Do Movie Majors Really Collude? Indirect Evidence from Release Schedules*

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Abstract

Major Hollywood films studios and their affiliated local distributors have a dominant market share in the main international movie markets, but their competitive behavior has come under suspicion. In 2006, the Spanish Competition Court fined these Majors for anticompetitive practices. Our aim is to evaluate the presence (or absence) of collusive behavior among Majors during the 2002-2009 period. Because the release date is a critical variable of competition, we test whether Majors are coordinating their release schedules. Our results suggest that Majors achieve a larger degree of coordination in their release schedules than other distributors.

Keywords: Temporal competition, movie exhibition, movie industry, collusion, product differentiation.

JEL Classification: L41, Z10

"People of the same trade seldom meet together, even for merri­ment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."

Adam Smith  
An Inquiry into the Nature and Causes of the Wealth of Nations  
(Book I, Chapter X, Part II)

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1. Introduction

Most empirical industry studies focused on market competition examine firms’ price and quantity decisions, taking other product characteristics as given. However, competition in many industries is conducted through other product attributes. This is the case of the film market where the film’s release date is a critical variable of competition among distributors. Similar timing considerations are also important in other entertainment industries such as the release decisions of books, compact disks, video games, and other new products.

In a previous studio, Gutiérrez-Navratil et al. (2014) analyzed the role of temporal competition and how rivals’ release decisions impact on box-office revenues. Using information on films released in United States and the four largest European motion pictures markets, they measured to what extent movies’ box office receipts are affected by the temporal distribution of rival films. Their findings indicate that the release date of a film is a particularly important variable for its distributor to maximize the film’s box office revenues. Indeed, cinema demand is highly variable throughout the year with large peaks at holidays (see Einav, 2007). In this sense, many blockbusters tend to have their releases concentrated in high-demand periods as distributors know that one month’s revenues during high-demand periods can produce box office sales that are equal to several months’ revenues in low-demand periods (see Radas and Shugan, 1998; Moul and Shugan, 2005; Vogel, 2007). On the other hand, the weekly revenue of a film decreases exponentially over time as new films enter the exhibition market and the value of the film declines. As films typically collect between 60% and 70% of its total revenue during its first three weeks (see Krider and Weinberg, 1998; Krider et al., 2005), the overlapping timing of release may have important negative effects on revenues (see De Vany and Walls, 1997; Elberse and Eliashberg, 2003). Distributors should avoid competition with close substitutes in the first weekend because the entire commercial life of a film depends on its performance in that weekend. In fact, a good performance during the first weekend might create a positive word-of-mouth effect and capture the attention of the public, the media and exhibitors (De Vany and Walls, 1999).  

As in other countries, the Spanish film market is characterized by the great power wielded by the local distributors that are linked to the Hollywood major motion picture studios (Major Distributors). Since the 1990s, these Major Distributors have dominated the Spanish theatrical motion picture market, and they have shifted among the leading positions during this time. On average, these firms have represented more than two-thirds of box office revenues and have distributed most of the international blockbusters; in recent years, they have also distributed most of the Spanish blockbusters. Their market dominance might indicate that they are engaging in anticompetitive practices to the detriment of other distributors.

Although antitrust issues are fairly prominent in the film industry’s history (see De Vany and Eckert, 1991; Gil, 2010), there is not much evidence in the literature on collusion on release dates and other film features. In this regard, it is worth mentioning that the Spanish Competition Authority (SCA) resolved in May 2006 to fine five Hollywood major studios...
2.4 million euros for standardizing the exhibition conditions of their films, which results in both horizontal and vertical restrictions on competition. The SCA resolution is clear that “from dates [...] previous [...] to 1998, the implicated distribution companies have been using similar conditions in their contracts with exhibitors to show their films. They always make temporary rental contracts and set identical or similar conditions in such important aspects as payment systems, pricing, billing, revenue control, film advertising, theater selection (number of screens), exhibition time and delivery, and return of copies” (see #5 in the Proven Facts Section of the Resolution of the Spanish Competition Court, 2006). The SCA also fined the Spanish Film Distributors Federation (FEDICINE) because it was accustomed to exchanging strategic data relevant to the competition and facilitating the coordination between distributors.

It is notable that all the distributors charged in this resolution established the same rental price for their blockbuster movies, which is a percentage of box office revenues. The SCA attributed this similarity to the absence of competition between distributors when films’ release dates are chosen. In particular, the SCA stated that if distributors had competed against one another, the possibility of two releases from Major Distributors coinciding on the same day would have led them to negotiate lower prices with exhibitors to achieve greater distribution in theaters. However, this reduction in price can hardly occur if the distributors coordinate with their competitors by alternating and/or separating the releases of their films. According to the SCA, because coordinating release schedules weakens the negotiating position of exhibitors, the ability of exhibitors to provide better services and prices to customers is clearly limited and customers’ alternatives are reduced. Moreover, release-coordinating agreements might also hinder market access for other distributors.

In this paper, we will try to shed light on one of the main arguments used by the SCA to fine the Major Distributors, namely the allegedly coordination in films’ release dates. In particular, using data for the 2002-2009 period, we test whether these Major Distributors have been more able to alternate and/or separate their releases than other distributors. We will take this result as an indirect evidence of a possible collusive behavior. We are aware that our results might also be caused by other factors (e.g. abuse of dominant position or first-mover advantages) that somehow give Hollywood Majors extra market power. However, these practices could be also considered as anticompetitive practices as market power is less evenly distributed in the market.

As there is a lack of attention to the question of collusion in non-price attributes in the empirical literature on detecting cartels (see, for instance, Harrington, 2008; Davis and Gar­cés, 2010), we have been forced to adapt one of the available (price-based) approaches to identify differences in release decisions between Major Distributors and those that were not fined. To the best of our knowledge, our study is one of the first papers that use a reduced-type model to examine collusion in non-price attributes in a highly differentiated product market.
Instead of estimating a traditional reduced-form price equation, we examine the determinants of the temporal distance between the releases of any two films that have been released in a certain temporal segment or “theater demand window”. This empirical strategy, which is based on temporal windows, was first used by Corts (2001) in his study on the effects of a vertical market structure on competition in the U.S. film industry. Here, we adapt this framework to our dataset and extend it in two ways: we use a statistical and flexible procedure to define market segments (whereas Corts, 2001) uses *ad hoc* criteria to define temporal windows), and we define a relative measure of the temporal distance between the releases of any two films that takes the optimal equilibrium of the spatial competition model of Hotelling (1929) as its benchmark.

