

VERTICAL INTEGRATION DURING THE HOLLYWOOD STUDIO ERA: A TRANSACTION COSTS EXPLANATION

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ABSTRACT: The Hollywood “studio system” – with production, distribution, and exhibition vertically integrated – flourished from the late teens until 1948, when the U.S. Supreme Court issued its famous *Paramount* decision. The *Paramount* consent decrees required the divestiture of affiliated theater chains and the abandonment of a number of vertical practices. Although many of the vertical practices have since been posited to have enhanced efficiency, an efficiency-enhancing rationale for ownership of theater chains has not been developed. This paper explores a transaction costs hypothesis: the vertical integration of production/distribution with exhibition allowed more efficient adjustments in the length of film runs. Post-contractual run length adjustments were desirable, because demand for a given film is not revealed until the film is actually exhibited. To test the hypothesis, the paper employs a unique data set of cinema booking sheets. It finds that run lengths for releases by vertically integrated (into exhibition) film producers were significantly – economically and statistically – more likely to be altered ex post. The paper also discusses additional contractual practices intended to promote flexibility in run lengths, some of which were instituted following the *Paramount* divestitures.

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I. INTRODUCTION

Arguably, no U.S. antitrust action of the post-War period has had as profound an effect on an industry as the *Paramount* case, which brought the famous Hollywood studio era to an end.¹ The *Paramount* consent decrees, following more than twenty-five years of near-continuous litigation, altered fundamentally the structure of the relationship between producer/distributors and exhibitors. Under the terms of the decrees, contractual practices such as block-booking were banned; the system of runs, clearance periods, and zoning under which films were distributed was outlawed; and the divestiture of producer-owned cinemas was mandated. The scope of the decision was remarkable – in recent years, only the AT&T break-up comes close.

The passage of time has not been kind to the economic arguments underlying the *Paramount* decision.² Kenney and Klein (1983) and Hanssen (2000) provide efficiency rationales for block-booking. De Vany and Eckert (1991) and Orbach and Einav (forthcoming) discuss how minimum ticket prices reduced monitoring costs. De Vany and Eckert (1991, 76)

¹*U.S. v. Paramount Pictures, Inc.*, 66 F. Supp. 323 (S.D.N.Y. 1946); modified on rehearing, 70 F. Supp 53 (S.D.N.Y. 1947); *U.S. v. Paramount Pictures, Inc.*, 334 U.S. 131 (1948); remanded, 85 F. Supp. 881 (S.D.N.Y. 1949).

²The Court asserted that (first-run) exhibition was “foreclosed” in order to maintain a monopoly on movie production, and that the monopoly on movie production enabled the defendants to foreclose exhibition. (The circularity of the argument was not noted.) “Naive foreclosure” theory of this type was effectively demolished by Chicago school scholars of the late 1950s onwards. Although more recent models provide a stronger theoretical foundation for the claim of foreclosure through vertical integration (see, e.g., Salinger 1988, Ordovery, Saloner, and Salop 1990, Riordan 1998), most do not appear to fit the facts of the motion picture industry very well. Furthermore, many non-affiliated producers and exhibitors were clearly *not* foreclosed during the Hollywood studio era – independent producers like David O. Selznick flourished, and non-integrated Columbia, Universal, and United Artists evidently had no trouble booking their films into Big Five cinemas. In addition, more than one-quarter of first-run theaters were independents.

argue that the system of runs, clearances, and zoning served to provide low-cost access to large numbers of film goers.³

The one banned practice that has yet to be satisfactorily explained is Hollywood's vertical integration of exhibition with production/distribution. Although the Justice Department's assertion that integration was intended to foreclose the market (thus preventing independent producers and exhibitors from entering) appears naive today, no better alternative has arisen.⁴ Indeed, it is not immediately apparent what (if anything) film companies gained by owning both production and exhibition facilities. Cinema ownership was certainly not a prerequisite for success in production – there were a large number of cinema-less film producers (albeit somewhat smaller in size), including three of the *Paramount* defendants. Similarly, many independent cinemas flourished, and in fact accounted for the majority of attendance revenue. Furthermore, because most affiliated cinemas were as likely to show films by rival film-makers as by the affiliated studio, avoiding double marginalization does not appear to have been a key issue. And although direct ownership of certain large urban cinemas might conceivably be understood as a response to concerns about risk-sharing, information-gathering, or free-riding problems, large urban cinemas comprised only a tiny minority of the exhibition outlets owned by the *Paramount* defendants.

³In addition, De Vany and Eckert argue that various other practices described by the Supreme Court as “devices for stifling competition and diverting the cream of the business to the large operators” (e.g., “formula deals,” whereby film rents were set as a percentage of national gross; “master agreements,” which licensed whole circuits simultaneously; and “moreover clauses,” which allowed circuits to move films across cinemas) served to reduce transaction costs.

⁴Though see Raskovich (2003).

In this paper, I use a unique data set to explore a transaction cost-based explanation for the vertical integration of exhibition with production/distribution. I propose that cinema-ownership promoted revenue-enhancing but difficult-to-contract-for adjustments in the length of film runs, by allowing film producers – through their affiliated cinemas – to capture part of the surplus generated by the replacement of films revealed ex post (i.e., upon exhibition) to be less popular than expected.⁵ To test the hypothesis, I examine a set of cinema booking sheets from the 1937-8 film season.⁶ Consistent with the hypothesis, I find that abbreviated run lengths were roughly 10 percent more likely for films released by companies that owned theater chains. The results are robust to alternative specifications, and hold for films of different types.⁷ I also identify and discuss additional contractual features that served to promote ex post flexibility in run lengths, and briefly explore new contractual terms that emerged in the aftermath of the *Paramount*-mandated divestitures.

This paper is part of a large literature on “relational” or “implicit” contracts – arrangements undergirded not by the threat of third-party enforcement (by a court, for example),

⁵Ex post adjustments could generate potentially large gains, because demand is highly unpredictable until a film actually begins its run (see, e.g., De Vany and Walls 1996). See Section III for a more complete discussion.

⁶The film booking season typically ran from September 1 of one year to August 31 of the following year. See *United States v. Paramount et al*, Petition, Equity No. 87-823 (1938), p 55.

⁷These results are similar to Gil (2007), which finds that vertically-integrated exhibitors in Spain (i.e., Spanish exhibitors with ownership links to Spanish movie distributors) show films for which contracts are more likely to be renegotiated. See also Filson (2005), who develops a model that predicts that ownership of exhibition outlets by a vertically integrated producer allows better coordination of film runs.

but by reputation, the prospect of repeat dealings, or self-enforcing penalties.⁸ As many researchers have noted, important aspects of business relationships (both inside and outside the firm) are conducted without formal contracts. Baker, Gibbons, and Murphy (2002, 40) write,

a formal contract must be specified ex ante in terms that can be verified ex post by the third party [enforcer], whereas a relational contract can be based on outcomes that are observed by only the contracting parties ex post, and also on outcomes that are prohibitively costly to specify ex ante. A relational contract thus allows the parties to utilize their detailed knowledge of their specific situation and to adapt to new information as it becomes available.

My hypothesis is that during the Hollywood studio era, cinema ownership helped enforce a relational/implicit/informal contract that allowed ex post adjustment in run lengths of ex ante unpredictable films.

The findings presented in this paper have implications not only for understanding the *Paramount* case (as important as this may be, given that the *Paramount* consent decrees are still in effect), but for theories of foreclosure more generally. The parallels between the vertically integrated motion picture companies and today's cable television providers are clear – both produce(d) “content” – movies and cable programs/networks – and own(ed) exhibition facilities. A number of commentators have suggested that if allowed to produce programming, cable television companies will favor their own productions over those of independent rivals.⁹ In this paper, I provide evidence that cinema-owning motion picture companies did *not* favor their own productions – producer owned-cinemas exhibited substantially more films by rival studios than

⁸See, e.g., Bull (1987), Klein (1996), Klein and Leffler (1981), Telser (1981), and Williamson (1975, 1985). There is also a large sociology/organizational behavior literature; see, e.g., Simon (1951) on employment relationships.

