

## Vertical Integration and Market Foreclosure: Empirical Evidence from the Korean Movie Industry\*

Yun Jeong Choi\*\* · Jong-Hee Hahn\*\*\* · Hojung Kim\*\*\*\*

*We examine how the foreclosure incentive of firms is affected by the degree of vertical integration in related markets, which is measured by the number of vertically integrated firms. We specifically investigate how the exhibition behavior of the vertically integrated and separated theaters in the Korean movie industry responds to a change in the degree of vertical integration by using daily screening data over a 7-year period. The vertical separation of a previously integrated firm serves as a structural break. Our results show that the foreclosure incentive of the vertically integrated firms generally weakens as the degree of vertical integration decreases. However, the existing integrated firms strengthen their intensity of foreclosure toward the newly separated firm after the breakup, perhaps to weaken the market position of the previously integrated rival. Moreover, we find that the newly separated firm behaves similarly to other independent firms, with no sign of foreclosure behavior.*

JEL Classification: L12, L41, L82

Keywords: Vertical Integration, Foreclosure, Market Structure, Movie Industry

---

*Received: June 21, 2018. Revised: Dec. 16, 2018. Accepted: Feb. 7, 2019.*

\* We would like to thank Yusun Hwang and the participants of the 2014 Denver and the 2015 Wellington Western Economic Association International Annual Conferences, the SSK seminar at Yonsei University, and the 2015 Korea Economic Association Economics Joint Conference at Yonsei University for their useful comments. This work is supported by the National Research Foundation of Korea Grant funded by the Korean Government (NRF-2016S1A3A2923769) and the Yonsei University Future-leading Research Initiative of 2015 (2015-22-0142). This paper is an extensively revised version of the master's thesis of Hojung Kim at Yonsei University, which is supervised by Yun Jeong Choi and Jong-Hee Hahn.

\*\* Second author, associate professor, School of Economics, Yonsei University. Email: [yun.choi@yonsei.ac.kr](mailto:yun.choi@yonsei.ac.kr)

\*\*\* Corresponding author, professor, School of Economics, Yonsei University, Seoul, Korea. Tel: 82-2-2123-2466; Email: [hahnjh@gmail.com](mailto:hahnjh@gmail.com)

\*\*\*\* First author, research associate, Korea Information Society Development Institute, Email: [nanoito@kisdi.re.kr](mailto:nanoito@kisdi.re.kr)

## I. Introduction

The competitive effects of vertical integration have been extensively studied in the economics literature. Vertically integrated firms with monopoly power can strategically limit their rival's access to essential inputs or outlets (Salinger, 1988; Ordober et al., 1990).<sup>1</sup> Such market foreclosure can be anticompetitive because it restrains market competition by raising rivals' costs or excluding efficient rivals, thereby reducing consumer and social welfare.<sup>2</sup> By contrast, vertical integration may enhance efficiency by eliminating double marginalization, internalizing service/investment externalities, and reducing transaction costs (Williamson, 1975, 1985; Grossman and Hart, 1986; Hart and Moore, 1990). Church (2008) and Riordan (2008) provided further details on various vertical integration motivations and welfare effects.

Several studies have provided empirical evidence that supports the downstream foreclosure effect of vertical integration. Chipty (2001) and Waterman and Weiss (1996) showed that the backward integration of cable operators into programming leads to market foreclosures. Vertically integrated cable operators are more likely to carry their own movie service than that of a rival. Moreover, they are less likely to carry a rival home shopping network in addition to their own. Similarly, Goolsbee (2007) found that vertically integrated broadcast networks and cable systems that produce content systematically discriminate against independent content in favor of their own. Recently, by using a structural model, Crawford et al. (2018) investigated the welfare effects of the vertical integration of regional sports networks with programming distributors in US multichannel television markets to show that vertical integration can reduce welfare through foreclosure and increased costs for rivals. In the gasoline distribution market, Gilbert and Hastings (2002) showed that a vertically integrated refiner charges high wholesale prices in cities where it competes with independent gas stations. Gil (2008), Fu (2009), and Hwang (2013) showed that vertically integrated theaters in Spain, Singapore, and Korea tend to run the movies of their affiliated distributors longer than other independent theaters.

In the Korean movie industry, all three major domestic distributors had vertically integrated theaters until one disintegrated in 2007. This situation provides a natural experiment to investigate how a change in the degree of vertical integration affects the foreclosure behavior of vertically integrated theaters against independent nonintegrated movie distributors. In this study, we first examine whether the

---

<sup>1</sup> Hart and Tirole (1990) showed that vertical integration can be used to restore monopoly power in the absence of commitment power. See also O'Brien and Shaffer (1992) and McAfee and Schwartz (1994).

<sup>2</sup> Market foreclosures are commercial practices that reduce buyers' access to a supplier (i.e., upstream foreclosure) and/or limit suppliers' access to a buyer (i.e., downstream foreclosure) (Tirole, 1988).

theaters' decisions on the number of screenings (i.e., how many times a movie is shown) and screening duration differ between the vertically integrated and the nonintegrated theaters, more specifically, whether the vertically integrated theaters favor their own movies (i.e., show their own movies more often and longer than other movies). Most important, we investigate how the vertically integrated theaters' foreclosure behavior is affected by the degree of vertical integration in the industry, which is measured by the number of vertically integrated firms in the market.