In the next section, we describe our procedure to detect collusion, analyze the role of release dates as a strategic variable and explain the methodology that was applied to identify the demand windows. In Section 3, we describe the steps we followed to build the sample and define the empirical specifications of the model. In Section 4, we describe the method of estimation and present the most relevant results. The final section concludes.

2. A reduced-form model of distributors’ release schedules

Economic analyses of prices, market shares, and other economic data have often been used to uncover prosecutable cases of collusion. One of the most popular methods of detecting collusion involves asking the following question: “Does the behavior of suspected colluding firms differ from that of competitive firms?” (Harrington, 2008, p. 222). This method involves comparing the behavior of suspected colluders with a competitive benchmark that is defined by non-colluding firms. A common implementation of this approach is to estimate *reduced-form price equations* by regressing the price on the demand and cost factors. These price equations are estimated separately for suspected cartel members and competitive firms to test whether they differ on a statistical basis; if they are shown to differ, then colluding firms might be acting in a manner consistent with a collusive model. For instance, this approach was used by Porter and Zona (1993, 1999) to detect collusive behavior in highway construction contracts and school milk procurement, respectively.

Because the SCA only fined five of the distributors in Spain, differences in performance should be expected between both sets of distributors, *i.e.*, penalized and not penalized distributors. Thus, the degree of competition in the Spanish film market can be tested by estimating reduced-form models. An alternative approach to identifying collusion is to search for a structural break in firms’ behavior. Such a break could be associated with the formation of a cartel, but also with a cartel’s death. In both cases, there should be a discrete change in the behavior of a group of firms, but this was not the case in the Spanish movie market from 2002 to 2009.
However, unlike most papers on detecting collusion, our dependent variable is not the rental price determined by distributors, but a proper measure of the release date of a film, which is our strategic variable. We initially follow the approach proposed by Corts (2001) in his study of the U.S. film industry and, instead of specific dates, we use a measure of the temporal distance between any two films released in a specific time period (a “window”) as the dependent variable. Therefore, our empirical research focuses on pairs of films. As our dependent variable can be interpreted as a measure of product differentiation, our empirical strategy not only is inspired by the studies on detecting collusive practices, but also it is connected to the empirical literature that uses reduced-form models to analyze spatial or temporal competition. The combination of both literatures is thus one of the contributions of the paper.

The model to be estimated can be written as follows:

\[ GAP_{i,w} = \alpha + \beta x_i + \alpha_w + \epsilon_{i,w} \]  

where the subscript \( i \) represents a pair of films that have been released in theater demand window \( w \), \( GAP_i \) is a relative measure of the temporal distance that separates the release of the two films, and \( \epsilon_{i,w} \) is the error term. The window-specific effects \( \alpha_w \) capture the unobserved window-specific heterogeneities, such as the presence of holidays or the seasonality of overall demand (see Einav, 2007). Thus, equation (1) can be estimated using panel data techniques.

The set of explanatory variables \( x_i \) includes characteristics of both films (e.g., their genres, nationalities, age ratings, awards, or the presence of national or foreign stars) that might influence distributors’ release-date decisions. Once we have controlled for these characteristics, the coefficient \( \alpha \) will give the average distance between the release dates of any two films. Because \( \alpha \) is a conditional average, unobserved differences in distributors’ performance should be captured by the coefficient. Additionally, by determining whether the genre, the rating or any other relevant movie feature is significant, we will be able to examine whether a criterion for choosing release dates involves ensuring that no similar film will be released on the same date, as Fox indicated to the SCA.

However, the most important hypothesis from the point of view of competition involves evaluating the differences in distributor performances. Although it is legitimate (and feasible) for a particular distributor to space its releases to minimize the possibility that a film steals revenues from other films that belong to the same distributor, this process is illegal when it is undertaken by coordinating their release dates with competing distributors. Verifying whether the estimated \( \alpha \) differ between suspected cartel members and non-colluding firms allows us to provide additional evidence to corroborate or refute the arguments used by the SCA to fine the Major Distributors for anti-competitive practices. More specifically, we will test whether these distributors have been able to better avoid the negative effects of competition among their films by increasing the temporal distances that separate their releases. If this distance increases considerably for pairs of films that belongs to the alleged
cartel (relative to the remaining pairs of films), then it might be argued that these distributors have arranged the release dates to maximize their box office revenues.

Obviously, we have no explicit evidence of collusion. It might also be argued that the information about other firms’ releases is known in advance by all actors in the industry and that the observed behavior is the result of appropriate decisions that utilize available information. However, it is hard to believe that only Major Distributors are able to take advantage of this information and that they could behave as if they were a single distributor (see later on) without coordination, particularly when such apparent coordination is observed with respect to their worldwide releases.

To estimate equation (1), we must define the relevant temporal market, i.e., the set of films that will be combined in pairs. One option is to match all the films that are released throughout the entire period analyzed in our study. However, not all of the possible combinations are equally relevant. Because most of a film’s revenues are generated during its first three weeks on the market, closer release dates have greater negative effects on the box office revenues of each pair of films (see Gutiérrez-Navratil et al., 2014). Furthermore, if we combine all of the films, we will be implicitly assuming that each film is a potential competitor of every other film, regardless of the distance between their releases. To avoid this assumption, we follow the approach of “theater demand windows” proposed by Corts (2001) and divide the analyzed period into different subperiods or “demand windows”. We only take into account those pairs of films that actually compete with one another, i.e., movies that are released in the same demand window. Hence, we consider all possible combinations, i.e., disregarding order, of two films of the n-element set defined by the n movies released in the same demand window.

To build the demand windows, we account for the seasonality of demand in the motion picture industry. First, we identify the peaks and valleys of average weekly box office revenues from 2002 to 2009, and we assume that surrounding a high demand peak, each window begins in one valley and ends in another valley and that the pattern does not change over time. When a distributor fixes the release date of a film, the effect that this film might have on the seasonality of movie demand is unknown. Therefore, the release-date decision must be made on the basis of structural and temporal market segmentation, which is well known by all Spanish distributors. We use an annual average of weekly box office revenues as a proxy for this traditional segmentation and the Moving Average Convergence Divergence (MACD) statistical indicator to detect significant peaks and valleys; the MACD is commonly used to interpret stock market trends and generate buying and selling alert signals (see Fernández-Blanco et al., 2008).