⁹See, e.g., Waterman and Weis (1996), Chipty (2001). Similar arguments were applied to network television in past decades; see the discussion in Crandall (1975).

by affiliated studios. Moreover, I propose that any favoritism would have defeated the very purpose of the vertical integration.

II. THE MOTION PICTURE INDUSTRY AT THE TIME OF *PARAMOUNT*

The motion picture industry encompasses three vertically-linked activities: production (using actors, sets, and film), distribution (passing motion picture prints from producer to exhibitor, and from exhibitor to exhibitor), and exhibition (showing motion picture prints to the final consumer). In any given year, hundreds of movies of various genres, costs, and ex ante unobservable levels of popularity are produced, distributed to local theaters, and exhibited.¹⁰

At the time of the *Paramount* decrees, there were five fully integrated (production-distribution-exhibition) and three partly integrated (production-distribution) *Paramount* defendants. The fully integrated defendants – known as the “Big Five” – were Twentieth Century-Fox, Loew’s-MGM, Paramount, RKO, and Warner Brothers. The partly integrated defendants – known as the “Little Three” – were Columbia, Universal and United Artists.¹¹ In

¹⁰Cassady (1958, 152) writes, “The major problem of motion picture distribution is to so deploy the several hundred [expensive] prints of a film that maximum revenue will result from the process.” De Vany and Eckert (1991, 77) note that in 1945, a black-and-white film print cost \$150-300, and a colored print \$600-800, to manufacture. The average number of prints per film was 300, and each print had about 100 bookings, the average of which returned rentals less than print costs. (As a point of comparison, the average run in the sample I analyze in this paper generated \$360, and that was during first-runs.)

¹¹All eight defendants engaged in distribution, and all but United Artists engaged in production (UA financed and distributed the films of a small number of affiliated producers). The eight defendants accounted for 71 percent of total feature films released between 1937 and 1946, and almost all the ‘A’ pictures (see Conant 1960, 45). There were also a large number of smaller production companies who were not defendants in the case – the *1946 Film Daily Yearbook* lists releases by 29 separate production companies. Most of these companies (Monogram and Republic were two of the largest), tended to eschew A films completely and

the 1940s, Big Five-owned cinemas accounted for about 15 percent of all cinemas in the U.S., and for about 70 percent of first-run cinemas (cinemas that received films for exhibition first).¹² Big Five cinemas were the source of nearly half of all film rental revenues.¹³

Broadly speaking, the Big Five owned two different types of cinemas: “movie palaces” and “ordinary cinemas.” The movie palaces (sometimes referred to as “metro-deluxe” theaters) were the most famous, their distinguishing characteristics being size, opulence, and – very importantly – the fact they exhibited *only* the films of the affiliated studio (typically in a “pre-

devote themselves entirely to serials (such as the *Lone Ranger* films) and B-pictures. There were 64 film distributors in existence as of 1944 (and 77 in 1946), but only eleven engaged in nationwide distribution (the eight *Paramount* defendants plus low-budget film makers Monogram, Republic, and PRC).

¹²The Big Five also owned subsequent-run theaters; see Conant (1960) citing *Paramount* case material, for a discussion and details. First-run theaters exhibited films first upon release, and were located in prime downtown areas. Second and third-run theaters tended to be somewhat smaller, and were located in less central, areas. Fourth and fifth (and subsequent) run theaters were smaller still, and found mostly in residential neighborhoods. A large city (like Chicago) might have a dozen runs. Theaters within each run designation enjoyed a contractually-set period of time that had to pass before a film could be sent to a lower-run theater – the “clearance.” Second-run theaters, for instance, usually had to wait for three weeks beyond the end of the first-run to exhibit a film. Finally, runs and clearances operated within a specified geographic “zone,” over which the exhibitor was given exclusive privilege. This was the system of “runs, clearances, and zoning” that was banned under the *Paramount* decrees. Zoning eventually became quite complex, and even gave theaters in certain cities prior rights over those in other cities. See, e.g., Huettig (1944, 125-7) for more detail).

¹³See Appendix to the Brief for the United States of America, Section B, *The United States v. Paramount Pictures, Inc., et al.*, October 1947. Cinemas owned by the Big Five were especially important in major urban areas, accounting for 70 percent of rental revenues in New York, 75 percent in Philadelphia, and 75 percent in Atlanta (Huettig 1944, 78-9). The larger the city, the smaller the proportion of revenue earned during the first-run (because the greater the number of subsequent runs). For example, in New York and Philadelphia (numbers 1 and 3 in 1940 population rank), the first-run accounted for 20 percent and 30 percent of rental revenues, respectively, while in Atlanta (number 28 in 1940 population rank), the first-run accounted for 80 percent of rental revenues (see Huettig 1944, 78-9).

release” mode that preceded the official first-run).¹⁴ Palace screenings could last for weeks, were tracked nationwide by industry publications (the weekly trade paper *Variety* devoted several pages to them in each issue), and served to influence success in the runs that followed (both by inspiring audiences to see the film, and by inspiring exhibitors to show the film in the first place).

Yet, as can be seen in Table 1, movie palaces made up but a small minority of the cinemas owned by the *Paramount* defendants – about 5 percent in terms of numbers (two-to-three times that in terms of revenue generated).¹⁵ Most Big Five cinemas were “ordinary,” in the sense of not differing from the independent cinemas with which they competed (in terms of size, appearance, or booking practices). “Ordinary” Big Five cinemas were set in unglamorous locales, such as Hickory, North Carolina (the Paramount-owned Center Theater), or Florence, Colorado (Fox’s Liberty Theater), or Appleton, Wisconsin (Warner Brother’s Appleton Theater).

Most germane to this analysis, these ordinary cinemas, unlike the palaces, exhibited films produced by rival film companies, typically renting from all of the major producers. This can be seen in Table 2, which shows total days of first-run exhibition by producer for twenty-three

¹⁴The original complaint by the Department of Justice did not focus on first-run cinemas per se (although first-run cinemas were central in final decision) but rather on ownership of “metropolitan deluxe theaters” which was alleged to allow the defendants to “promote and control the value of pictures to subsequent-run theaters.” Balio (1976, 47) writes, “after the movie palaces were built, it meant playing a picture before general release in a first-class theater on an extended basis and at top admissions prices, usually about two dollars.” An example of an erstwhile movie palace is the Paramount Theater, which was located at the base of the Paramount Building in Times Square and seated 3600. (For a description of the Paramount Theater, see [http://en.wikipedia.org/wiki/Paramount_Theater_\(New_York_City\)](http://en.wikipedia.org/wiki/Paramount_Theater_(New_York_City)).) As of the late 1930s, the average cinema in the U.S. seated 579, and only 0.7 percent of all cinemas seated more than 3000 (and 7 percent seated more than 1500). See the *1938-39 International Motion Picture Handbook*, pp 930-1.

¹⁵The exceptionally large number of Paramount cinemas is partly explained by the fact that Paramount commonly took partial stakes.

Warner Brothers-owned cinemas for the 1937-38 season.¹⁶ Despite the Warner Brothers' ownership, Warner Brothers' releases accounted for only 16 percent of film showing days, the same as for Paramount and Fox, and less than for MGM, which accounted for 18 percent of total film showing days.¹⁷

The hypothesis I test in this paper – that cinema ownership supported post-contractual adjustments in film run lengths – applies solely to these “ordinary” cinemas. Because a movie palace exhibited only the films of its affiliated studio, the costs and benefits of adjusting film runs ex post were fully internalized. This was not the case with the ordinary cinemas – when an ordinary cinema terminated the run of one producer's film, it (generally) replaced it with a film from a rival producer (as will be documented in Section IV). This created a problem which – I propose – cinema ownership helped resolve.

III. THE PROBLEM

The salient contracting problem in motion picture distribution is the need to promote two desirable yet conflicting objectives, commitment and flexibility. The schedule (including number of prints to be made, number of screens to be booked, length of bookings, and so forth) must be established before a film can be exhibited, but until the film is exhibited, demand for the

¹⁶I describe this sample in detail in Section IV.