A sizable body of literature has considered the favoritism of vertically integrated theaters in Korea toward their own movies. These studies have shown that vertically integrated theaters allocate additional screens for their own movies (Hwang, 2103; Cho, 2015) and play their own movies longer than those distributed by rivals (Lee et al., 2009; Hwang, 2013; Choe et al., 2014). However, Choi (2007) showed that no discrimination occurs in terms of movie duration. According to Jeong (2017), theaters' allocation of screenings to their rival distributors differs depending on profit structure and film production. By contrast, Yoon and Kim (2012) demonstrated that vertically integrated theaters show less diverse movie genres than independent theaters.

Our approach contrasts with those of previous empirical studies, which mostly examine whether vertically integrated firms foreclose independent upstream or downstream rivals. The foreclosure effect of vertical integration is theoretically and empirically well established. Thus, we attempt to explain how the foreclosure behavior of individual firms is affected by a change in the degree of vertical integration in the market rather than the existence of vertical foreclosure. Our analysis is unique in that we examine how individual firms with different ownership structures (vertical integration or separation) respond differently to a change in the degree of vertical integration. In addition, we investigate how their reactions differ based on their rivals' ownership structures. To our knowledge, this is the first empirical study to show how individual firms' foreclosure behavior changes depending on their rivals' ownership structure.

A study on the relationship between foreclosure incentives and the degree of vertical integration is important. This endeavor can serve as a reference for competition authorities on vertical merger cases. Several economic analyses have shown that the competitive effects of vertical integration depend on the underlying market structure. Salinger (1988) analyzed a vertical oligopoly with Cournot quantity competition in both upstream and downstream markets. The author found that the effects of vertical foreclosure on input and prices of final goods depend on the degree of vertical integration measured by the ratio of integrated firms to the total number of firms in the market. He also argued that vertically integrated firms have no incentive to trade with upstream and downstream competitors given the double marginalization at the equilibrium. Vertically integrated firms would appropriate margins rather than trading input with their rivals. Furthermore,

Ordover et al. (1990) demonstrated that vertical integration and foreclosure could relax price competition in a bilateral duopoly setup.

The study of Loertscher and Reisinger (2014) is closely related to our research. It analyzes a vertical oligopoly with quantity competition to show that the competitive effect of vertical integration depends on the underlying market structure, particularly in terms of the degree of vertical integration. That is, the amount of capacity (input) captured by the integrated firm before upstream market transaction as well as the level of industry concentration (number of nonintegrated rivals). In addition, Riordan (1998) demonstrated that the vertical integration of a dominant firm facing a competitive fringe reduces consumer surplus.

The present study empirically examines how the foreclosure incentives of vertically integrated firms are related to the degree of vertical integration. Vertical integration is measured by the number of vertically integrated firms in the industry and the ownership structure of rivals, which has been ignored in previous studies. We find that the foreclosure incentives of vertically integrated firms generally weaken as the degree of vertical integration decreases. That is, the intensity of the integrated theaters' vertical foreclosure decreases as the separated independent firms increase regardless of whether a distributor is vertically integrated or independent. This situation can be interpreted as follows: The benefit of vertical foreclosure tends to be small when the degree of vertical integration is low because reducing the input or outlet and raising rivals' costs by foreclosure is difficult when the number of nonintegrated rivals is large. This finding is consistent with that of Ordover et al. (1990) who showed that vertical foreclosure induces independent input suppliers to raise their input price to that of the rival downstream producer and the increase in rivals' costs would be small when numerous nonintegrated rivals exist in the market. This result is similar to that of Riordan (1998) and Loertscher and Reisinger (2014) who found that an integrated firm's incentive to purchase additional input in the upstream becomes small (i.e., the incentive to foreclose becomes small) when the degree of vertical integration is low, thereby increasing the difficulty of rivals to raise their costs.

By contrast, we find that the foreclosure intensity is greater for the newly separated distributor (Showbox) than other independent distributors. This finding suggests that the existing integrated firms strategically increase the degree of foreclosure of a newly separated firm to weaken the market power of their previously integrated rival. We also observe that the newly separated firm behaves similarly to other independent firms, that is, it no longer shows signs of foreclosure behavior.

We do not explicitly include this in our analysis; however, we find that the efficiency gains from the elimination of double markups decrease as the number of vertically integrated firms is reduced (i.e., the degree of vertical integration decreases). However, vertical integration may lead to other types of efficiency gains

in the movie industry. Thus, the overall welfare effect of vertical integration is ambiguous, depending on the relative strength of two opposing effects. Our empirical results show that the foreclosure incentive of vertically integrated firms is proportional to the degree of vertical integration in the market, with no direct welfare implication of vertical integration.

## II. A Brief Overview of the Korean Movie Industry

The Korean movie market is one of the fastest growing movie markets in the world. According to the Korean Film Council (KOFIC, 2013), box office revenue in 2013 was USD 1.5 billion. The total number of admissions that year was 213 million, meaning that the per capita admission was 4.25.<sup>3</sup> Domestic movies were quite strong, with a market share of 59.7%.

