. The use of the term "producer" in the film industry varies widely, but the definition employed here is that of copyright owner, which is appealing because this is the entity that retains the net profits from the domestic distribution deal as well all rights associated with exhibition in foreign territories and other media. This can be an individual who coordinates a project (Don Simpson and Jerry Bruckheimer coproduced "Crimson Tide"), a major studio (Warner Brothers produced "Space Jam"), an independent studio like Steven Spielberg's Amblin Entertainment (which coproduced "To Wong Foo..."), or an entity established to fund a specific film (Last of the Dogmen, Inc. produced "The Last of the Dogmen"). Also, being economic and not operational in its derivation, this definition implies, for example, that a film made outside the

studio system with private financing, but subsequently acquired outright by a major studio/distributor after production, is not "independently" produced, but rather is the property of the studio.

There is often joint ownership of a film's copyright by several firms or individuals. Treating every distinct combination of such firms as a different entity yields a count of 80 producers. If one counts only distinct lead producers (often a studio that is coproducing a film with an independent entity) as different entities, then this number falls to 58. This will be referred to hereafter as "narrow producer definitions." In addition, it will prove fruitful to employ "broad producer definitions," in which films are categorized as produced by the parent company of the lead producer. The ultimate corporate parents of the production companies were determined by reference to *Who Owns Whom* and other corporate directories. Counted by these broader definitions, 42 production entities are responsible for the 300 films being studied. The number of production companies responsible for each distributor's films, by each of these definitions, is given in Table 2. Table 2 also shows the number of films produced in-house by each distributor's production companies.[1]

Two variables control for other film characteristics. The Hollywood Reporter assigns each film to one of nine genres; in order of decreasing prevalence they are: comedy, drama, action, family, thriller, romance, horror, animation, and western. In addition, I determined whether each film featured a "major star," where this refers to the 17 highest paid actors (all those whose "asking price" in late 1995 was at least $12 million) according to *Entertainment Weekly* (1996).[2] The cast of each film was determined by reference to the internet database *IMDb:*.

3.3 Characteristics of film pairs

Having gathered the above data on films released in 1995 and 1996 and having paired all

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[1]Only once during this period does a firm with a distribution arm produce a movie but distribute it through another firm: *Mallrats* was produced by Universal but distributed by Gramercy.

[2]These actors were: Jim Carrey, Sean Connery, Kevin Costner, Tom Cruise, Michael Douglas, Clint Eastwood, Harrison Ford, Mel Gibson, Tom Hanks, Demi Moore, Eddie Murphy, Julia Roberts, Arnold Schwarzenegger, Sylvester Stallone, John Travolta, Robin Williams, and Bruce Willis.

possible film combinations within demand windows, I construct a measure of the temporal proximity of two films' release. GAP is the number of weeks between the two releases (*e.g.*, for two films released on consecutive weekends, GAP=1). Two control variables account for the extent of competition between the films, timing issues aside. SG is set equal to one if both films in a pair are classified as the same genre.[3] Since films in the same genre are likely to be in closer competition, the coefficient on SG is expected to be positive when GAP is the dependent variable. SS is set equal to one if both films featured stars as defined above. If blockbusters are spaced further apart to mitigate competition, the SS would be expected to have a positive coefficient when GAP is the dependent variable; however, if big budget films tend to be released on the same peak weekends, then SS would be expected to have a negative coefficient.

For the present purposes, the most interesting aspect of a film pair is the relationship between the companies involved in producing and distributing each film. Dummy variables for the nature of the relationship are labeled according to whether the pair has the same (S) or different (D) distributor (D) and producer (P). Thus, a pair of films that share both a distributor and a production company has a value of 1 for SDSP (same distributor, same producer) and a value of 0 for the other variables: DDDP, DDSP, and SDDP. In the first set of regressions, the broad producer definition is used, so that a pair falls into SDSP or DDSP if the films' lead producers have a common corporate parent. In the second set of regressions, two additional variables, SDSP1 and SDSP2, are used separately. SDSP1 equals one if the films have the same producer according to the narrow definitions of production companies given above, as well as the same distributor. SDSP2 equals one if the films have the same producer according to the wide definition given above, *but not the narrow definition*, as well as the same distributor (thus SDSP = SDSP1 + SDSP2). Table 3 shows the distribution of movie pairs by window, according to the relationships between their distributors and producers, whether they are in the same genre, and whether they both feature stars.