¹⁷See also *U.S. v. Paramount Pictures, Inc.*, 334 U.S. 131 (October 1947), “Appendix to Brief for the United States of America,” pp. 61-88, which discusses the terms under which each of the affiliated cinemas showed each of their rival's films (the terms were mostly the same across company).

film (and thus how many prints are needed, screens should be booked, etc.) is highly uncertain.¹⁸ As a result, it may be desirable to renegotiate the length of a film's run ex post; i.e., after demand for the film has been revealed. In a world of perfect information and zero transaction costs, the particular form the renegotiation takes is unimportant – surplus will be maximized. But in the real world of uncertainty, costly monitoring, and costly transacting, the form matters greatly.

Consider the following simple scenario. Producer A has two films available for exhibition, with production costs sunk. Either of the films may be “unpopular” (make only a little money) or “popular” (make lots of money), but ex ante, no one knows for sure. There is also an exhibitor with one screen.¹⁹ Assume Producer A and the exhibitor have contracted to show the first film for two weeks. At the end of the first week, it is apparent that the film is “unpopular.” Producer A is willing to substitute the (potentially more popular) second film for the first film – expected total surplus will increase; hence ex post adjustments can be in both parties' interests. Now suppose instead that A's film will be replaced by a film from a rival producer, Producer B. Ex post adjustments are no longer in A's interest, *unless* A is compensated. Of course, because the substitution of B's film for A's increases surplus, compensation is feasible – A and B can reach a mutually beneficial agreement. But what form should the agreement take?

¹⁸For a discussion of the problem, see De Vany and Walls (1996). De Vany and Eckert (1991) posit that a number of allegedly anticompetitive vertical practices were intended to help resolve this problem.

¹⁹In this simple scenario, it is not necessary to discuss whether these firms are price takers or instead have market power. As providers of differentiated goods, producers and exhibitors presumably faced downward sloping demand curves.

The question of form is essential, because the motion picture industry is characterized not only by the pervasive ex ante uncertainty that makes ex post renegotiation of run lengths desirable, but by information asymmetries between producers and exhibitors that complicate attempts at ex post renegotiation. For example, exhibitors have better knowledge of local demand conditions, not least because it is costly for a producer to determine whether cinemas are reporting revenues honestly (furthermore, difficult-to-monitor exhibitor inputs such as advertising and a clean theater affect local demand). On the producer's side, certain inputs to film performance (national advertising, film budget) may be difficult for exhibitors to observe, ex ante or ex post (because so many unidentifiable factors contribute to a film's performance). If under the contract the cinema pays too little to switch films ex post (for example), it may switch too often – expected revenue to the exhibitor may increase with switching, but not by enough to cover switching costs (transport of prints, diversion of prints from elsewhere). Yet if the cinema pays the full cost of ex post switching (or more), the producer's ex ante incentive to invest in complementary inputs may be reduced.

Klein and Leffler (1981) point out that such problems are especially difficult to resolve when demand is uncertain ex ante – the bargaining threat points of the parties may move outside the easily “self-enforcing” range. In this context, vertical integration can help support a self-enforcing arrangement.²⁰ Consider A's integration into exhibition. First, the share of attendance revenue captured by A's theater provides A with additional incentive to let the poorly performing runs of its films be abbreviated – when B's more popular film replaces A's, the rental revenue of “A the producer” diminishes, but the attendance revenue of “A the exhibitor” rises. In other

²⁰See, Baker, Gibbons and Murphy (2002) for a formal analysis.

words, cinema ownership functions as de facto side payments, allowing vertically integrated producers to share in the surplus generated by the replacement of their unpopular films.²¹ Second, cinema ownership reduces (or eliminates) the information asymmetries between producers and exhibitors that can lead to inefficiently too many or too few replacements. Third, if B integrates, as well, the showing of B's film in A's cinema (to replace A's unpopular film) could be made contingent on allowing A's unpopular film to be replaced in other cinemas (I will expand on this last point in Section D below).

Did cinema ownership support the ex post renegotiation of film runs? The question is ultimately empirical – is there a relationship between run renegotiation and vertical integration? I turn now to the empirical analysis.

IV. THE EVIDENCE

To investigate the relationship between integration and renegotiation, I employ a unique sample of booking sheets from twenty-three Warner Brothers-owned cinemas in the state of Wisconsin.²² What makes this data set unique – and allows my test – is that the sheets provide information on the *length of runs contracted for*, as well as on the number of days actually played (for several hundred films exhibited in nearly 2000 first-run screenings). Obtaining information

²¹Similarly, De Vany and Eckert (1991) propose that a major advantage to vertical integration was that the fully integrated firms were able to manage release dates and run lengths so as to maximize joint surplus.

²²The source is the Warner Brothers Archives at the University of Southern California Film School.

on how long a film was *originally booked to play* is extremely difficult (I have found no other sources).²³ As a result, I am able to conduct a test that would not be possible otherwise.²⁴

At the same time, it is important to note the data set's limitations. First, it encompasses only cinemas owned by Warner Brothers. That said, as far as can be determined, Warner Brothers was no different than any other film company (vertically integrated or independent) when it came to the management of its cinemas, and the types of exhibition contracts its cinemas signed with distributors.²⁵ For example, the appendix to the brief in the *Paramount* case lists the "Master Agreement" (i.e., the terms in and above those of the Standard Form Exhibition Contract) for each and every *Paramount* defendant producer with each and every *Paramount* defendant exhibition chain. The terms employed with Warner Brothers cinemas are essentially identical to the terms employed with Fox, Paramount, Loew's and RKO cinemas.²⁶ A second, more minor limitation of the data set is the relatively small number of cinemas in the sample –

²³By contrast, determining the number of days a film *actually played* at any given cinema is relatively unproblematic (although potentially time-consuming) – cinemas have long advertised film showings in newspapers.

²⁴Gil (2007) conducts an analysis of present-day screenings in Spanish cinemas, and determines booking lengths by interviewing company employees.

²⁵For example, Warner Brothers' executives, like executives from all the *Paramount* defendants, testified that they negotiated with their own cinema circuits as if the circuits were "strangers," and that many circuit officials, including theater managers, received salaries based upon a percentage of the given theater's profits (Conant 1960, 72). Consistently, RKO's theater managers had the right to refuse to accept any RKO film that it considered "unsuitable" for local audiences (Lewis 1933, 110).

²⁶Furthermore, each agreement "covers all theaters owned or controlled by Warner Bros Pictures." See *U.S. v. Paramount Pictures, Inc.*, 334 U.S. 131 (October 1947), "Appendix to Brief for the United States of America," pp. 61-88. MGM, Fox, and RKO add the additional stipulation that the agreement covers only first run exhibition unless otherwise noted. In any case, I investigate first run showings only.

more cinemas would presumably provide more information. However, the most relevant variation resides the cross-section of film companies – specifically, whether a given producer/distributor owns cinemas or not – and the composition of that cross-section is invariant to the number of cinemas or films in the sample (and over the time period, as well).²⁷ I will discuss below what this implies for the estimation.

The sample consist of all films booked and screened by this group of cinemas during the 1937-8 film season. The 23 theaters collectively held 1950 screenings of 347 different films, with screenings lasting from one to ten days.²⁸ The fact that the average sample screening lasted 3.4 days provides further evidence that the sample is not atypical – the average screening in *all* U.S. cinemas at about that time lasted 2.25 days.²⁹ Each screening is an observation, so I have 1950 observations.

There are several features of the booking process worth noting. The first can be observed in Table 3. The vast majority of screenings – 1556 out of 1950 – involved films that were booked for a range of days (one-to-three days, two-to-four days), rather than for a fixed number of days. Booking films for a range of days was a logical response to ex ante uncertainty about

²⁷All of the Big Five integrated between the late teens and the late 1920s. One of the Little Three – Universal – disintegrated (sold of its theater chain) after declaring bankruptcy in the early 1930s.

²⁸The film total includes second features when double features were shown, which was most of the time (in these cinemas and everywhere, the double feature was the norm). Thus, most of the screenings in the sample involved two films, although the same two films did not always run concurrently (e.g., the run of one-half of the double feature might expire or be replaced before the other).