One of the factors that boosted the rapid growth of the Korean movie industry was the introduction of multiplex theater chains in the 2000s by CGV, Lotte Cinema, and Megabox. These chains are vertically affiliated theaters with their own distributors, namely, CJ E&M (hereafter, CJ), Lotte, and Showbox, which belong to *chaebols*, or large family-owned business conglomerates, the CJ Group, the Lotte Group, and the Orion Group, respectively. This entry to the exhibition sector gave these distributors an unprecedented degree of market power. Table 1 shows the number of movies released by each distributor from 2004 to 2010. The movie industry in Korea suffered during the financial crisis from 2007 to 2008. Nevertheless, CJ maintained its leading position in movie distribution. In addition, the number of movies distributed by Lotte increased while that of Showbox decreased. Table 1 also shows the annual market shares of the three major domestic distributors based on the number of viewers in Seoul. The three distributors' total market share is approximately 50%, with the largest share belonging to CJ.<sup>4</sup>

Table 2 shows the market shares of the three major multiplex theater chains and other independent theaters in terms of the number of theaters and screens. The three vertically affiliated theater chains, namely, CJ–CGV, Lotte–Lotte, and Showbox–Megabox, tend to have a larger number of screens per theater than independent theaters, accounting for nearly 70% of market shares in terms of number of theaters and total number of screens. That is, these vertically affiliated firms hold strong market power in the distribution and exhibition sectors.

---

<sup>3</sup> The population of Korea is approximately 49 million.

<sup>4</sup> The market shares of the top four distributors for Korean domestic movies is more than 80% (source: Korean Fair Trade Commission, 2009).

**[Table 1]** Number of movies and market shares in Seoul<sup>5</sup>

Year\Distributor	Number of movies released			Market shares based on number of viewers in Seoul		
	CJ E&M	Lotte	Showbox	CJ E&M	Lotte	Showbox
2004	36	2	19	24.42%	<1%	18.02%
2005	41	9	25	21.90%	3.90%	19.80%
2006	51.5	19	28	23.20%	5.60%	20.10%
2007	41.5	26	23	29.70%	8.60%	12.30%
2008	37	27	19	28.60%	7.80%	10.40%
2009	49	24	17	27.60%	11.00%	14.50%
2010	44	26	10	27.00%	9.80%	7.00%

Source: Korean Film Yearbook 2004–2010, KOFIC.

Notes: 1. The number of movies released by each distributor includes those from the previous year if they are run.

2. Movies jointly distributed by more than two distributors are counted as 0.5 for the number of movies released.

**[Table 2]** Market shares of exhibitors

## A. Number of theaters

Year	Exhibitors (theaters)								
	CGV		Lotte Cinema		Megabox		Independent		Total
2004	25	35.2%	14	19.7%	11	15.5%	21	29.6%	71
2005	32	28.8%	28	25.2%	16	14.4%	35	31.5%	111
2006	43	28.1%	36	23.5%	26	17.0%	48	31.4%	153
2007	56	29.0%	41	21.2%	36	18.7%	60	31.1%	193
2008	65	28.9%	48	21.3%	40	17.8%	72	32.0%	225
2009	73	30.3%	54	22.4%	40	16.6%	74	30.7%	241
2010	72	30.0%	54	22.5%	41	17.1%	73	30.4%	240

## B. Total number of screens

Year	Exhibitors (theaters)								
	CGV		Lotte Cinema		Megabox		Independent		Total
2004	216	38.4%	111	19.7%	98	17.4%	138	24.5%	563
2005	267	31.9%	198	23.7%	132	15.8%	239	28.6%	836
2006	360	31.6%	253	22.2%	206	18.1%	320	28.1%	1,139
2007	469	32.9%	283	19.8%	281	19.7%	393	27.6%	1,426
2008	538	33.9%	326	20.5%	310	19.5%	414	26.1%	1,588
2009	600	35.5%	365	21.6%	309	18.3%	416	24.6%	1,690
2010	592	35.1%	365	21.7%	317	18.8%	411	24.4%	1,685

<sup>5</sup> The data of annual audience shares per distributor for the entire country are not available up to 2007.

C. Average number of screens per theater

Year	Exhibitors (theaters)				
	CGV	Lotte Cinema	Megabox	Independent	Total
2004	8.6	7.9	8.9	6.6	7.9
2005	8.3	7.1	8.3	6.8	7.5
2006	8.4	7.0	7.9	6.7	7.4
2007	8.4	6.9	7.8	6.6	7.4
2008	8.3	6.8	7.8	5.8	7.1
2009	8.2	6.8	7.7	5.6	7.0
2010	8.2	6.8	7.7	5.6	7.0

Source: Authors' calculation based on the sample data used in this paper.

Meanwhile, the three vertically integrated firms exhibit several differences in terms of ownership structure. CJ and CGV are subsidiaries of the CJ Corporation conglomerate. Showbox and Megabox, which are former subsidiaries of the Orion Group conglomerate, separated in 2007 when Megabox was sold to a group of foreign investors. However, Lotte Entertainment and Lotte Cinema belong to the same corporate entity, that is, Lotte Co., Ltd, under the same CEO. One CEO to manage distribution and exhibition implies that these sectors have the same goal, such as, profit maximization. By contrast, two CEOs, that is, one for each sector, could result in both sectors working toward their own goals, with their vertical relationship under the same umbrella mediating or affecting their decisions. Thus, the strength of the vertical relationship and cooperation would be greatest in the Lotte case.

Unlike in the United States where the decision of Paramount in 1948 forced Hollywood studios to sell their theater chains (Paquet, 2009), vertical integration at various stages of the movie industry remains a major concern for the Korean competition authority. For instance, in 2008, the Korean Fair Trade Commission ruled against the four largest multiplex theater chains and the five largest theaters for ending several of their movie screenings prematurely, issuing an excessive number of tickets without the consent of distributors, and so on. A recent case brought to the Korean Fair Trade Commission in 2014 was against the unfair film screening of CGV and Lotte. The two theaters were accused of allocating additional screens and long screening durations for movies produced by their affiliated firms and giving away discount coupons without the consent of filmmakers and distributors.