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[3]The models were also estimated using different classification system for genres, in which these categories were pooled to form only four categories: Action/Horror/Thriller/Western, Drama/Romance, Family/Animation, and Comedy. The results were qualitatively similar to those reported here.

4. Empirical Analysis

4.1 Empirical model

I model the GAP between two films as a linear function of SG, SS, dummies for each demand window, and some measure of the relationship between the firms involved with those two films. A positive coefficient on the relationship variable indicates that that relationship leads to less clustering, which is consistent with the joint scheduling of those films, or the mitigation of scheduling competition, or that the vertical structure has come closer to achieving the jointly efficient outcome. Two basic models are presented: one investigates the role of joint distribution and joint production, and one investigates the role of divisionalization. Each model is estimated four different ways: both as OLS and as a two-sided Tobit, for each of the two window definitions. The Tobit models account for the fact that GAP is constrained to be between zero and the maximum number of weeks in that particular window. To account both for heteroskedasticity that might arise from differences in window characteristics and for the correlation of errors induced by the inclusion of films in more than one pair, Huber-White robust standard errors are presented in all cases (White, 1980).[4]

4.2 The effect of joint distribution and joint production

Table 4 presents the basic results on the effect of vertical market structure on scheduling competition. The control variable SG is significant at 5% in all four specifications; the point estimates are positive, indicating that films that are in the same genre are released about two tenths of a week further apart. This is consistent with the expectation that, other things equal, firms try to mitigate the clustering of films with close rivals. The control variable SS is not significant in any specification; its point estimate is relatively stable and negative. This is consistent with the scheduling of blockbuster films near holiday weekends, which would tend to cluster big-budget, star-laden films.

Recall that the fundamental question is whether vertical market structure has an effect on competition, and in particular whether it has any predictive power for the relative closeness of

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[4]Robust standard errors were calculated by Stata's "robust cluster(.)" option, where clustering by demand window permits correlation of the errors within windows but constrains errors to be independent across windows.

two films' release dates. While the full joint control of two films (SDSP=1) should allow the vertical structure to achieve an efficient outcome, other structures may or may not, depending on the severity of the various contracting problems discussed in the introduction. At the other extreme, films with no joint control (DDDP=1) should exhibit maximal clustering since competition is not mitigated, assuming that antitrust laws do in fact preclude horizontal contracts that would implement joint-profit maximizing outcomes. Since the fully jointly controlled category (SDSP=1) proxies in a sense for the efficient outcome, its coefficient can confirm two statements that have thus far been only assertions. First, the claim that efficient outcomes involve less clustering is confirmed by the positive coefficient on SDSP, which is significant at 1% for all four specifications. Second, the assertion that this is important in this industry can be supported by the magnitude of the effect, which ranges from about six tenths of a week in the OLS estimates to about three quarters of a week in the Tobit models, for both window definitions, compared to a mean GAP value of 1.7 for both window definitions.

Now the real question of interest arises: do intermediate vertical structures--structures that are neither purely competitive nor purely bilateral combinations of one upstream and one downstream firm--achieve efficient outcomes, or at least more efficient outcomes than purely competitive structures? Is one common agent enough to achieve efficient outcomes, as in the first Bernheim and Whinston model? The results in Table 4 address this in several ways.

First, consider common distribution. The results suggest that common distribution alone may help achieve efficient outcomes somewhat, since the coefficient on SDDP is positive and sometimes significant. However, common distribution alone does not match the efficiency of outcomes achieved by bilateral structures since SDDP = SDSP can be rejected at 5% in all four specifications. Second, consider joint production. Since DDSP is never significantly different from zero, there is no evidence that common production alone aids in implementing efficient outcomes.