The above-mentioned statistical indicator predicts changes within a trend and generates signals where significant valleys and peaks begin. The proposed methodology allows us to obtain demand windows of different sizes that depend on the observed seasonality of average demand in the sector. Moreover, our empirical strategy to identify demand windows is related to the first of the two methods proposed by Corts (2001).
However, we use statistical techniques to identify relevant subperiods or windows, whereas the demand windows devised by Corts (2001) were selected based on external information and an *ad hoc* criterion. The second approach proposed by Corts (2001) identified windows by selecting several key dates (such as Christmas Day, the return of the summer holidays, the Oscars, and the beginning of Easter) and constructing five-week-long windows that were centered on these important dates that did not take any other weeks into account. The application of that method to our dataset would result in a significant reduction of the number of windows because there are many consecutive holidays and long periods with no holiday; it would also force us to remove most of the films that were released throughout a given year from our sample. In addition, our statistical approach allows us to check whether the constant-window-size assumption made by Corts (2001) is validated in our dataset.

### 3. The sample, the variables and the empirical specifications of the model

#### 3.1. Sample and database

The data related to the official release dates of each movie in Spain and the rest of the considered countries are provided by A. C. Nielsen EDI, in addition to the distributors, genres, weekly and total revenues and age ratings. Additional information about the characteristics of the films (such as their nationalities, whether they have national and international stars, and whether they have received national and international awards) were obtained from the official data of the Spanish Institute of Cinema and Audiovisual Arts (ICAA) and other sources, such as the Internet Movie Database website (www.imdb.com) and webpages of the films. Our database includes all of the films that were released during the 2002-2009 period. To build our windows, (as discussed above), we applied the MACD approach. In particular, using the average weekly box office revenues in the 2002-2009 period as the target variable, we identified 89 windows, as depicted graphically in figure 1. The sizes of the windows (measured in weeks) are not constant; therefore, assuming a uniform window size is not justified. In addition, we observed that the major peaks for the average weekly box office revenues coincide with all the nationwide celebrations. For instance, the peaks at the beginning and end of the year match New Year’s Day and Christmas. We observed a significant peak on Easter and on the National Day of Spain; the maximum peak was reached on Spanish Constitution Day.

By combining only those films that were released in each particular window, we arrived at 71,188 pairs of films, which is therefore the number of observations in our sample. Because the main purpose of this paper is to discover whether there is different behavior between the Major Distributors and other distributors, we split the sample into the following five groups: SDM, SDNM, D5, DDMNM, and DNDNMM. The SDM group gathers all of the observations in which both films of the pair were distributed by the same Major Distributor; the SDNM group includes the observations in which the two films were from the same non-
major distributor; $D5$ includes all of the pairs of films that were distributed by different Major Distributors; $DDMNM$ gathers the pairs in which both films were distributed by different distributors and only one of them was a Major Distributor; and the $DDNMNM$ group encompasses those pairs of films that were distributed by different distributors, where neither was a Major Distributor. A summary of the descriptive statistics of the data by windows is presented in table 1. From the total of 71,188 pairs of films, 1,406 are pairs that were released by the same non-major distributor ($SDNM$). The pairs of films released by the same Major Distributor ($SDM$) constitute 1,756 pairs. Furthermore, 7,300 pairs were released by different Major Distributors. The remaining pairs of films were released by different distributors: of these, 28,091 are pairs in which neither was distributed by a Major Distributor ($DDNMMN$), and 32,635 are pairs in which one was distributed by a Major Distributor and the other one was not ($DDMNM$).

![Graph showing average weekly box office revenues, Moving Average Convergence Divergence (MACD) and signal, for the 2002-2009 period](image)

**Figure 1:** Average weekly box office revenues, Moving Average Convergence Divergence (MACD) and signal, for the 2002-2009 period

*Source: Authors’ elaboration.*

<table>
<thead>
<tr>
<th>By windows:</th>
<th>mean</th>
<th>std. dev.</th>
<th>min.</th>
<th>max.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAP</td>
<td>0.763</td>
<td>0.115</td>
<td>0.394</td>
<td>0.998</td>
<td>–</td>
</tr>
<tr>
<td>Weeks</td>
<td>4.7</td>
<td>1.7</td>
<td>2</td>
<td>8</td>
<td>419</td>
</tr>
<tr>
<td>Films</td>
<td>37.69</td>
<td>14.74</td>
<td>12</td>
<td>75</td>
<td>3,266</td>
</tr>
<tr>
<td>Pairs</td>
<td>799.9</td>
<td>581.6</td>
<td>66</td>
<td>2,775</td>
<td>71,188</td>
</tr>
</tbody>
</table>
Do Movie Majors Really Collude? Indirect Evidence from Release Schedules

(Continued)

<table>
<thead>
<tr>
<th>Pairs of:</th>
<th>mean</th>
<th>std. dev.</th>
<th>min.</th>
<th>max.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$SDM$</td>
<td>19.7</td>
<td>15.4</td>
<td>1</td>
<td>75</td>
<td>1,756</td>
</tr>
<tr>
<td>$SDNM$</td>
<td>15.8</td>
<td>16.0</td>
<td>0</td>
<td>83</td>
<td>1,406</td>
</tr>
<tr>
<td>$D5$</td>
<td>82.0</td>
<td>56.9</td>
<td>5</td>
<td>276</td>
<td>7,300</td>
</tr>
<tr>
<td>$DDMNM$</td>
<td>366.7</td>
<td>255.0</td>
<td>35</td>
<td>1,166</td>
<td>32,635</td>
</tr>
<tr>
<td>$DDNMNM$</td>
<td>315.6</td>
<td>272.7</td>
<td>17</td>
<td>1,373</td>
<td>28,091</td>
</tr>
<tr>
<td>$SG$</td>
<td>196.0</td>
<td>146.3</td>
<td>13</td>
<td>742</td>
<td>17,443</td>
</tr>
<tr>
<td>$NAAW_1$</td>
<td>40.8</td>
<td>44.6</td>
<td>0</td>
<td>172</td>
<td>3,630</td>
</tr>
<tr>
<td>$NAAW_2$</td>
<td>0.7</td>
<td>1.5</td>
<td>0</td>
<td>6</td>
<td>65</td>
</tr>
<tr>
<td>$INAW_1$</td>
<td>165.9</td>
<td>130.1</td>
<td>0</td>
<td>610</td>
<td>14,767</td>
</tr>
<tr>
<td>$INAW_2$</td>
<td>11.9</td>
<td>13.3</td>
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<td>66</td>
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<tr>
<td>$NAAW_INAW$</td>
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<td>7.7</td>
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<td>37</td>
<td>521</td>
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<tr>
<td>$NAST_1$</td>
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<td>48.7</td>
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<td>4,664</td>
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<td>3.3</td>
<td>0</td>
<td>15</td>
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</tr>
<tr>
<td>$INST_1$</td>
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<td>198.3</td>
<td>28</td>
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<td>26,081</td>
</tr>
<tr>
<td>$INST_2$</td>
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<td>46.0</td>
<td>3</td>
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<tr>
<td>$NAST_INST$</td>
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<td>19.0</td>
<td>0</td>
<td>75</td>
<td>1,886</td>
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<tr>
<td>$SP$</td>
<td>42.6</td>
<td>38.2</td>
<td>0</td>
<td>231</td>
<td>3,788</td>
</tr>
<tr>
<td>$FO$</td>
<td>473.3</td>
<td>380.4</td>
<td>28</td>
<td>1,770</td>
<td>42,125</td>
</tr>
<tr>
<td>$GR$</td>
<td>104.9</td>
<td>98.8</td>
<td>3</td>
<td>465</td>
<td>9,338</td>
</tr>
<tr>
<td>$RR$</td>
<td>333.0</td>
<td>263.3</td>
<td>21</td>
<td>1,225</td>
<td>29,640</td>
</tr>
<tr>
<td>$NO_FLEX$</td>
<td>8.8</td>
<td>15.5</td>
<td>0</td>
<td>63</td>
<td>781</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration.