### III. Empirical Framework

We first examine whether vertically integrated theater chains favor their own

movies over those distributed by independent distributors.<sup>6</sup> We use the following regression.

$$\text{Base model: } \ln Y_{ij} = \alpha + \beta OWN_{ij} + \gamma V_i + \theta V_j + \mu_i + \delta_j + \rho X + \varepsilon_{ij} \quad (1)$$

where  $\ln Y_{ij}$  is the logarithm of the number of screenings (or duration in days) for movie  $i$  shown at theater  $j$ ;  $OWN_{ij}$  takes the value of 1 if the distributor of movie  $i$  and theater  $j$  are vertically integrated with each other, and 0 otherwise;<sup>7</sup> and  $V_i$  and  $V_j$  are the dummy variables for a movie of a vertically integrated distributor and a vertically integrated theater, respectively. The movie fixed effects  $\mu_i$  control for movie-specific characteristics such as movie quality or popularity, genre, country of origin, star power, and production budget. They also include the characteristics of the movie distributor.<sup>8</sup> Therefore, the vertically integrated distributor effects ( $\gamma$ ) are embedded as movie characteristics in the movie fixed effects because these cannot be separately identified from the movie fixed effects ( $\mu_i$ ). These movie characteristics are seriously considered by theaters when deciding the number of screenings and the duration of a movie. However, because those data are difficult to obtain, we use movie fixed effects to avoid the omitted variable problem and endogeneity issue. The theater fixed effects  $\delta_j$  are also included because theaters or theater chains have different marketing strategies or reputations.<sup>9</sup> In addition, different theaters belonging to the same theater chain may have different strategies, depending on the degree of competition in the region (Fu, 2004; Davis, 2006). Furthermore, the geographical location of each theater can affect the potential demand for a movie regardless of the brand.  $X$  in the equation represents other controlling factors. We include year and month dummy variables, that is, dummy variables for movie  $i$ 's release year and month to reflect year-specific movie demand or supply factors.  $\varepsilon_{ij}$  is the error term.

$OWN_{ij}$  is the main variable of interest. The  $OWN_{ij}$  coefficients in Equation (1) can be interpreted as the integrated theaters' favoritism toward their own movie in two ways. First, holding other factors constant, the  $OWN(\beta)$  coefficient captures how the integrated theaters favor their own movies over independent movies ( $\beta + \gamma$ ) relative to how the independent theaters favor integrated movies

<sup>6</sup> We examine downstream foreclosure in which an upstream supplier (distributor) is denied access to a downstream buyer (theater).

<sup>7</sup> We consider three vertically integrated distributor–theater pairs in our analysis (CJ–CGV, Lotte–Lotte, and Showbox–Megabox) before the breakup of Showbox–Megabox in 2007; here, the dummy variable  $OWN_{ij}$  takes the value of 1. However, after the breakup,  $OWN_{ij}$  takes the value of 0 for Showbox–Megabox.

<sup>8</sup> The marketing budget or capability may differ depending on the distributor.

<sup>9</sup> Like the vertically integrated distributor effect ( $\gamma$ ), the vertically integrated theater effects ( $\theta$ ) cannot be estimated separately from the theater fixed effects ( $\delta$ ).

against independent movies ( $\gamma$ ).<sup>10</sup> That is, it shows the “additional (or relative)” discrimination of the vertically integrated theaters to the discriminatory behavior of the independent theaters. By contrast, the independent theaters’ discrimination ( $\gamma$ ) between integrated and independent movies is attributed to several characteristics of a movie that arise from its vertically integrated distributor. Hence, the distributor effect ( $\gamma$ ) is embedded in the movie fixed effect ( $\mu_i$ ). When integrated and independent movies have the same level of movie fixed effects (e.g., holding other factors constant), the coefficient ( $\beta$ ) can be interpreted as the integrated theater’s favoritism toward its own movie. However, we assume the theaters’ different treatment toward movies owing to movie characteristics as the base and the integrated theaters’ additional (or relative) favoritism as discrimination, regardless of how it is interpreted.

In the following extension, we examine whether and how much the vertically integrated theaters discriminate against the movies of their rival integrated distributors as well as other independent distributors in favor of their own movies.<sup>11</sup>

$$\text{Extension Model 1: } \ln Y_{ij} = \alpha + \beta OWN_{ij} + \gamma RIV_{ij} + \mu_i + \delta_j + \rho X + \varepsilon_{ij}, \quad (2)$$

where  $RIV_{ij}$  takes the value of 1 if vertically integrated theater  $j$  and the vertically integrated distributor of movie  $i$  are in a rival relationship, and 0 otherwise. That is, out of the nine vertically integrated distributor–theater pairs before the breakup of Showbox–Megabox in 2007, three pairs consist of  $OWN_{ij} = 1$  and six pairs consist of  $RIV_{ij}$ . Therefore, when a vertically integrated theater shows a vertically integrated movie, either  $OWN$  or  $RIV$  takes the value of 1, not both. Moreover, either the independent distributor’s movie or the independent movie theater has both  $OWN$  and  $RIV$  taking the value of 0.