²⁹Because my sample consists only of first-run screenings, it is to be expected that its average run would be longer than the average for all cinemas. The figure for all cinemas is taken from *The 1940 Film Daily Year Book of Motion Pictures* (cited in De Vany and Eckert 1991, 77).

quality – cinemas were thus contractually permitted to adjust run lengths (to a degree) after observing film performance. Table 3 also illustrates a second notable feature of the booking process: each cinema booked films for many different periods of time (anywhere from one to seven days and everything in between). The average cinema in the sample booked films for 4.4 different time periods (6.8 when weighted by number of screenings). It appears that (not surprisingly) cinemas booked films expected ex ante to perform better for longer runs – the more stars a film featured and the longer its running time (a proxy for budget), the longer the booked run.³⁰ In other words, cinemas did not simply follow a mechanistic change policy (e.g., one film per week for cinemas that changed films weekly), but attempted to set run length in accord with ex ante expectations about film quality.

Yet foresight being imperfect and despite the contractually permitted ranges, there would have been times when replacing a film before the contract permitted would have increased attendance revenues. And indeed, as Table 4 shows, early terminations were relatively common – 13 percent of screenings were ended before the minimum period specified in the contract.³¹

What happened when a film’s run was terminated before the minimum time specified in contract? There are several possibilities. First, prematurely terminated films may have been

³⁰In order to determine the relationship between running time and booked run, I examined three frequently-employed contract lengths – 2-4 days, 3-4 days, and 4 days – in the subset of cinemas that booked at least ten runs of each of these lengths. Films booked for 4 days were 91 minutes long on average, versus 79 minutes for films booked for 3-4 days, versus 71 minutes long for films booked for 2-4 days. Only 20 percent of the shorter films starred a contract player (i.e., an actor under long-term contract with the studio – a status give mostly to A-stars), while nearly all the 4-day films starred at least one contract player.

³¹In addition, 18 percent played for longer than the contract, but this was unlikely to have been objectionable to the film’s producer.

replaced by other (presumptively more successful) films released by the same producer, so that the costs and benefits of replacement were fully internalized (as was the case with the movie palaces). The data shown in Table 5 rule out this first possibility. The highlighted diagonal indicates the proportion of early terminations of a given producer's films followed by replacement by a film from the same producer. As can be seen, replacement by a film from a *different* studio was much more common. Given there are eight producers (and ignoring the fact that somewhat different numbers of films were booked from different producers), pure random chance would indicate that 12.5 percent of the time, a terminated film will be followed by a film from the same producer. The average in the sample is 15 percent, falling to 13 percent when weighted by number of terminations. Terminated films were *not* more likely to be replaced by films from the same producers than from other producers.

Alternatively, perhaps the cinema replacing the film before its contractually-specified period merely paid the penalty specified in the Standard Form Exhibition Contract – 65 percent of the rentals earned on the last day of showing before termination.³² Simple calculations suggest that, for this sample of cinemas, at least, this would not have been good strategy – early termination increased gross attendance revenues by 24 percent on average, but with the penalty

³²See any issue of the *Film Daily Yearbook* during the 1930s for a copy of the Standard Form Exhibition Contract. I cannot observe the contracts producers used with these particular cinemas (I have only the booking sheets), but the Standard Form Exhibition Contract was widely employed, and formed the basis for exhibition contracts used by these producers elsewhere (see *U.S. v. Paramount Pictures, Inc.*, 334 U.S. 131, “Appendix to Brief for the United States of America,” pp. 61-88.) I have obtained copies of exhibition contracts employed by Warner Brothers and RKO when booking films in other cinemas – they correspond closely to the standard form contract.

subtracted, had a *negative* expected value for the cinema.³³ The fact that attendance revenue increased on average post-termination is reassuring (suggesting the replacements may have been efficient) but the relatively large number of early terminations – 257 out of 1950 screenings – is difficult to reconcile with a negative expected value for the cinema. This suggests that the early termination penalty was not widely enforced. I will return to this possibility in Section D below.

Finally, there is the hypothesis I explore here – cinema-owning film companies did not penalize early termination because cinema ownership allowed them to capture some of the gains resulting from the replacement of a less popular film by a more popular film. If this hypothesis is correct, early terminations – call them “abbreviations” – should be more common for the films of the cinema-owning Big Five than for the films of the cinema-less Little Three.

A. Direct Tests

I start with a simple examination of mean values. As can be seen in Table 5, 16 percent of the screenings of Big Five films were taken off the screen earlier than specified in the contract, versus only 6 percent of the films of the Little Three. Furthermore, Warner Brothers films do not appear to have been treated differently than those of other producers, despite the Warner Brothers’ ownership of the cinemas.

To test more systematically, I will start with a probit analysis. My model is:

³³I analyzed the sub-set of films that were booked for the two-to-three day range (i.e., the exhibitor can send it back after two days or to keep it for a third) and canceled after the first day (so that I can observe how the film performed in its last screening; i.e., the first day) with the films that replaced them. I found that about two-thirds of replacements were *efficient* in the sense of generating more revenue than the old film on the day of replacement, but that only about forty percent of replacements were *profitable* once the penalty is taken into account. In dollar terms, replacement increased gross attendance receipts on the day of replacement by 17 percent of average daily revenues), but led to an average *net loss to the cinema* equal to 6 percent of average daily revenues.

$$1) \quad Abbreviate_{ig} = \alpha + Integrate_g \beta + \mathbf{Z}_{ig} \gamma + \epsilon_{ig}$$

where $Abbreviate_{ig}$ is whether the showing has been abbreviated (ended before permitted under the contract), $Integrate_g$ is whether the producer owns cinemas, and \mathbf{Z} is a matrix of controls. The subscript “i” signifies variation at the level of the individual observation (in this case, the screening), and subscript “g” signifies variation at the level of the group (in this case, the film company). My dependent variable takes on the values

$$Abbreviate_{ig} = \begin{cases} 1 & \text{if the screening period was abbreviated} \\ 0 & \text{otherwise} \end{cases}$$

For the probit analysis, I employ several specifications. First, I include the “integrated” dummy variable by itself. Second, I control for the expected popularity of the film, using an ex ante measure and an ex post measure: number of days contracted for, and actual attendance revenue earned per day.³⁴ Third, I include dummy variables for each of the 23 cinemas and seasonal quarter dummy variables (some cinemas shut down temporarily during the summer).

Table 6 presents descriptive statistics. Films released by the cinema-owning Big Five – represented by the “integrated” variable – account for about three-quarters of all screenings (the other quarter being films released by the Little Three). The average contract was for 3.36 days, and the average film ran for 3.39 days and generated about \$1400, or \$360 per day. The numbers vary across theaters – different theaters booked films for different periods, and some of the theaters only rarely exhibited films on first-run.³⁵

³⁴The correlation between the two variables (days contracted and revenue per day) is 0.62. Including higher order terms (i.e., days contracted squared) has little effect on the coefficients of interest.

³⁵Appendix A shows the data by cinema.

The left-hand side of Table 7 presents the results of the probit regressions (marginal effects shown). Consistent with the hypothesis, the point estimates on the “integrated” variable are positive, statistically significant at less than one percent, and of such magnitude as to suggest screenings of films by the cinema-owning Big Five were seven-to-ten percent more likely to be abbreviated.³⁶

In the data set, there are no changes over time in the cinema-owning status of any of the *Paramount* defendants – the measure of interest, “integrated,” varies only across the eight producer/distributors. Moulton (1990) shows that models combining individual-level data (such as “abbreviated,” which varies across screenings) with grouped data (such as “integrated,” which varies only across film companies) will bias downwards the standard errors of the coefficients if the group-specific effect is not taken into account. Thus, although the point estimates presented on the left-hand side of Table 7 are unbiased and consistent, the confidence interval implied by the standard errors is too narrow.