3.2. Variables

Once we have identified all possible combinations of films in a window, we will define the variables.\(^{16}\) The dependent variable ($GAP$) is set as a relative measure of the temporal distance that separates the release dates of two films. This variable was defined as the number of days between the two releases divided by the average gap value that would result if the films of the distributors that participate in each pair had been released such that they were equally temporally spaced along each window. We normalize the dependent variable in this way to account for the fact that distributors that distribute a large number of films cannot temporally separate their own films to the same extent as smaller distributors. This empirical strategy follows Bor­
estein and Netz (1999) in their study of the airline industry, in which they normalized the average distance in the departure times of flights by the maximum possible differentiation that each airline could have achieved by separating its flights on a given day.
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We compute this average gap and employ the scenario in which films are released equidistantly within a window as our benchmark. The average distance under this assumption is as follows:

$$d(n, m) = \left( \frac{\sum_{i=1}^{n-1} i^2 - \frac{1}{n} \sum_{i=1}^{n-1} i^2}{\sum_{i=1}^{n-1} i} \right) m = \left( \frac{n+1}{3n} \right) m \tag{2}$$

where \( m \) is the window length (measured in numbers of days), and \( n \) is the number of films released in each window by the distributors that were involved in the release of the two films in each observation. This measure, which is denoted \( \bar{d} \), is the average distance that would result if the films were released uniformly along the window, which would result from efforts to capture as much demand as possible and limit competition. Therefore, this measure will capture the expected benchmark for movies released by the same distributor, which will naturally try not to cannibalize itself regardless of whether it is a Major Distributor. Moreover, this normalization allows us to compare the gap across groups with different numbers of films released in each window and to control for the window-size effects because the distance between releases varies significantly and depends on the different sizes of the windows.

Additionally, we have constructed a set of control variables that are intended to capture certain movie characteristics that are relevant for a movie’s commercial success. Because two movies that share the same characteristics are more substitutive than two movies that differ greatly, two films that share many of these features may be considered close competitors. Thus, it would be expected that such variables would have a positive effect on the distance between two releases if the distributors tried to mitigate competition by separating their releases. \( SG \) is a dummy variable that identifies observations in which both of the films in a pair are of the same genre. Similarly, \( GR \) and \( RR \) are dummies that were created to identify observations in which both films have the same age rating. In the \( GR \) variable, we have grouped the categories “general audiences” and “suitable for audiences age seven and older”. Similarly, in the \( RR \) variable we have grouped the categories “suitable for audiences age 13 and older” and “restricted audiences”. Therefore, our reference category is that the two films in a pair are aimed at two different age groups. Other dummy variables related to nationality were also created, including \( FO \) if both films are foreign and \( SP \) if both are Spanish.

The presence of stars or the fact that films may have received awards is other key factor in selecting release dates. When a movie has stars or has received an important award, it is perceived as a higher-quality film; therefore, we expect that distributors will be more interested in separating the releases of two such films to avoid the negative effects of competition. Thus, we have included a set of dummy variables whose expected coefficients are positive. The \( INST_1 \) and \( INST_2 \) variables stand respectively for cases in which one or both of the films in a pair have an international star. \( NAST_1 \) and \( NAST_2 \) variables are defined equally but with national stars. Finally, the \( NAST_INST \) dummy variable identifies cases in which one film of a pair has a national star and the other film has an international star. Similarly,
to account for received awards, $NAAW_2$ and $INAW_2$ variables respectively identify pairs of films in which both have received national or international awards, and $NAAW_1$ and $INAW_1$ pairs of films in which only one film in a pair has won a national or an international award. Finally, the $NAAW\_INAW$ variable indicates cases in which one film has won a national award and the other has won an international award\textsuperscript{21}.

Choosing releasing dates is really a two steps strategic decision. First, it implies to select the appropriate window for each movie. For Major distributors, and especially in the case of blockbusters, this decision is usually the outcome of a global rather than local strategy. Then, the eventual presence of anticompetitive practices should be analyzed on a global basis, but this is out of the scope of this paper. Second, once the window has been selected, it is time to decide the specific releasing date in order to minimize competition from the most powerful rivals, and our aim is to analyze if, in this second step, the Majors collude in the Spanish market.

We should be aware that, to perform our analysis, it is important to consider that in Spain—as in other major film markets—the “biggest” box-office hits mostly correspond to a few international blockbusters from the Major Distributors (see the European Audiovisual Observatory, 2006; De Vany and Walls, 1996; and Walls, 2005). These films, which typically have substantial budgets, take advantage of expensive release campaigns with significant investments in advertising, marketing, merchandising, tours, etc., and which are designed at the supranational level by the structural matrices of major U.S. distributors and film studios\textsuperscript{22}. Such campaigns, which often represent a worldwide release, significantly determine the launching of the films and leave little leeway for affiliates to choose the release dates in their own countries. Thus, it is crucial to consider the degree (or absence) of discretion enjoyed by a Spanish distributor to choose the release dates of such movies.