The  $RIV$  coefficient in Equation (2) measures the integrated theaters’ favoritism toward the integrated rival distributors’ movies over independent movies relative to the independent theaters’ favoritism. That is, it shows how much more the rival integrated distributors’ movie is shown at a vertically integrated theater than at an independent one.

Finally, we explore the possibility of the vertically integrated theaters’ favoritism toward their own movies and the discrimination against their rival distributors’ movies depending on the ownership structure as follows:

<sup>10</sup> We appreciate the anonymous referee who pointed out this.

<sup>11</sup> We include  $V_i$  and  $V_j$  in Equation (1) to explain how the  $OWN$  coefficients are interpreted and why they are not separately identified from the movie and theater fixed effects. However, we omit them in Equation (2).

Extension Model 2:

$$\begin{aligned} \ln Y_{ij} = & \alpha + \beta_1 OWN_{CJ-CGV} + \beta_2 OWN_{Lotte-Lotte} + \beta_3 OWN_{Showbox-Megabox} \\ & + \gamma_1 RIV_{Lotte-CGV} + \gamma_2 RIV_{Showbox-CGV} + \gamma_3 RIV_{CJ-Lotte} + \gamma_4 RIV_{Showbox-Lotte} \\ & + \gamma_5 RIV_{CJ-Megabox} + \gamma_6 RIV_{Lotte-Megabox} + \mu_i + \delta_j + \rho X + \varepsilon_{ij}, \end{aligned} \quad (3)$$

where three  $OWN_{ij}$  variables correspond to three vertically integrated distributor–theater pairs, and six  $RIV_{ij}$  variables correspond to six rival distributor–theater pairs in Korea. The difference in coefficient  $\beta_i (i=1,2,3)$  shows which theater chain has a relatively strong favoritism toward its own movies. The different values of coefficient  $\gamma_i (i=1,2,3,4,5,6)$  show the different ways an integrated theater treats movies from rival integrated distributors.

We apply the above three regression equations to the Korean movie industry data for the period of 2004 to 2010. In particular, we investigate how the structural change due to the breakup of Showbox–Megabox in 2007 affects the vertically integrated exhibitors' foreclosure behavior. As such, we divide the period into the pre-breakup phase (January 2004–June 2007), with three vertical integration firms and the post-breakup phase (August 2007–December 2010), with two vertical integration firms.

## IV. Data

We collected the data on movie distributors and theater operation schedules for the period of 2004 to 2010 from the KOFIC.<sup>12,13</sup> We excluded single-screen and small-sized independent theaters with no screening schedules from our dataset. Artistic movies were excluded because they do not pursue box office success.<sup>14</sup> We also excluded theaters whose operation period was less than one year or discontinuous. Our final data set consisted of 248 theaters and 2,213 movies (316 movies on average each year) across the Korean provinces.<sup>15</sup> We calculated the

<sup>12</sup> KOFIC is a government-supported self-administered body that supports and promotes the Korean film industry. It operates a box office information system based on real-time ticket information transmitted by each theater. As of 2010, 99.9% of theaters (2,202 out of 2,204) in the country supply ticketing information to the system.

<sup>13</sup> We include data only up to 2010 because the Megabox theater chain merged horizontally with the Cinus multiplex chain in November 2011.

<sup>14</sup> We follow the classification standard adopted by the Korean Film Commission to identify artistic movies.

<sup>15</sup> Out of 248 theaters, 71 started their operations before 2004, which is the first year of our sample period. Out of these 71 theaters, 2 exited the market after the breakup of Showbox–Megabox in 2007, and the remaining 69 stayed in business for the entire sample period of 7 years. A total of 122 theaters entered the market before July 2007, and all of them except 6 stayed in business during the rest of the sample period. In addition, 55 theaters that entered the market after July 2007 stayed in business

number of screenings and screening days for each movie to investigate how vertical integration affected a theater's movie exhibition behavior.

Tables 3 and 4 show the average number of screenings and screening days across distributors and exhibitors in the sample. The last column of Table 3 shows that CJ movies are screened most frequently. CJ movies are shown 148 times on average at theaters, followed by Showbox (129 times), Lotte (99 times), and other independent (89 times) movies.

[Table 3] Average number of movie screenings across distributors and exhibitors

Distributors	Exhibitors (theaters)				Mean
	CGV	Lotte	Megabox	Independent	
CJ	163	137	154	130	148
	(8,541)	(5,309)	(4,169)	(5,935)	(23,954)
Lotte	102	108	99	88	99
	(4,744)	(3,806)	(2,743)	(3,829)	(15,122)
Showbox	139	120	140	116	129
	(4,514)	(3,239)	(2,536)	(3,806)	(14,095)
Independent	95	84	96	79	89
	(30,765)	(19,919)	(16,154)	(24,069)	(90,907)

Notes: 1. The numbers in parentheses are observations, that is, the number of movies  $\times$  the number of theaters showing the corresponding movie.

2. The data period is from January 2004 to December 2010.

[Table 4] Average days of movie screenings across distributors and exhibitors

Distributors	Exhibitors (theaters)				Mean
	CGV	Lotte	Megabox	Independent	
CJ	24.4	22.9	23.7	24.1	23.9
	(8,541)	(5,309)	(4,169)	(5,935)	(23,954)
Lotte	18.2	21.7	18.2	18.2	19.1
	(4,744)	(3,806)	(2,743)	(3,829)	(15,122)
Showbox	21.8	21.1	22.7	22.1	21.9
	(4,514)	(3,239)	(2,536)	(3,806)	(14,095)
Independent	17.8	16.9	17.5	17.7	17.5
	(30,765)	(19,919)	(16,154)	(24,069)	(90,907)

Notes: Same as in Table 3.