To illustrate, I will re-write equation 1, decomposing the residual into two parts, a group-specific residual, and an idiosyncratic component:

$$1') \quad \text{Abbreviate}_{ig} = \alpha + \text{Integrate}_g \beta + Z_{ig} \gamma + \mu_g + v_{ig}$$

A common way to account for the group-specific residual is to cluster standard errors at the group level (e.g., Wooldridge 2003). However, Donald and Lang (2007) point out that such clustering is justified only when the number of groups is “large” relative to the number of

³⁶Including a Warner Brothers dummy in the probit analysis reduces the size of the coefficient on “integrated” slightly (0.09 rather than 0.10 or 0.06 rather than 0.07), not surprisingly given that it removes from the “integrated” coefficient the effect of one of the five fully integrated firms. (The “integrated” coefficients nonetheless remain statistically significant at less than one percent.)

observations per group.³⁷ I have eight groups with roughly 250 observations each, rendering clustering inappropriate. Instead, I employ a “between-group” estimator.³⁸ I use a linear probability model, because a between-groups estimator cannot be estimated using probit analysis.³⁹ One may think of this latter approach as complementing the probit results shown to the left – an “upper bound” to the probit’s “lower bound” on the value of the standard errors.

The results are shown in the middle columns of Table 7. The marginal effects implied by the point estimates are roughly the same (not surprisingly) – the coefficients continue to imply that cinema ownership is associated with a nine-to-ten percent increase in the likelihood of a film run being abbreviated. The standard errors on the “integrated” coefficients are now substantially larger, reflecting the fact that the estimation accounts for the presence of common group effects. Nonetheless, the coefficient estimates remain statistically significant at the five percent level.

An alternative means of accounting for group effects is the two-step approach proposed by Donald and Lang (2007). The first step is to estimate by OLS:

$$\text{Abbreviate}_{ig} = d_g + Z_{ig}\gamma + \epsilon_{ig}$$

³⁷When this condition does not hold, the effect of clustering on the standard errors of the coefficients is simply not well-understood – the asymptotic properties are generally unknown. Donald and Lang (2007, 299) state that, “the Cluster approach may be quite unreliable except in the case when there are many groups.” In my analysis, clustering by film company has very little effect on the standard errors (results available from the author).

³⁸The “between estimator” uses only the between group – i.e., cross-sectional – information contained in a panel data set (in contrast to the within-group, or time series, variation). Absent within-group-varying explanatory variables (such as contracted days and revenue per day), Donald and Lang’s two-step method, which I employ below, produces the “between-groups” estimator (Donald and Lang 2007, 22).

³⁹I use Stata for my estimates. If I instead estimate a probit model on company-specific averages (i.e., one observation per company), I obtain qualitatively equivalent results.

where d_g are dummy variables for each producer.⁴⁰ The second step estimates the effect of integration as follows:

$$\hat{d}_g = a + I_g \beta + \mu_g$$

Donald and Lang demonstrate that under the assumption that the error terms α_g and ϵ_{ig} are normally distributed with 0 mean, constant variance, and 0 covariance for all i and g , the test statistics for this second stage estimator will be t-distributed, with $g-2$ degrees of freedom.

The results of this third approach are shown in the far right-hand column in Table 7. The point estimate implies that integration is associated with an 8 percent greater likelihood of abbreviation. Assuming that the test statistic has a t-distribution with 6 degrees of freedom, the coefficient is significant at better than the five percent level.⁴¹

In short, in all three estimations, the results are consistent with the hypothesis that cinema ownership promotes post-contractual changes in run lengths.

⁴⁰By definition, the fitted values of d equal

$$\hat{d}_g = \bar{A}_{ig} - \bar{Z}_{ig} \gamma$$

where

$$\bar{A}_{ig}, \bar{Z}_{ig}$$

are the average values of A and Z in the sample for each producer.

⁴¹A fourth approach is a minimum distance estimator, which produces qualitatively equivalent results (not shown). In the first step, I estimate for each different producer a probit (using “abbreviated”) on the two film quality variables and the cinema and time dummy variables. Then with the eight intercepts, I estimate a weighted least squares (minimum distance) specification, with the weights equal to the inverse of the sampling variances. The difference between this approach and Donald and Lang’s is that the resulting t-statistics are distributed approximately standard normal. It also allows a test of overidentifying restrictions (six in this case), and of whether the restriction that producers only differ by “integrated” status is appropriate. Finally, the minimum distance approach does not require normality of the producer effects. I thank Jeff Wooldridge for this suggestion.

B. Abbreviations and Film Length

This paper proposes that vertical integration into exhibition was driven by a lack of information – not enough was known about films being booked to set the run length accurately. As a result, ex post adjustments in run length enhanced efficiency, by better matching run length and revealed demand. An indirect test of this hypothesis is to examine whether abbreviations were fewer where the information problem was less severe. This is only a partial test: If I find this was so, it does not speak to the rationale for vertical integration, per se. However, if I find no relationship between the severity of the information problems and abbreviations, it would suggest the argument underlying this paper’s hypothesis may not be correct (or is incomplete).

To define a set of films for which the information problem was less severe, I make use of the fact that the “movie palaces” discussed above exhibited films prior to the first-run during what was called a “pre-release” (pre-release attendance results were tracked weekly by *Variety* for the benefit of cinemas). Only a subset of films were exhibited in pre-release – the most expensive, star-filled productions. Pre-releases lasted several weeks, and the preliminary results, at least, would have pre-dated most run bookings.⁴² I do not know whether pre-release information was available by the time any given film entered its first-run. I also do not know precisely which films were exhibited in pre-release. However, I do know that only the most expensive films were shown in pre-release. And although I do not have the budgets for (all) the

⁴²Cinemas would contract for a slate of films at the start of the film season, but would not agree the actual dates until several weeks before a film’s first-run release – most films had not been finished when the original exhibition contract was signed (many had not even begun filming, and were identified simply as “a Clark Gable” picture, or a “Lana Turner” picture). Similar practices exist today – agreements to show films are made well in advance of the film’s release, and the specific date is set close to the release time. See Fellman (2004).

films in my sample, I am able to obtain film lengths (in minutes), and film length and budget were highly correlated.⁴³

Table 8 breaks down the sample by the running time of the film screened. As the top half of the table shows, roughly the same proportion of abbreviations for all films of less than 90 minutes – 14-16 percent. Such shorter films were very unlikely to have been shown in pre-release. The proportion then falls to less than 10 percent for films of 90-100 minutes in length, and to 5 percent for films of more than 100 minutes.⁴⁴ Assuming that film length is a reasonable proxy for budget, these results are consistent with the argument underlying this paper's hypothesis. Where the information problems were less severe (i.e., where the sample of films consists of those more likely to have been screened before the first-run showing was booked), there were fewer abbreviations.⁴⁵

C. The Mechanism

There are two, non-mutually exclusive, ways in which cinema ownership could affect ex post run length adjustments: 1) directly, by promoting more renegotiations, or 2) indirectly, by

⁴³Using budget data from the William Schaeffer ledger (which lists negative costs for all Warner Brothers feature films produced from 1922 through 1960) and film length from the Internet Movie Data Base, I find that, for the set of films in my sample, the correlation is between film cost and film length is 0.83. See Glancy (1995) for a discussion of the data in the Schaeffer ledger.

⁴⁴The last group includes such then (and still) popular films as *The Adventures of Robin Hood* with Errol Flynn, *Jezebel* with Bette Davis, and *Stella Dallas* with Barbara Stanwyck.

⁴⁵Including minutes in the regressions shown in Table 8 has no effect on the coefficient on integration (the correlation between integration and minutes is -0.08), but produces a statistically significant coefficient on minutes, of such magnitude as to imply that each additional minute in length is associated with a decline of 0.3 percent in the likelihood a run is abbreviated.

leading to specialization in types of film more likely to require renegotiation. Which effect dominated in the Hollywood Studio Era?