One way to control for the degree of discretion is to measure the temporal distance between the releases of a particular film in Spain compared to other countries. Figure 2 shows the average distance between the release date in Spain and in four other important film markets (the USA, the UK, France and Germany) for a set of 1,418 films that were released over the 2002-2009 period. This figure shows that the larger the budget, the smaller the distance in the release dates among countries\textsuperscript{23}. These data support the notion that subsidiary distributors are less able to choose the release date for films with large budgets, which are almost always associated with supranational release campaigns.

This limitation indicates that release-date decisions are made at two different levels. First, international hits are managed at the supranational level by distributors that compete in the European or global market. Second, national and low-budget foreign films are managed at the national level by distributors that may or may not be linked to the Major Distributors. Only at this level can Spanish distributors unilaterally coordinate their release strategies (\textit{i.e.}, without heed to the decisions of parent companies or controlling partners).
In summary, foreign blockbusters’ releases may be conditioned by launch campaigns designed at the supranational level that leave national distributors without any decisional power. Because these movies are expected to attract a substantial share of the demand of moviegoers worldwide, we expect that these blockbusters will be released to avoid as much competition as possible from other popular movies; furthermore, smaller films will also be released with as much distance from blockbusters as possible. To test this hypothesis, we created the dummy variable NO_FLEX for cases in which the releases of one or both films of the pair are designed at the supranational level and the Spanish distributor does not have the ability to decide the release date. This variable takes the value of one when one or both films of the pair were released with a distance less than or equal to two days in at least four of the five markets for which we have full information (the USA, the UK, France, Germany and Spain). We leave two days as a margin to account for the fact that opening days may not usually fall on a Friday in each country and for the existence of any holiday that might change the opening day in a specific country.

3.3. Empirical specification of the model

Once we have discussed all the variables, we will introduce the empirical model. We assume that in order to maximize profits, a single distributor will tend to separate its own films from one another more than from those of its rivals; if two of a distributor’s films were released in a short timeframe, the result would be lost revenue for both. However, this problem might be different if rival distributors are coordinating their decisions because they
might behave as a single company in deciding on release dates of the combined group’s films; they would not be acting as independent distributors who are competing and autonomously selecting their release dates. Therefore, one way to detect collusion in this industry is to examine whether the release-date scheduling applied to films distributed by the same firm (SDM and SDNM) is similar to the observed release-date scheduling that is applied to pairs of films released by different distributors (D5, DDMNM, and DDNMNM). Moreover, if Major Distributors are coordinating their policies, we would expect the D5 group to have a different performance record than those of the DDMNM and DDNMNM groups.

To test for this possibility, we estimate the following specification of the reduced-form model of distributors’ release schedules:

\[
GAP_{i,w} = \alpha + \beta_{SG}S_{i} + \beta_{NAAW-1}NAAW_{-1,i} + \beta_{NAAW-2}NAAW_{-2,i} + \\
\beta_{INAW-1}INAW_{-1,i} + \beta_{INAW-2}INAW_{-2,i} + \beta_{NAAW-INAW}NAAW_{-INAW,i} + \\
\beta_{NAST-1}NAST_{-1,i} + \beta_{NAST-2}NAST_{-2,i} + \beta_{INST-1}INST_{-1,i} + \\
\beta_{INST-2}INST_{-2,i} + \beta_{NAST INST}NAST_{-INST,i} + \beta_{SP SP}SP_{i} + \beta_{FO FO}FO_{i} + \\
\beta_{GR GR}GR_{i} + \beta_{RR RR}RR_{i} + \beta_{NO _FLEX}NO _FLEX_{i} + \alpha_{w} + \epsilon_{i,w}
\]  

(3)

The model includes dummy variables that control for similarities in the characteristics of films, the presence of stars and the awards received. The summary statistics of all of the variables are presented in table 1.

Equation (3) will be estimated separately for each of the distributor groups defined above: SDM, SDNM, D5, DDMNM, and DDNMNM. For each equation, the constant term \( \alpha \) will capture the average relative distance between two films that are distributed by the group of distributors that are included in that particular estimation after controlling for the films’ characteristics and unobserved demand window heterogeneity. Therefore, comparing \( \alpha \) across equations will allow us to capture differences in distributor groups’ performances. For instance, by comparing the two intercepts of the SDM and D5 samples, we will be able to examine whether the Major Distributors jointly behave as if they were a single distributor in selecting the release dates of their films by separating their releases to avoid competition among them.

4. Results

We conducted several tests to select the best empirical strategy for our estimations. The values of these tests are shown in table 2. The F tests examine whether the window-specific effects are statistically significant. For pairs of films that are distributed by the same company, which are modeled by SDM and SDNM, we cannot reject the null hypothesis that they are not statistically significant, and therefore, we estimate these two models using OLS. The window-specific effects are statistically significant in the other three models, \( i.e., \) those mod-
els that were estimated for the $D5$, $DDMNM$, and $DDNMNM$ groups; thus, the FE or RE estimators fit our data better than an OLS estimator would. Because the performed Hausman tests suggest that the window-specific effects and regressors are correlated, we display the parameter estimates for the last three models using only the FE estimator. We have used White’s method to obtain robustness tests in the presence of heteroskedasticity, where clustering by windows permits correlation of the errors within them but forces errors to be independent across distinct windows.

The parameter estimates are shown in Table 2. At first sight, we can observe in that both magnitude and statistical significance of the estimated parameters vary across the different groups of firms. Now, we discuss the coefficients associated with movie features. With respect to movies distributed by Major Distributors ($SDM$), these companies try to mitigate the competition between their own movies by separating pairs of films in which both have received either national or international awards. However, they tend to release closer pairs of films that have a national star ($NAST_1$). The strategy of smaller distributors ($SDNM$) is to release their pairs of movies with a larger gap if a movie has a national star. With respect to pairs of movies that are not distributed by the same company, when films are released by two different Major Distributors ($D5$), they tend to be released further apart if at least one film has an international star or when both movies have a national star. In contrast, we observe that Majors tend to release closer pairs of films that have received international awards. This result might indicate that Major Distributors release high-quality films, candidates for an international award or international blockbusters in the same season of the year, e.g., just before the end of the year to be a potential candidate for the Academy Awards or the Golden Globes or during the Academy Award campaign to ensure high demand. For the $DDMNM$ group, which corresponds to pairs of films distributed by different distributors where only one film is released by a Major Distributor, the pairs of movies that have an international star have consistently been released with a significantly longer gap. Additionally, films that have received an international award tend to be more distanced from the rest of the movies. Finally, in the $DDNMNM$ group, which includes all of the pairs of films distributed by different distributors that are not Major Distributors, we observe that the average distance between two film releases is greater when at least one of the films has an international award or a national star.