We also found that the movies of the vertically integrated distributors were shown most frequently at the affiliated theaters. For instance, Lotte movies were shown 108 times at Lotte but less at CGV and Megabox. However, CJ movies were shown 163 times at CGV but less at Lotte and Megabox. This situation applied to Showbox movies as well. A pattern of favoritism toward the theaters' vertically integrated

during the rest of the sample period.

movies seems to exist. We will explore this pattern further in the next section.

Table 4 shows the average run of movies across distributors–exhibitors. The movies of the vertically integrated distributors seem to be shown longer than independent movies. However, their duration at a corresponding integrated theater is not much longer than that at independent theaters, except for Lotte movies.

In short, our data showed several favorable treatments by vertically integrated theaters toward their affiliated movies. However, these analyses did not consider other factors that affected the decision of the theaters. Therefore, we provided concrete results based on fixed effect regressions, controlling for movie and theater characteristics in the next section.

## V. Empirical Results

The first question we examine is how the vertically integrated theaters treat their own movies distributed by their affiliated distributors as well as those distributed by other distributors. The extent of favoritism is captured by the *OWN* coefficients in Table 5. The *OWN* variable takes a value of 1 for the distributor–exhibitor pairs of CJ–CGV, Lotte–Lotte, and Showbox–Megabox in the pre-separation period (January 2004–June 2007) and for those of CJ–CGV and Lotte–Lotte in the post-separation period (August 2007–December 2010).

All the *OWN* coefficients in Table 5 are significantly positive, thereby implying the exhibitors' strong favoritism toward their own movies.<sup>16</sup> This finding can be interpreted as the integrated theaters' additional favoritism toward their own movies based on their relationship relative to the independent theaters' discrimination against vertically integrated movies and those of independent distributors. The vertically integrated theater chains' screenings of affiliated movies is more than the independent theaters' screenings of the integrated distributors' movies during the pre-separation (vs. post-separation) period. Holding other factors constant, we can interpret that integrated theaters show their own movies more than other movies by approximately 18%.

In addition, compared with the independent theaters' screenings of vertically integrated movies, the integrated theaters show their own movies longer. Affiliated movies are shown approximately 15% longer than other movies at corresponding integrated theaters, holding other factors constant. This result seems natural because the number of screenings and the total number of screening days for a

---

<sup>16</sup> Instead of the movie fixed effects, we also try using movie characteristics such as movie genre and nationality for the regressions. The *OWN* coefficients are significantly positive, with larger magnitudes than in Table 5. This result may be due to the omitted variable problem given that only a few movie characteristic variables are available.

movie are highly correlated.

Moreover, the degree of additional (or relative) favoritism toward their own movies has not changed considerably at the theater level because the *OWN* coefficients for the pre- and post-separation periods are similar.<sup>17</sup>

[Table 5] Regression results of Equation (1)

	Log (screenings)			Log (days)		
	All	Before	After	All	Before	After
<i>OWN</i>	0.1857*** (0.0050)	0.1832*** (0.0086)	0.1857*** (0.0057)	0.1541*** (0.0042)	0.1473*** (0.0071)	0.1573*** (0.0052)
No. of observations	144078	45397	97209	144078	45397	97209
R <sup>2</sup>	0.77	0.77	0.81	0.68	0.67	0.69

Notes: 1. The results for the entire sample period (All) before the merger (Before) and after the period (After) are shown.

2. The *OWN* variable takes the value of 1 for the distributor–exhibitor cases of (CJ–CGV), (Lotte–Lotte), and (Showbox–Megabox) in the pre-separation period and for the cases of (CJ–CGV) and (Lotte–Lotte) in the post-separation period.

3. Standard errors are in parentheses.

4. Significance level: \*\*\*p<0.01, \*\*p<0.05, and \*p<0.1.

5. The movie and theater fixed effects are included in the regression analysis.

Furthermore, we investigate whether the vertically integrated theaters treat movies from other vertically integrated distributors differently. Table 6 shows the regression results for Equation (2), which represents the addition of the *RIV* variable to Equation (1). The *OWN* coefficients are similar to those in Table 5. However, in most cases, the *RIV* coefficients are not statistically significant. The vertically integrated theaters show slightly more movies of vertically integrated rival distributors than independent movies during the post-separation period. This finding implies that the integrated theaters favor the movies of integrated rival more than independent movies, after the movie and theater fixed effects are controlled. However, this value is quite small compared with the favoritism toward the theaters’ own affiliated movies.

The results in Tables 5 and 6 confirm the vertically integrated firms’ strong favoritism toward their own movies before and after the structural change in 2007. By contrast, several exhibition behavior changes could have occurred for the vertically integrated theaters toward the movies of the vertically integrated rival

<sup>17</sup> The breakup of a vertical relationship could have changed the capabilities of vertically integrated (or independent) theaters and distributors, thereby affecting the number of screenings and movie duration. For instance, an independent theater may show an integrated distributor’s movie more if the vertically integrated distributor’s influence on the success of the movie increases. However, these changes are captured in the movie fixed effects. This paper focuses on changes in the relative favoritism, that is, changes in the *OWN* coefficients and not on changes in the movie fixed effects.

distributors.