4.3 The effect of divisionalization

Table 5 presents results from slightly different regressions that emphasize the role of divisionalization. These regressions separate the films that are jointly distributed and jointly produced by the *same division* (SDSP1=1) from films that are jointly distributed but jointly

produced by *different divisions* of the same studio (SDSP2=1). In addition, to highlight this distinction and to facilitate the appropriate statistical tests, SDDP is the excluded dummy variable. As before, the control variable SG is positive and significant, and SS is insignificant with a negative point estimate. Both control variables' coefficients have about the same magnitude as in the previous regressions.

Here, the question is not whether a vertical structure with only common distribution or common production achieves efficient outcomes, but rather how one should think of what constitutes common production. The divisionalization literature discussed in the introduction maintains that divisions with a common parent behave like independent firms; in this context that implies the equality of the coefficients on SDSP2 and SDDP; since the latter is the excluded category, this can be tested by simply looking at the significance of the SDSP2 coefficient. If this coefficient were zero, it would imply that vertical structures with joint distribution and joint production only by the broad definition (only because they share a corporate parent) are no more able to achieve efficient outcomes than vertical structures that truly share only common distribution. However, this is rejected at 5% in all four specifications, with point estimates suggesting that common corporate parenthood increases the gap between such films by at least half a week. In addition, the hypothesis that such vertical structures act just like vertical structures that include only a single division (SDSP2 = SDSP1) cannot be rejected, except at 10% in one specification, suggesting that these divisions behave essentially the same as an integrated firm or a single division.

6. Conclusion

This paper describes the influence of vertical market structure on one facet of competition--release date scheduling--in the US motion picture industry. The evidence suggests that when vertical structures internalize competitive externalities across a set of products, they tend to reduce the clustering of their films' releases. However, neither joint production nor joint distribution alone appears to be effective in achieving efficient outcomes for the vertical structure, since such structures' films are more clustered than those that are fully controlled by a single upstream and a single downstream firm. This is consistent with various theoretical papers that

demonstrate that in many circumstances bilateral contracting in multilateral vertical relationships fails to implement the vertical structure's efficient outcome due to numerous and diverse contracting problems (Bernheim and Whinston (1986), O'Brien and Shaffer (1992), McAfee and Schwartz (1994), and Segal (1999)). In addition, multiple divisions of the large studios seem to internalize the externalities across their products, compared to films that are jointly distributed but independently produced. This suggests that they behave more like an integrated firm than independent competing firms, in contrast to the assumption of much of the divisionalization literature (Schwartz and Thompson (1986) and Baye, Crocker, and Ju (1996)).

One can imagine a number of alternative explanations for the observation of reduced clustering among sets of films. One is capacity constraints. If a distributor can only effectively schedule, distribute, and promote a certain number of films at a time, then jointly distributed films would tend to be less clustered due simply to these cost considerations, not due to the mitigation of competitive externalities. However, given the full set of findings, this seems unlikely since such capacity constraints should affect all jointly distributed films, not just those that are both jointly distributed and jointly produced, which is where the effect is empirically most pronounced. In addition, such considerations seem more likely to affect broader scheduling considerations--how many films to release *this summer*, for example, rather than how many to release *this weekend*.

A second alternative explanation is unobserved correlation in film characteristics. If a particular distributor tends to distribute similar types of films, then that distributor's films would tend to be less clustered, aside from any concerns about competitive externalities, just as observably similar films (in the same genre) were shown to be less clustered. This explanation, however, begs the question of why a studio's independent production companies' film are less clustered than other jointly distributed films, when those production companies are typically set up precisely in order to increase the breadth of films produced in-house. While both of these explanations are difficult to refute, given data limitations, neither seems likely to explain these results fully.

Many questions remain unanswered; further work is needed both to integrate the various strategic models of vertical market structure discussed here and to further develop an

understanding of this particular industry. Economic research on the motion picture industry is generally limited to the analysis of demand (DeVany and Walls, 1996) and the analysis of contracts with stars (Chisholm, 1997), leaving substantial questions about competition and contracting between firms in this industry.