General speaking, we can conclude that one of the criteria in choosing release dates is avoiding films that share similar characteristics. However, these effects are related to the presence of stars or awards, and no effect was found regarding a movie’s genre or rating. Moreover, although these effects are not homogeneous across groups, they are relevant for all of them; thus, the combination of distributors behind a particular pair of movies, awards and the presence of stars will be relevant variables that should be taken into account in choosing when to release these movies.

As discussed above, to account for the fact that foreign blockbusters’ release dates might be conditioned on marketing campaigns designed at the supranational level, we have included the dummy variable $NO_FLEX$. We created this variable for cases in which the Span-
Table 2  
ESTIMATED MODELS

<table>
<thead>
<tr>
<th>Variable</th>
<th>SDM</th>
<th>SDNM</th>
<th>D5</th>
<th>DDMNM</th>
<th>DDNMNM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>robust-t</td>
<td>Coefficient</td>
<td>robust-t</td>
<td>Coefficient</td>
</tr>
<tr>
<td>SG</td>
<td>-0.0176</td>
<td>-0.52</td>
<td>-0.0234</td>
<td>-0.71</td>
<td>0.0020</td>
</tr>
<tr>
<td>NAAW_1</td>
<td>0.0723</td>
<td>0.98</td>
<td>0.0264</td>
<td>0.36</td>
<td>-0.0268</td>
</tr>
<tr>
<td>NAAW_2</td>
<td>0.3528**</td>
<td>2.46</td>
<td>-</td>
<td>-1.558</td>
<td>-1.20</td>
</tr>
<tr>
<td>INAW_1</td>
<td>0.0181</td>
<td>0.50</td>
<td>0.0565</td>
<td>1.64</td>
<td>-0.0031</td>
</tr>
<tr>
<td>INAW_2</td>
<td>0.3130**</td>
<td>2.27</td>
<td>0.0399</td>
<td>0.51</td>
<td>-0.1310**</td>
</tr>
<tr>
<td>NAAW_INAW</td>
<td>0.2310</td>
<td>1.18</td>
<td>0.0225</td>
<td>0.19</td>
<td>0.0263</td>
</tr>
<tr>
<td>NAST_1</td>
<td>-0.1459**</td>
<td>-2.05</td>
<td>0.1138**</td>
<td>2.53</td>
<td>0.0469</td>
</tr>
<tr>
<td>NAST_2</td>
<td>-0.1839</td>
<td>-1.04</td>
<td>-0.0058</td>
<td>-0.04</td>
<td>0.1912*</td>
</tr>
<tr>
<td>INST_1</td>
<td>-0.0442</td>
<td>-1.43</td>
<td>-0.0020</td>
<td>-0.06</td>
<td>0.0438**</td>
</tr>
<tr>
<td>INST_2</td>
<td>0.0245</td>
<td>0.63</td>
<td>0.0773</td>
<td>1.27</td>
<td>0.0705**</td>
</tr>
<tr>
<td>NAST_INST</td>
<td>-0.0277</td>
<td>-0.51</td>
<td>0.0826</td>
<td>0.59</td>
<td>0.0158</td>
</tr>
<tr>
<td>SP</td>
<td>0.0679</td>
<td>0.61</td>
<td>-0.0060</td>
<td>-0.12</td>
<td>0.0731</td>
</tr>
<tr>
<td>FO</td>
<td>0.0388</td>
<td>0.85</td>
<td>0.0462</td>
<td>1.46</td>
<td>0.0109</td>
</tr>
<tr>
<td>GR</td>
<td>0.0363</td>
<td>1.11</td>
<td>-0.0379</td>
<td>-0.73</td>
<td>-0.0234</td>
</tr>
<tr>
<td>RR</td>
<td>0.0332</td>
<td>1.29</td>
<td>-0.0331</td>
<td>-1.19</td>
<td>-0.0080</td>
</tr>
<tr>
<td>NO_FLEX</td>
<td>0.0952*</td>
<td>1.92</td>
<td>0.0991</td>
<td>1.58</td>
<td>0.0957*</td>
</tr>
<tr>
<td>CONS</td>
<td>0.8763***</td>
<td>16.79</td>
<td>0.8628***</td>
<td>21.63</td>
<td>0.8650***</td>
</tr>
</tbody>
</table>

| N               | 1756         | 1406 | 7300         | 32635 | 28091 |
| F               | F(16,88) = 4.22 | F(15,86) = 3.07 | F(16,88) = 2.42 | F(16,88) = 0.89 | F(16,88) = 2.43 |
| F test Hₐ₀:αₐₜ = αₜ   | F(88,1651) = 0.81 | F(86,1304) = 0.90 | F(88,7195) = 2.16 | F(88,32530) = 7.35 | F(88,27986) = 5.73 |
| Hausman test     | F(16,88) = 1.88 | F(16,88) = 4.90 | F(16,88) = 3.85 |
| Model estimated by | OLS | OLS | FE | FE | FE |

Note: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.  
Source: Authors’ elaboration.
ish distributors do not have any leeway to select the release date of one or both films in a pair of a particular observation. In this sense, it is important to highlight the fact that we have not found many cases in which two global films distributed by either the same Major Distributor or different Major Distributors are released in the same window. Therefore, Major Distributors appear to distribute films whose releases are designed at the supranational level in different windows, which ensures that these films do not compete among themselves. Moreover, by focusing on pairs distributed by the same Major Distributor (SDM), when one of a pair of such films is allocated into a particular window, the rest of the films distributed by its company will be released with a larger relative gap to try to avoid close rivalry. This pattern is a clear maximizing strategy that has no moral implications when it is followed by an individual firm, as captured in the SDM estimation. However, we observe exactly the same pattern when we compare global releases distributed by a single Major and those releases that were distributed by different Major Distributors (D5). This outcome seems to indicate the presence of coordination between Major Distributors. In fact, this result is consistent with our previous result that Major Distributors do not release potential global blockbusters in the same demand window.