[Table 6] Regression results of Equation (2)

	Log (screening)			Log (days)		
	All	Before	After	All	Before	After
<i>OWN</i>	0.1930*** (0.0059)	0.1873*** (0.0108)	0.1927*** (0.0066)	0.1527*** (0.0050)	0.1509*** (0.0099)	0.1530*** (0.0060)
<i>RIV</i>	-0.0140** (0.0059)	0.0068 (0.0105)	0.0144** (0.0069)	-0.0024 (0.0045)	0.0047 (0.0091)	-0.0086 (0.0063)
Number of Observations	14,4078	45,397	97,209	14,4078	45,397	97,209
R <sup>2</sup>	0.77	0.77	0.81	0.68	0.67	0.69

Notes: 1. The results for the entire sample period (All) before the merger (Before) and after the period (After) are shown.

2. The *OWN* variable takes the value of 1 for the distributor–exhibitor cases of (CJ–CGV), (Lotte–Lotte), and (Showbox–Megabox) during the pre-separation period and for the cases of (CJ–CGV) and (Lotte–Lotte) during the post-separation period. The *RIV* variable takes a value of 1 for the distributor–exhibitor cases of (Lotte–CGV), (Showbox–CGV), (CJ–Lotte), (Showbox–Lotte), (CJ–Megabox), and (Lotte–Megabox) during the pre-separation period and for the cases of (Lotte–CGV) and (CJ–Lotte) during the post-separation period.

3. Standard errors are in parentheses.

4. Significance level: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , and \* $p < 0.1$ .

5. The movie and theater fixed effects are included in the regression analysis.

However, as discussed in Section 2, the three vertically integrated distributors–theaters demonstrate several differences in terms of ownership structure, which could lead to different exhibition behaviors. Table 7 shows the results of Equation (3), incorporating the possibility of each vertically integrated theater behaving differently toward the movies of its affiliated as well as rival distributors. In addition, by comparing the pre- and post-separation periods, the table shows changes in the exhibition behavior of the vertically integrated theaters toward movies from the newly separated distributor, Showbox, and changes in the newly separated theater’s exhibition behavior.

First, the integrated theaters’ degree of favoritism toward their own movies, that is, the relative foreclosure against independent movies, differs across vertically integrated distributors–theaters. All *OWN* dummy variable coefficients, except for the Showbox–Megabox case in the post-separation period, are significantly positive, thereby implying favoritism. Specifically, Lotte Cinema shows the highest degree of favoritism, followed by CGV and Megabox in terms of the number of screenings and screening days. For instance, Lotte Cinema shows its own movies 35.48% more than independent theaters and 38.62% longer than independent movies during the pre-separation period. Lotte Entertainment (distributor) and Lotte Cinema (theater)

belong to the same corporate entity and would have a stronger vertical relationship than CJ–CGV and Showbox–Megabox, which are two subsidiaries of the CJ Corporation and Orion conglomerates, respectively.

However, the *OWN* dummy variable coefficients for CJ–CGV and Lotte–Lotte during the post-separation period are smaller than those during the pre-separation period. In addition, the coefficient for Showbox–Megabox, which is significantly positive during the pre-separation period, is insignificant during the post-separation period after the breakup in 2007. This difference in coefficients between the pre- and post-separation periods indicates that the Showbox–Megabox breakup has an effect on the integrated theaters’ foreclosure behavior, that is, their favoritism toward their own movies. For instance, Lotte Cinema increases the screenings of its own movies by 25.63% after the breakup, but this share is significantly smaller than that during the pre-separation period. A similar pattern is observed for the number of screening days. The degree of CGV’s favoritism is also reduced slightly. However, Megabox’s favoritism toward Showbox’s movies disappear during the post-separation period. This result can be interpreted as Showbox and Megabox behaving similarly to other independent firms after the breakup in 2007. Furthermore, these results indicate that the favoritism of vertically integrated firms generally weakens as the degree of vertical integration decreases (i.e., the market is composed of increased separated independent firms).

[Table 7] Estimation results of Equation (3)

A. Number of screenings			
	Log (screening)		
	All	Before	After
$OWN_{CJ-CGV}$	0.1607*** (0.0088)	0.1746*** (0.0160)	0.1514*** (0.0096)
$OWN_{Lotte-Lotte}$	0.2903*** (0.0114)	0.3548*** (0.0232)	0.2563*** (0.0118)
$OWN_{Showbox-Megabox}$	0.0437*** (0.0126)	0.1114*** (0.0213)	-0.0124 (0.0143)
$RIV_{Lotte-CGV}$	-0.0339*** (0.0107)	-0.0633*** (0.0222)	-0.0299*** (0.0110)
$RIV_{Showbox-CGV}$	-0.0314*** (0.0108)	-0.0227 (0.0178)	-0.0475*** (0.0126)
$RIV_{CJ-Lotte}$	0.0695*** (0.0097)	0.0870*** (0.0173)	0.0562*** (0.0107)
$RIV_{Showbox-Lotte}$	-0.0095 (0.0118)	0.0059 (0.0189)	-0.0310** (0.0140)
$RIV_{CJ-Megabox}$	0.0406*** (0.0103)	0.0730*** (0.0195)	0.0233** (0.0111)
$RIV_{Lotte-Megabox}$	-0.0202 (0.0123)	0.0146 (0.0268)	-0.0344*** (0.0125)