There were two broad film types during the Hollywood studio era: A-films and B-films.⁴⁶ A-films had relatively high budgets, starred well-known actors, and were long in duration; B-films had relatively low budgets, lesser/unknown actors, and short running times. B-films served primarily as the second feature in double bills, and as the occasional lead film in a subsequent run.⁴⁷ B-films also tended to be priced differently, being leased to cinemas for flat fees rather than on a revenue sharing basis.⁴⁸ Although all of the eight *Paramount* defendants – whether vertically integrated into exhibition or not – produced both A-films and B-films, a greater proportion of the Big Five’s production was devoted to A-films, while a larger proportion of the Little Three’s – more specifically, of Columbia’s and Universal’s – production was devoted to B-films. This is evident in the data set, as summarized in Table 9. Compared to the fully integrated Big Five, Columbia and Universal had substantially smaller proportions of their films

⁴⁶This oversimplifies – A-films included both big budget extravaganza and middle-of-the-road potboiler, while B-movies included well-loved series (e.g., *Sherlock Holmes*, *Andy Hardy*, *Charlie Chan*) as well as stock Westerns and gangster films.

⁴⁷Low budget films have always existed, but the heyday of the B-film began with the emergence of the double feature as a standard mode of exhibition in the early 1930s. The double feature was a product of the Great Depression, the 1931 creation of a New England exhibitor as a way of attracting audiences during the early part of the Great Depression. Exhibitors tried many such fan-attractors, including raffles and crockery give-aways, but double features proved the most durable, remaining the norm in most cinemas through the 1940s. See Izod (1988, 98).

⁴⁸See Izod (1988, 99). See Hanssen (2002) for an investigation of the rationale for flat fees versus revenue sharing in movie exhibition contracts.

booked on a percentage basis, and substantially larger proportions of their films ran for less than 70 minutes.⁴⁹

But was this specialization congruent with the information problem? As also can be seen in Table 9 (and on the bottom of Table 8), the Big Five collectively produced *more* short (ostensibly B) films in total than Universal and Columbia, who together accounted for only 36 percent of the total of films of less than 70 minutes. And as the top of Table 8 shows (and was discussed above), films under 70 minutes in length were no less likely to have their runs abbreviated than longer films. When I estimate the association between run abbreviation and integration leaving the longest (and thus least likely to be abbreviated films) out of the sample, the association strengthens – films released by integrated producers are 10 to 13 percent more likely to be abbreviated. (Results available upon request.)

In short, it appears that the relationship between abbreviation and integration did not result from the fact that the Big Five and the Little Three (or at least Columbia and Universal) made different types of films, but rather from the fact that otherwise similar films released by the Big Five were more frequently abbreviated.⁵⁰

⁴⁹Balio (1990, 4) writes, “Although in total their production represented at most 50 percent of the industry’s annual output [of feature films], about three-quarters of the class-A features, the ones that played in the best theaters and received top billing, were made and distributed by the Big Five. . . . Universal and Columbia . . . were useful to the majors in supplying low-cost pictures for frequent program changes and double features.” (Although this would not have been true of United Artists, which released A-films exclusively during this period, abbreviations were no more common among UA films than among Columbia films.)

⁵⁰While the majority of first-run cinemas were owned by the major film companies, a substantial minority – circa 30 percent – were owned by independent chains. In these instances, flexibility was promoted by contractual clauses. (Interestingly, these clauses became more fully developed after the *Paramount* court mandated divestiture – see next section.) Specifically, “overage” and “underage” provisions allowed exhibitors to charge deficits in playing time in one

D. A Self-Enforcing Agreement?

Baker, Gibbons, and Murphy (2002, 40) write, “relational contracts cannot be enforced by a third party and so must be self-enforcing.”⁵¹ They develop a model showing how vertical integration can support a relational contract. Consider the relational contract I propose for the motion picture industry. If ex ante contracted run lengths reflected unbiased expectations about film performance, the hazard rate for terminations should be roughly the same across the Big Five producers (ignoring differences in number and nature of films produced). If, in addition, each of the Big Five generated the same amount of revenues from their theater chains, roughly equal abbreviation rates would imply roughly equal abbreviation counts. And with roughly equal abbreviation counts, it would not benefit any individual firm to cheat on the implicit arrangement to allow unpenalized abbreviations. If a firm insisted that, to the contrary, it be paid the contractually-required termination penalty, other firms could retaliate by following suit, netting out to a transfer of zero. If instead a firm attempted to cheat by abbreviating film runs opportunistically (in response to a bribe, for example), the cheating would be revealed over time by a higher abbreviation count, and other firms could then impose the contractually-specified termination fee. An implication is that a prohibitively high early termination penalty may have been optimal, serving as an effective deterrent to support the implicit contract.

theater against another (De Vany and Eckert 1991, 80). For example, if one of a circuit’s cinemas abbreviated a Fox motion picture and a second of its cinema extended its showing of a (presumably different) Fox film by the same number of days, the result was a wash. Although this may not have been as efficient (from the perspective of maximizing total exhibition revenues) as unconstrained replacement (the days contractually allocated to each company’s films had to remain constant even if a particular company was having an off-year), it did at least reduce the magnitude of the problem.

⁵¹See also, e.g., Klein (1996), MacLeod and Malcomson (1989), and Telser (1981).

My sample reveals a number of consistent details. First the majority of early terminations by the Warner Brothers cinemas in the sample consisted of films released by *other* members of the Big Five, rather than Warner Brothers' own films – see Table 5. This suggests some sort of arrangement, in which only (or largely) members of the Big Five participated (not members of the Little Three). Second, Big Five firms generated roughly equal revenues in their theater chains (despite differences in cinema numbers, because of corresponding differences in the size and location of owned-cinemas). Table 10 presents the percentage of 1943-4 rental revenues generated by each chain – the percentages do not differ substantially across firms, with the exception of RKO, which was slowly going bankrupt.⁵² (The Paramount number is overstated because Paramount's partial ownership of the majority of its cinemas is not taken into account).⁵³ Third, the 65 percent early termination penalty contained in the Standard Form Exhibition Contract may indeed have been “prohibitively high” (as discussed above, the majority of early terminations would have generated negative returns for the terminating cinemas if the penalty was enforced). Finally, although the number and proportions of abbreviations differed across members of the Big Five – see Table 5 – so did the mix of films. As discussed in Section B above, the best A-films would have been shown in pre-releases at movie palaces, reducing the

⁵²The revenues are only those from films released by the eight *Paramount* defendants (which would have comprised the vast majority of total cinema revenues, in any case).

⁵³According to a 1947 article in *Fortune* magazine (June 1947, p. 92), Paramount owned stakes of greater than 95 percent in 155 cinemas, stakes of 50-95 percent in 755 cinemas, stakes of 25-50 percent in 275 cinemas, and stakes of less than 25 percent in 25 cinemas. (Note that this adds up to a different number of cinemas than listed in Table 1 – getting precise totals was difficult, especially given that sales and purchases of individual cinemas were common). Taking the midpoint of each range and weighting by number of cinemas in each category produces an overall average ownership stake of about 66 percent. Partial ownership was employed much less frequently by the Big Five other firms.

information problem that made ex post adjustments in run length optimal. Correspondingly, longer A-films were less likely to be abbreviated – see Table 8. MGM released by far the largest proportion of A-films (see Table 9), and also had the smallest percentage of films abbreviated (see Table 5). Fox and Paramount fell in the middle in both respects, while RKO and Warner Brothers released the smallest proportion (among the Big Five) of A-films and had the largest proportions of abbreviations. The simple correlation between proportion A-films and percent abbreviations for these five companies is -0.90.

V. *PARAMOUNT'S* AFTERMATH

The New York District Court responsible for the *Paramount* case issued a ruling in December of 1946 banning a number of vertical practices and limiting expansion of theater holdings. However, the Court did not require divestiture, noting that the defendants owned less than 17 percent of U.S. theaters in total. On appeal, the U.S. Supreme Court affirmed most District Court's judgements, but directed the Court to reconsider divestiture of theater chains, ruling that first-run theaters (not total theaters) was the relevant market.⁵⁴ The District Court handed down its final decision on July 25, 1949, concluding that the divorcement of production and exhibition was necessary. In 1950, the *Paramount* defendants signed consent decrees, under

⁵⁴The Supreme Court had concluded that integration into exhibition was not illegal per se, but that, depending upon its purpose and the market power that resulted, it might be so, and that this was a matter for the District Court to decide. The Supreme Court chose to reject competitive film-by-film bidding – the District Court's proposed remedy – on the grounds such a system was likely to work to the benefit of those with the “longest purse” (i.e., the defendants).

the terms of which they agreed (effective immediately) to begin the process of divestiture.⁵⁵ By February 1953, all but Loew's had formally divested (Loew's continued to operate its theaters on an arm's length basis until 1959 – see Crandall 1975, 53).