Finally, we next discuss our target estimated coefficient, the intercept \(\alpha\). This coefficient has nothing to do with any of the characteristics controlled for the rest of the variables incorporated in the regression (including window unobserved heterogeneity), and hence it can be interpreted as the average (relative) gap between two “homogeneous” films. Because \(\alpha\) is a conditional average, unobserved differences in the release performances of distributors’ films should be captured by this coefficient. If \(\alpha\) is one, then films are distributed uniformly along the window to try to capture as much of the demand as possible by avoiding direct competition, as is proposed in spatial or temporal demand models such as that of Hotelling (1929). Therefore, we expect an intercept close to one when we consider only pairs of films released by the same distributor. The estimated intercepts for SDM and SDNM are 0.8763 and 0.8628, respectively; these intercepts are not equal to one but are closer to one than the intercepts that were estimated for pairs of movies released by different distributors, except when each is a Major Distributor (D5).

The main purpose of this paper is to evaluate whether there are differences in the release policies of different types of motion picture distributors and whether there are signs of between-firm coordination policies. In that case, we could provide insight into collusive behavior, which is particularly common among companies with significant market power, i.e., Major Distributors. To test this hypothesis, we have conducted Z-tests to identify significant differences in the intercepts across models. The results are presented in table 3.

We are interested in testing whether the Majors are behaving as cartel members when they set the release schedules of their films. For this reason, we compare the intercept of the D5 group with the intercepts of the other groups. Given our parameter estimates, we can reject the null hypothesis of similar between-firm behavior because the estimated intercept for the three equations with pairs of films distributed by two different firms (the D5, DDMNM and DDNMNM groups) are significantly different. Thus, the average relative dis-
stances between the release dates of movies distributed by two Major Distributors are significantly larger than the average temporal distance between movies distributed by different distributors when at least one of them is a non-major distributor. Thus, two Major Distributors are able to distance their releases more than any other combination of two distributors, which supports the idea that Major Distributors are acting in coordination with one another when setting their release schedules. In fact, they behave as if they were a single distributor in setting the release dates of their own films because we cannot reject the null hypothesis that the estimated intercepts for the SDM, SDNM and D5 groups are all equal. It appears that Major Distributors jointly set their release schedules in a similar manner as any single distributor selects the release dates of its own films. This result reinforces the previous finding regarding worldwide releases (the NO_FLEX variable). It appears that the degree of within-firm coordination exhibited by each Major company, which is intended to maximize profits when they fix their own movie release dates, is also achieved between Major Distributors. Although it is legitimate for a single distributor to separate its own releases to avoid cannibalizing its own films, this behavior is censurable when it is the result of a coordinated strategy in a group of firms.

<table>
<thead>
<tr>
<th>Comparing constant term $\alpha_0$ between:</th>
<th>$D5 - SDM$</th>
<th>$D5 - SDNM$</th>
<th>$D5 - DDMNM$</th>
<th>$D5 - DDNMNM$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Z$ test</td>
<td>-0.20</td>
<td>0.05</td>
<td>2.23</td>
<td>3.71</td>
</tr>
<tr>
<td>$H_0$: $\alpha_0=\alpha_0$</td>
<td>[0.8414]</td>
<td>[0.9680]</td>
<td>[0.0258]</td>
<td>[0.0002]</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration.

5. Conclusion

We have analyzed differences in performance between collusive and competitive firms in a non-price strategic variable in a market where product differentiation is extremely high. To achieve this aim we have adapted one of the most popular (but initially price-based) methods to detect collusive practices in films’ release dates, a critical variable of competition among distributors in an industry in which films do not compete on prices. Using a sample of movies released in Spain between 2002 and 2009, our paper attempts to provide some evidence on the presence of collusive behavior in films’ release dates, one of the arguments used by the SCA to fine five Spanish distributors linked to the major studios in Hollywood.

In particular, we advocate estimating a reduced-form model in which our dependent variable is the gap between the release dates of two films. Following Corts (2001), the empirical specification of our model relies on previously defined temporal market segments or theater-demand windows that, in contrast, were identified using comprehensive statistical techniques. In order to prevent spurious results, we use a relative measure of the temporal
gap between two releases that takes the equilibrium of the Hotelling’s (1929) spatial competition model as a benchmark.

We have found that distributors try to elude competition between films that share certain characteristics –such as the presence of stars or awards– regardless of the combination of distributors that are releasing a particular pair of movies. It is notable that no effect was found regarding the genre or the rating. Next, we have tested whether Major Distributors have a joint strategy to release their films to avoid overlaps and to separate their release dates. Once we control for the degree of discretion that the Spanish distributors have when choosing the release schedule, our results show that two different Major Distributors are somehow able to better reduce the clustering of their film releases.

Moreover, Major Distributors behave as if they were the same company. Although it is appropriate for a distributor to separate its own releases to avoid cannibalizing its own projects, this behavior is censurable when it results from synchronization between competing distributors. Under lack of alternative explanations, our results seem to support the arguments used by the Court to fine the Spanish distributors linked to the major studios in Hollywood.

Finally, we want to highlight that avoiding anticompetitive practices is a worthy attitude by itself. In the case of Spanish film market, it means to increase opportunities for medium, small and independent distributors, to improve exhibitors’ bargaining power when contracting releasing schedule conditions and to enlarge the variety products (that is, films) the consumers face. In sum, it encourages welfare gains for the society.
Annex

Table A.1
DEFINITION OF VARIABLES

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>GAP</th>
<th>relative measure of the temporal distance that separates the release dates of two films</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent variables</td>
<td>Dummy variables that take value 1 if:</td>
<td></td>
</tr>
<tr>
<td>$SG$</td>
<td>both films have the same genre</td>
<td></td>
</tr>
<tr>
<td>$NAAW_1$</td>
<td>one of the films has a national award</td>
<td></td>
</tr>
<tr>
<td>$NAAW_2$</td>
<td>both films have a national award</td>
<td></td>
</tr>
<tr>
<td>$INAW_1$</td>
<td>one of the films has an international award</td>
<td></td>
</tr>
<tr>
<td>$INAW_2$</td>
<td>both films have an international award</td>
<td></td>
</tr>
<tr>
<td>$NAAW_INAW$</td>
<td>one film has a national award and the other has an international award</td>
<td></td>
</tr>
<tr>
<td>$NAST_1$</td>
<td>one of the films has a national star</td>
<td></td>
</tr>
<tr>
<td>$NAST_2$</td>
<td>both films have a national star</td>
<td></td>
</tr>
<tr>
<td>$INST_1$</td>
<td>one of the films has an international star</td>
<td></td>
</tr>
<tr>
<td>$INST_2$</td>
<td>both films have an international star</td>
<td></td>
</tr>
<tr>
<td>$NAST_INST$</td>
<td>one film has a national star and the other has an international star</td>
<td></td>
</tr>
<tr>
<td>$SP$</td>
<td>both films are Spanish</td>
<td></td>
</tr>
<tr>
<td>$FO$</td>
<td>both films are foreign</td>
<td></td>
</tr>
<tr>
<td>$GR$</td>
<td>both films are intended for general audiences</td>
<td></td>
</tr>
<tr>
<td>$RR$</td>
<td>both films are intended for restricted audiences</td>
<td></td>
</tr>
<tr>
<td>$NO_FLEX$</td>
<td>the releases of one or both films are designed at the supranational level</td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration.