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Table 1: Weekly total box office revenue by window ($ millions)

Window Definition #1

		Presidents' Day	Easter	Memorial Day	4th of July	Mid-summer	Labor Day	Fall1	Fall2	Thanks-giving	Christmas New Year
1995	mean	60.2	53.5	81.6	95.4	72.5	50.0	48.0	57.2	95.3	74.5
	std. dev.	4.8	7.2	30.1	18.5	7.6	9.8	1.5	9.2	12.8	16.5
1996	mean	46.5	46.6	71.0	91.8	81.3	51.2	51.0	55.0	83.8	75.8
	std. dev.	10.5	4.5	26.0	10.0	3.3	13.5	6.1	10.2	23.4	27.1

Window Definition #2

		Presidents' Day	Easter	Memorial Day	4th of July	Mid-summer	Labor Day	Fall1	Fall2	Thanks-giving	Christmas New Year
1995	mean	60.2	53.2	81.1	98.7	72.5	52.8			82.9	76.6
	std. dev.	4.8	3.5	26.1	18.7	7.6	10.6			20.3	18.5
1996	mean	46.5	49.4	71.5	95.4	81.3	56.6			74.9	79.0
	std. dev.	10.5	4.2	22.5	5.2	3.3	16.7			22.2	32.0

Table 2: Films by Distributor

Distributor	# of films	# of films in-house	# of producers (1)	(2)	(3)
Buena Vista	50	39	15	10	6
Sony	48	32	9	9	8
Warner Brothers	35	21	13	7	6
Universal	31	31	4	1	1
Paramount	30	28	7	5	3
MGM	26	19	9	7	7
New Line	25	23	6	5	4
Fox	23	20	4	4	4
Miramax	15	9	8	7	7
Gramercy	7	2	3	3	3
Savoy	7	2	4	4	4
Orion	2	1	2	2	2
Goldwyn	1	1	1	1	1

an in-house film is defined here as one for which the lead producer's parent company is also the parent company of the distributor

definitions of distinct producers:
(1) number of distinct combinations of production companies
(2) number of distinct lead producers
(3) number of parent companies of lead producers

Table 3: Films by window

Window definition #1

						# SP				Gap	
	Window	**# weeks**	**# films**	**# pairs**	**# SD**	**narrow**	**broad**	**# SG**	**# SS**	**Mean**	**Std dev**
1995	President's Day	5	14	91	10	3	5	13	0	1.82	1.25
	Easter	9	25	300	22	12	19	42	0	2.81	1.92
	Memorial Day	4	13	78	3	0	3	13	6	1.28	0.94
	Independence Day	6	11	55	4	2	3	7	10	1.93	1.36
	Midsummer	5	14	91	8	3	5	14	1	1.52	1.05
	Labor Day	4	14	91	6	2	5	10	0	1.41	1.01
	Fall 1	3	11	55	2	0	2	10	0	0.84	0.66
	Fall 2	5	15	105	7	4	4	21	10	1.43	1.01
	Thanksgiving	3	9	36	2	1	1	2	3	0.89	0.67
	Christmas/New Year's	8	24	276	23	6	16	48	1	2.50	1.81
1996	President's Day	5	15	105	14	2	9	28	3	1.58	1.11
	Easter	9	32	496	41	23	48	90	0	3.14	2.18
	Memorial Day	4	8	28	2	2	2	7	1	1.32	0.90
	Independence Day	6	11	55	6	2	5	10	21	2.15	1.39
	Midsummer	5	18	153	14	4	10	31	1	1.82	1.32
	Labor Day	4	15	105	12	4	16	20	0	1.37	0.97
	Fall 1	3	7	21	0	0	1	2	1	1.05	0.74
	Fall 2	5	16	120	11	3	9	33	1	1.52	1.08
	Thanksgiving	3	5	10	0	0	0	1	0	1.00	0.67
	Christmas/New Year's	8	23	253	22	6	19	42	6	2.77	1.92
Total		104	300	2524	209	79	182	444	65		