Examining the period following the *Paramount* decrees would appear the ideal test of this paper's hypothesis. It is, in fact, problematic. First, a variety of vertical practices were banned, making it difficult to determine what changes (if any) followed from vertical dis-integration specifically. Second, the *Paramount* decision was handed down at a time of tremendous social and economic change – service men and women were returning home from war, the baby boom had commenced, the suburbs were growing rapidly, and (very importantly) television was on the rise. The motion picture industry changed dramatically, too. As Balio (1990, 3) writes,

After World War II, things were never the same for the motion picture industry. Beginning in 1947, Hollywood entered a recession that lasted for ten years; movie attendance dropped by half, four thousand theaters closed their doors, and profits plummeted. In foreign markets, governments erected trade barriers to limit the importation of motion pictures. Thus, instead of enjoying sustained prosperity after the war, which many had predicted, Hollywood retrenched. Production was severely cut back; 'B' pictures, shorts, cartoons, and newsreels were dropped, and the studios concentrated their efforts on fewer and fewer 'A' pictures. The studio system went by the board as companies disposed of their back lots, film libraries, and other assets and pared producers, stars, and directors from their payrolls.⁵⁶

⁵⁵Even before the District Court issued its opinion, Paramount and RKO had agreed to divest their theaters.

⁵⁶One of the few studies purporting to show an actual effect from the *Paramount* decision is De Vany and McMillan (2004), which finds that the share prices of the integrated *Paramount* defendants fell by 4 to 12 percent when the Supreme Court handed down its 1948 decision, and that the share prices of both the non-integrated defendants and independent producers who were not defendants fell by just as much. The authors conclude that this supports the hypothesis that the disputed vertical practices were not anticompetitive. More typical are Crandall (1975) and Conant (1981), who harbor no doubts that the *Paramount* defendants were behaving anticompetitively (on page 54, Crandall writes, "A more successful cartel could hardly be imagined"), yet acknowledge nonetheless (in a somewhat puzzled fashion) that the *Paramount*

For the most part, these changes did not appear to hurt the *Paramount* defendants, who maintained their dominant position in the industry, now as “distributors” rather than “producer/distributors,” albeit distributors who financed film production.⁵⁷ But in the absence of cinema ownership, how were post contract adjustments of run lengths dealt with? The answer is that exhibition contracts changed in fundamental ways that made such ex post adjustments less costly.⁵⁸

The pre-*Paramount* exhibition contracts had specified how long a run would last and included a penalty clause for early termination, but nothing else – ex post adjustments (of which, as we have seen, there were many) were handled outside the formal framework of the contract. The post-*Paramount* exhibition contracts also specified a basic run length and a penalty for early termination, but for the first time included several clauses that formally linked the duration of the run to the performance of the film. Foremost was the “holdover” clause, which automatically extended the length of a screening if weekly attendance revenues exceeded a specified target (which differed by cinema). Given the existence of the holdover clause, it became less important to agree a specific duration for a run (recall that in the pre-*Paramount* days, cinemas booked

consent decree appears to have had little effect on the industry.

⁵⁷Crandall (1975, 52) reviews the evidence for the post-*Paramount* period and concludes “Distributors [principally, the former *Paramount* defendants] still control the number of productions and often exert an influence over the artistic details since it is they who underwrite the pictures. The distributors provide financing for the productions in return for the right to distribute the finished product. Similarly, Balio (1990, 10) writes, “By 1970, the majors functioned essentially as bankers supplying financing and landlords renting studio space. Distribution now became the name of the game . . . but as financiers, the studios were able to retain ultimate discretionary power.”

⁵⁸See, e.g., De Vany and Eckert (1991) and De Vany and Walls (1996) for more detail on these practices. For a copy of a 1980 exhibition contract, see May (1983).

films for varying periods, depending upon how the film was expected to perform), and an initial run of one week became the norm (regardless of the size, location, or priority of the cinema).⁵⁹ In addition, the number of screens on which a film was shown could be more quickly adjusted, because by the mid-1950s, the elaborate system of runs had shrunk to a first-run and a subsequent-run (smaller cinemas either upgraded or disappeared).⁶⁰ Thus, film roll-outs could be gradual – commencing in large cities and expanding (or not) as the popularity of the film was revealed. It also became common for a distributor to allow a cinema to split scheduled screening times between motion pictures (the alternate feature being supplied by the same distributor) if an originally-booked film performed poorly. The appearance of the multiplex (multiple screen cinema) in the early-1960s furthered the process, by allowing cinemas to open films on several screens (or in larger screening rooms) and downgrade to fewer screens (or smaller screening rooms) as dictated by consumer demand.⁶¹

⁵⁹Today, the period is three weeks for cinemas that open as part of the national run, which is most all of them.

⁶⁰By 1955, the number of four-wall cinemas had fallen by nearly 3000 units, 17 percent of the 1948 total, and by 1960, by more than 5000 units, 30 percent of the 1948 total. (Four-wall cinema numbers actually peaked in 1945, and declined subsequently.) Some of the fall was offset by the substantial rise in drive-in theaters that occurred over the same period. Even counting drive-ins, the total number of cinemas fell by nearly 10 percent between 1948 and 1960. See Steinberg (1980, 40-1).

⁶¹According to Steinberg (1980, 39), the first multiplex was built in 1963 in Kansas City, and by the late 1970s accounted for about 25 percent of all screens. In addition, ex post adjustments in other dimensions increased. For example, see Filson, Switzer, and Besocke (2005) for a discussion of ex post adjustments in sharing percentages, which tend to favor exhibitors when films do more poorly than expected, and favor distributors when films do better than expected.

In an earlier paper (Hanssen 2000), I concluded that the booking practices that developed after the *Paramount* decrees managed largely to replicate the outcome of block-booking, although presumably at higher cost. The same appears to have occurred with respect to managing the ex post revelation of film quality. Whether these later practices were as effective as cinema ownership cannot be determined – certainly, film companies fought the forced divestiture of their theater chains vigorously. That said, the film industry has changed profoundly since 1948. Several firms reintegrated exhibition with production/distribution (a legal stricture binds only a sub-set of the *Paramount* defendants), but have since dis-integrated voluntarily.⁶² No fully integrated company exists today.

VI. CONCLUSION

During the Hollywood studio era, the largest motion picture producers owned cinemas. In this paper, I have sought to explain why. Investigating a unique sample of cinema booking sheets from the 1930s, I find evidence supportive of the hypothesis that integration supported ex post changes in film run lengths, a desirable but potentially difficult-to-implement feature of movie contracts. My findings for this sample of Warner Brothers theaters from the 1930s are consistent with those of Gil (2007), who analyzes today's Spanish film industry. However, while Gil finds that part of the relationship between cinema ownership and renegotiation is induced by the type of films vertically integrated firms choose to distribute (specifically, higher variance

⁶²For example, from the mid-1980s until 2002, the cinema chain Loews and film producer/distributor TriStar Pictures shared common ownership (and, after purchase by Sony, were linked with Columbia Pictures, too). However, in 2002 the Loews chain was spun off to private investors.

films), I find little evidence of selection in film types, but rather conclude that cinema ownership helped maintain a relational/implicit contract.

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TABLE 1: CINEMAS OWNED BY THE BIG FIVE

Company	Total cinemas	Palaces*	Palaces**
20th Century Fox	575	19	35
MGM	143	20	29
Paramount	1165	40	29
RKO	105	19	23
Warner Brothers	443	20	19
Total	2431	118	135

Palaces* = “Metropolitan deluxe theaters, as listed in the DOJ complaint of 1938, pp 63-67

Palaces** = cinemas tracked by “*Variety*” in January 1940.