Notes

1. For a recent literature review, see Chisholm et al. (2015).
2. By the “Major Distributors”, we refer to the following companies: Disney, Fox, Sony, Warner Bros and UIP/Paramount/Universal.
3. For instance, in 2009 the market share of these Major Distributors was 73%.
4. One exception is Moul (2008), who examined collusion in rental rates (i.e. the percentage of exhibitor box-office revenues that will be returned to the distributor).
5. This sentence has been confirmed by the Spanish National Court in 2013, although some fines were adjusted.
6. Regarding the implication of distributors’ market power on theatre allocation in the USA market, see Prieto-Rodríguez et al. (2015).
7. In addition, and according to the SCA, the determination of the same rental price cannot be caused by common cost structures because films’ production and advertising costs vary considerably because motion pictures are
highly differentiated products. Furthermore, distributors do not have identical operating costs, and the box office revenues of each of their films cannot be predicted with certainty.

8. This fact was recognized by the distributors that were fined by the SCA. For example, Fox noted that one criterion for choosing the release date is that no similar film will be released on the same date. UIP claimed that competition among Major Distributors is particularly focused on obtaining the best theaters on the release dates of their films (see the Resolution of the SCA, 2006, p. 13).

9. Indeed, the film market in Spain was characterized by asymmetry in negotiation between the exhibitors and Major Distributors. Whereas exhibitors were mainly local, the Major Distributors were integrated with the U.S. distributors that own the most popular films and commercially exploit these films nationally and globally. Because of this asymmetry, Spanish distributors could operate profitably without a particular exhibitor or exhibitors in Spain, whereas exhibitors could hardly stay in business without the Major Distributors.

10. The implications of contracts between distributors and exhibitors in the Spanish film market have been addressed by Gil (2009, 2011).


12. For instance, Borenstein and Netz (1999) examine the scheduling of flight departure times in the airline industry in an attempt to provide insight into the incentives that encourage companies to minimize or maximize differentiation and to either “steal” customers from competitors or reduce price competition, respectively. Salvanes et al. (2005) use a similar approach to empirically test the degree of departure-time differentiation in the Norwegian airline industry, and Netz and Taylor (2002) empirically test the locations of petrol stations in the Los Angeles Basin with the same approach.

13. Our GAP variable can be interpreted as a measure of product differentiation, as in Borenstein and Netz (1999) and Netz and Taylor (2002).

14. A significant peak is identified when the MACD line intersects its moving average line (signal) in ascending order. On the contrary, signals that identify a valley occur when the MACD line intersects its moving average (signal) in descending order. The MACD line is formed by subtracting the short moving average from the long moving average; we calculate it as $MACD = EMA_8 - EMA_4$. Here, $EMA_8$ is the exponential moving average box office revenues of the last eight weeks and $EMA_4$ corresponds to the last four weeks. A signal line is formed by smoothing the MACD line using an exponential moving average of the MACD for two weeks. The three tuning (weak) parameters that are used here to calculate the exponential moving averages have been selected by the calibration of the model.

15. In some cases, we will compare the release dates in Spain and other countries.

16. See table A.1 in the annex for a brief definition of all them.

17. We used a constant distance between films and a distance to the ends of the windows that is equal to one half of the distance between films, as proposed by Hotelling (1929).

18. See De Vany and Walls (2004), McKenzie and Walls (2013), McKenzie (2009), Nelson et al. (2001), Deuchert et al. (2005), and Ravid and Basuroy (2004). Furthermore, for a brief outline of those papers that analyzed the effects of these characteristics, see Hadida (2009).

19. This variable was created by grouping the films in eight groups according to the following classification of genres from Nielsen: Action/Adventure, Animation, Black Comedy/Comedy/Romantic Comedy, Documentary, Drama, Fantasy/Science Fiction, Horror/ Suspense, Musical/Special Events/Unknown/Western.

20. In general, by international and national stars we refer to actors or directors who have won an Oscar or a Goya (a Spanish award), respectively, with certain exceptions.

21. We have considered the Oscar and Goya awards in their main categories and the principal award in Festivals (Berlin, Cannes, San Sebastian and Venice).

22. In 2005, the average cost of a movie from the Major Hollywood studios rose to 96.2 million dollars, of which 37.6% (36.2 million dollars) corresponded to promotion and marketing costs (European Audiovisual Observa-
By contrast, in 2008, the average cost of a Spanish production was 2.62 million euros, of which only 16.2% were operating costs, including copies and advertising (Ministerio de Cultura, 2009).

23. It should be noted that the budget variable is not available for all the movies in our database; for this reason, it is not included as a control variable.

24. In this model, we have removed the variable pertaining to national awards, or NAAW_2, because there was only one observation that met this characteristic.

References


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Do Movie Majors Really Collude? Indirect Evidence from Release Schedules

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Resumen

Los grandes estudios cinematográficos de Hollywood y sus distribuidores locales tienen una cuota de mercado dominante en los principales mercados cinematográficos internacionales, pero su comportamiento competitivo se ha encontrado bajo sospecha. En 2006, el Tribunal de Defensa de la Competencia Español los multó por prácticas anticompetitivas. Nuestro objetivo es evaluar la presencia (o ausencia) de conductas colusorlas entre estos distribuidores durante 2002-2009. Puesto que la fecha de estreno es una variable crítica de competencia, examinamos si estos grandes distribuidores están coordinando sus calendarios. Nuestros resultados sugieren que ellos logran un mayor grado de coordinación en sus calendarios que otros distribuidores.

Palabras clave: competencia temporal, exhibición cinematográfica, industria cinematográfica, colusión, producto diferenciado.

Clasificación JEL: L41, Z10