Window definition #2

						# SP				Gap	
	Window	**# weeks**	**# films**	**# pairs**	**# SD**	**narrow**	**broad**	**# SG**	**# SS**	**Mean**	**Std dev**
1995	President's Day	5	14	91	10	3	5	13	0	1.82	1.25
	Easter	5	16	120	10	3	7	14	0	1.75	1.20
	Memorial Day	5	14	91	4	0	3	16	6	1.47	1.07
	Independence Day	5	10	45	3	1	2	4	10	1.58	1.10
	Midsummer	5	14	91	8	3	5	14	1	1.52	1.05
	Labor Day	5	16	120	11	3	8	15	0	1.67	1.17
	Thanksgiving	5	11	55	4	1	2	5	6	1.31	0.94
	Christmas	5	18	153	11	4	6	28	1	1.81	1.42
1996	President's Day	5	15	105	14	2	9	28	3	1.58	1.11
	Easter	5	17	136	7	4	10	31	0	1.62	1.12
	Memorial Day	5	10	45	5	5	5	16	3	1.58	1.06
	Independence Day	5	12	66	6	2	3	10	10	1.82	1.25
	Midsummer	5	18	153	14	4	10	31	1	1.82	1.32
	Labor Day	5	20	190	24	6	24	34	0	1.76	1.24
	Thanksgiving	5	10	45	3	2	3	8	3	1.91	1.28
	Christmas	5	15	105	9	1	9	17	1	1.87	1.34
Total		80	230	1611	143	44	111	284	45		

Table 4: The effect of joint control

	WINDOW DEFN #1		WINDOW DEFN #2	
Dep var = gap	OLS	TOBIT	OLS	TOBIT
ddsp	0.2469	0.3337	0.0089	0.0507
	0.1588	0.2353	0.1305	0.1542
sddp	0.1362	0.2996 *	0.2048	0.3022 #
	0.1540	0.1451	0.1185	0.1577
sdsp	0.5981 **	0.7359 **	0.5819 **	0.7750 **
	0.0653	0.1044	0.1016	0.1427
sg	0.2122 **	0.2556 **	0.1801 *	0.2510 *
	0.0628	0.0826	0.0787	0.0987
ss	-0.1517	-0.0875	-0.2296	-0.2259
	0.2368	0.3073	0.2306	0.2836
Number of obs	2524	2524	1611	1611
Window dummies	Yes	Yes	Yes	Yes
Robust standard errors below coefficient estimates				
Tests of joint significance				
F	23.33		11.94	
Prob>F	0.0000		0.0001	
Wald chi2		351.75		60.18
Prob>chi2		0.0000		0.0000
Tests of sddp=sdsp				
F	7.06		5.92	
Pr>F	0.0156		0.0279	
Chi2		5.15		5.22
Pr>chi2		0.0233		0.0223

Significance levels
** = 1%
* = 5%
# = 10%

Table 5: The effect of divisionalization

	WINDOW DEFN #1		WINDOW DEFN #2	
Dep var = gap	OLS	TOBIT	OLS	TOBIT
dddp	-0.1362	-0.2996 *	-0.2056	-0.3032 #
	0.1541	0.1451	0.1187	0.1579
ddsp	0.1108	0.0343	-0.1950	-0.2501
	0.2022	0.2789	0.1766	0.2139
sdsp1	0.3565	0.3761	0.1908	0.2053
	0.2549	0.2828	0.2147	0.2823
sdsp2	0.6040 **	0.5154 *	0.6093 **	0.8174 **
	0.2048	0.2237	0.1789	0.2525
sg	0.2118 **	0.2556 **	0.1781 *	0.2481 *
	0.0621	0.0821	0.0796	0.1003
ss	-0.1615	-0.0933	-0.2420	-0.2449
	0.2433	0.3137	0.2356	0.2911
Number of obs	2524	2524	1611	1611
Window dummies	Yes	Yes	Yes	Yes

Robust standard errors below coefficient estimates

Tests of joint significance				
F	9.40		13.96	
Prob>F	0.0001		0.0000	
Wald chi2		355.01		79.28
Prob>chi2		0.0000		0.0000
Tests of sdsp1=sdsp2				
F	0.61		2.63	
Pr>F	0.4426		0.1256	
Chi2		0.16		3.04
Pr>chi2		0.6895		0.0813

Significance levels
** = 1%
* = 5%
# = 10%