**TABLE 2: WARNER BROTHERS-OWNED THEATERS
(1937-8 film season)**

Producer	No. of screenings	No. of films	Days played	Percent of total days
Columbia	224	40	1531	10%
20th Century Fox	294	55	2367	16%
MGM	319	45	2659	18%
Paramount	337	52	2382	16%
RKO	245	46	1872	12%
United Artists	87	15	769	5%
Universal	180	38	1119	7%
Warner Brothers	264	56	2346	16%
Total	1950	347	15045	100%

Based on 23 Wisconsin-based cinemas that showed first-run films. Source: Warner Brothers Archives, University of Southern California Film School.

TABLE 3: FIXED VERSUS VARIABLE CONTRACTUAL RUN LENGTHS

Fixed Number of Days		Range of Days	
Contract (# Days)	# Films	Contract (# Days)	# Films
1	4	1-3	3
2	28	2-3	433
3	32	2-4	511
4	209	2-5	1
5	22	3-4	596
6	3	3-5	12
7	96	4-5	1
<i>total fixed</i>	394	<i>total range</i>	1556

TABLE 4: DAYS BOOKED VERSUS DAYS PLAYED

	Actual Days Played			
Contracted Days	<i>< Contract</i>	<i>Contract</i>	<i>> Contract</i>	<i>% Within Contract</i>
<i>1</i>	NA	3	1	75%
<i>1-3</i>	NA	0	3	0%
<i>2</i>	4	23	1	82%
<i>2-3</i>	66	358	8	83%
<i>2-4</i>	12	404	94	79%
<i>3</i>	12	20	0	63%
<i>3-4</i>	124	349	123	59%
<i>4</i>	19	76	115	36%
<i>3-5</i>	2	8	2	67%
<i>5</i>	7	15	1	65%
<i>6</i>	1	2	0	67%
<i>7</i>	11	82	3	85%
<i>total</i>	258	1340	352	69%

TABLE 5: REPLACEMENT MATRIX

	total screenings	total abbreviate	% abbreviate	Replaced by:							
				Fox	MGM	Para.	RKO	WB	Columbia	UA	Universal
Fox	294	46	16%	11%	13%	22%	9%	17%	13%	4%	11%
MGM	319	26	8%	31%	12%	8%	8%	12%	19%	4%	8%
Paramount	337	38	11%	8%	32%	18%	5%	11%	13%	13%	0%
RKO	245	59	24%	12%	20%	15%	15%	19%	10%	0%	8%
WB	264	60	23%	18%	13%	12%	15%	10%	15%	2%	15%
Big Five	1459	229	16%								
Columbia	224	16	7%	13%	13%	6%	13%	13%	25%	13%	6%
UA	87	7	8%	29%	0%	29%	0%	0%	29%	14%	0%
Universal	180	5	3%	0%	40%	0%	20%	20%	0%	0%	20%
Little Three	493	28	6%								
Total	1950	257	13%	38	45	38	29	35	37	12	23
%				15%	18%	15%	11%	14%	14%	5%	9%

TABLE 6: DESCRIPTIVE STATISTICS

Number of observations (screenings): 1950
Number of cinemas: 23
Number of films: 347

Variables	mean	stdev	min	max
abbreviated	0.13	0.34	0	1
integrated	0.75	0.43	0	1
days contracted	3.36	1.00	1	7
days played	3.39	1.53	1	10
admissions (\$000)	1.39	1.75	.002	17.37
admissions per day (\$000)	0.36	0.28	.002	2.48

TABLE 7: REGRESSION ANALYSIS
(Full sample)

	Probit regression (marginal effects only)			Between-groups regression (linear probability model)		Two-step method (2 nd stage)
constant				0.059 (.034)	-0.406 (.146)	-0.275 (.003)
integrated	0.100 (.014)	0.101 (.014)	0.072 (.015)	0.104 (.043)	0.086 (.028)	0.080 (.032)
days contracted		-0.062 (.009)	0.105 (.017)		0.124 (.083)	
revenue per day		0.006 (.004)	0.009 (.004)		0.016 (.051)	
cinema dummies			yes			
quarter dummies			yes			
no. observations	1950	1950	1950	8 groups. no. obs per group: min=89, max = 337, avg = 244		8
R2 (pseudo / adj)	0.03	0.03	0.10	0.49	0.88	0.39

Dependent variable = 1 if a screening is terminated before the contracted period; 0 otherwise.

TABLE 8: ABBREVIATIONS AND FILM LENGTH**PERCENTAGE OF RUNS ABBREVIATED**

Film Length	no. of obs.	mean
< 70 mins.	686	0.141
$70 \leq \text{mins.} < 80$	418	0.163
$80 \leq \text{mins.} < 90$	683	0.154
$90 \leq \text{mins.} < 100$	288	0.097
mins. > 100	211	0.052

PERCENTAGE OF FILMS PRODUCED BY FULLY-INTEGRATED BIG FIVE

Film Length	no. of obs.	mean
< 70 mins.	686	0.638
$70 \leq \text{mins.} < 80$	418	0.801
$80 \leq \text{mins.} < 90$	683	0.826
$90 \leq \text{mins.} < 100$	288	0.826
mins. > 100	211	0.716

TABLE 9: A-FILMS VERSUS B-FILMS

		# screenings	# films	% sharing contract	avg running length (mins.)	# films less than 70'	% films less than 70'	# screenings of films less than 70'	% screenings of films less than 70'
Big Five	Fox	294	55	38%	75.98	17	31%	88	30%
	MGM	320	45	41%	88.35	3	7%	21	7%
	Paramount	337	52	36%	78.96	22	42%	119	35%
	RKO	245	46	34%	73.45	22	48%	96	39%
	WB	263	56	49%	78.31	28	50%	114	43%
Little Three	Columbia	224	40	13%	69.91	29	73%	142	63%
	Universal	180	38	23%	73.75	26	68%	106	59%
	UA	87	15	48%	94.43	0	0%	0	0%

**TABLE 10: PERCENTAGE OF FILM RENTALS RECEIVED FROM EACH EXHIBITOR
(1943-4 Season)**

Producer/ Distributor	Exhibitor					Total affiliated	Five largest indeps	Other indeps.	Total
	RKO	Fox	Warner	Paramount	Loew's- MGM				
TOTAL	4.8	8.5	8.2	16.8*	7.1	45.3	3.7	51.0	100%

Source: Appendix to the Brief for the United States of America, Section B, *The United States v. Paramount Pictures, Inc., et al.*, October 1947,

*Paramount's total is not corrected for partial ownership of cinemas, which would reduce the number to about 10 percent.

**APPENDIX A: WARNER BROTHERS CINEMAS IN WISCONSIN
(1937-8 film season)**

	# first-run screenings	total first- run days	average screening length (days)	average total revenue per screening	average daily revenue per screening	number of contract lengths
Appleton	53	207	3.9	864	221	8
Delavan	175	334	1.9	245	128	4
Egyptian	2	8	4.0	1074	269	2
Garfield	3	10	3.3	1649	495	1
Gateway	138	516	3.7	986	264	9
Geneva	217	406	1.9	330	176	4
Juneau	11	27	2.5	416	170	1
Kenosha	198	656	3.3	1754	529	6
Majestic	4	11	2.8	356	129	2
Milwaukee	1	3	3.0	626	209	1
National	7	18	2.6	607	236	1
Oshkosh	169	576	3.4	1418	416	6
Princess	3	5	1.7	324	195	1
Rex	146	559	3.8	773	202	6
Rialto	137	555	4.1	925	228	8
Rio	81	255	3.1	1512	480	7
Sheboygan	193	664	3.4	1206	351	9
Strand	105	453	4.3	1298	301	8
Uptown	3	9	3.0	1739	580	2
Venetian	190	653	3.4	1780	518	9
Vogue	15	37	2.5	244	90	2
Warner1	96	641	6.7	7119	1066	3
Warner2	5	12	2.4	1118	466	2