Number of observations	144,078	45,397	97,209
R-squared	0.77	0.77	0.81

## B. Days of screening

	Log (days)		
	All	Before	After
$OWN_{CJ-CGV}$	0.0771*** (0.0073)	0.0809*** (0.0131)	0.0750*** (0.0087)
$OWN_{Lotte-Lotte}$	0.2941*** (0.0094)	0.3862*** (0.0190)	0.2620*** (0.0107)
$OWN_{Showbox-Megabox}$	0.0460*** (0.0104)	0.0898*** (0.0175)	0.0058 (0.0130)
$RIV_{Lotte-CGV}$	-0.0307*** (0.0088)	-0.0238 (0.0182)	-0.0345*** (0.0100)
$RIV_{Showbox-CGV}$	-0.0491*** (0.0090)	-0.0317** (0.0146)	-0.0646*** (0.0114)
$RIV_{CJ-Lotte}$	0.0296*** (0.0080)	0.0562*** (0.0142)	0.0135 (0.0097)
$RIV_{Showbox-Lotte}$	-0.0115 (0.0098)	0.0058 (0.0155)	-0.0282** (0.0127)
$RIV_{CJ-Megabox}$	0.0058 (0.0086)	0.0244 (0.0160)	-0.0051 (0.0101)
$RIV_{Lotte-Megabox}$	-0.0046 (0.0102)	0.0164 (0.0220)	-0.0104 (0.0114)
Number of observations	144,078	45,397	97,209
R-squared	0.68	0.67	0.69

Notes: 1. The results for the entire sample period (All) before the merger (Before) and after the period (After) are shown.

2. Standard errors are in parentheses.

3. Significance level: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , and \* $p < 0.1$ .

4. The movie and theater fixed effects are included in the regression analysis.

Next, we examine whether and how the vertically integrated theaters consider movies distributed by their vertically integrated rival distributors. We investigate the *RIV* dummy variables to examine the theaters' potentially different strategies against other competing distributors.

The magnitude of the *RIV* coefficients is much smaller than that of the *OWN* in both periods. This finding implies that the integrated theaters favor the affiliated movies of their rivals over independent movies but still favor their own movies more. This result is consistent with the finding of Jeong (2017). The *RIV* coefficients for the movies distributed by CJ are positive during the pre-separation period. However, though a few coefficients are statistically insignificant, those for Lotte and Showbox are negative in terms of the number of screenings and duration of movies. This result implies that the integrated theaters Lotte and Megabox favor the movies of their rival, that is CJ, over independent movies, whereas CGV discriminates against

the movies of their rival Lotte and Showbox more than independent theaters. This situation could arise because the vertically integrated theaters may favor a vertically integrated rival distributor's movie because its affiliated distributor would also need to screen movies at vertically integrated rival movie theaters. For instance, the Lotte and Megabox theaters may favor the movies of their rival, that is, CJ because their affiliated distributors would have to screen their movies at CGV, which is the affiliated theaters of CJ. The CGV chain has the largest number of theaters and screens; thus, it is likely to provide considerable power to CJ movies. By contrast, Lotte and Showbox movies, whose affiliated theaters have less power in the exhibition market than CGV, may receive less favor from CGV theaters. Another possible explanation is that distributors may have different perspectives on movie distribution across theaters. For instance, if CJ considers the contract with rival theater chains more important than that with independent theaters and is capable of pushing it, then this situation would result in a positive *RIV* coefficient for CJ movies. If Lotte and Showbox consider the contract with independent theaters more important or consider the contract with CGV theaters less important than that with independent theaters, then this situation would result in a negative *RIV* coefficient for their movies. However, this interpretation requires caution because our movie and theater fixed effects may not capture unobserved characteristics perfectly.

The post-separation period shows that the *RIV* coefficients have changed. Compared with the independent theaters, CGV still screens fewer movies distributed by Lotte Entertainment and Showbox than those distributed by independent distributors in terms of number of screenings and duration of screening days. Lotte Cinema and Megabox still tend to screen more CJ movies than those of independent distributors but the difference has decreased. That is, their favoritism toward CJ movies over independent movies has decreased.

Furthermore, several significant changes can be observed with regard to the movies of Showbox, which is a newly separated distributor. CGV and Lotte Cinema show fewer Showbox movies after the breakup in 2007 compared with the screenings of independent theaters in terms of number and screening days. That is, the existing vertically integrated theaters CGV and Lotte Cinema have strengthened their foreclosure against the newly separated distributor.

Overall, our estimation results are as follows: (i) vertical foreclosure exists in the Korean movie industry in such a manner that the integrated theaters favor their own movies over those of independent distributors, in contrast to the discriminatory behavior of the independent theaters. (ii) The existing integrated theaters decreased the extent of foreclosure against the other distributors' movies (favoritism toward its own movies) after the structural change due to the breakup of a vertically integrated firm. (iii) The vertically integrated theaters strategically intensify their foreclosure behaviors against the movies of newly separated distributors in the short run. In most cases, the favoritism of the vertically integrated theaters toward the movies of

vertically integrated distributors over independently distributed movies has weakened after the structural change induced by the breakup of Showbox–Megabox in 2007.

[Table 8] Robustness check of the regression results on log (screening)

	Drop July 2007		Drop $\pm$ 3 months		Drop $\pm$ 6 months	
	Before	After	Before	After	Before	After
$OWN_{CJ-CGV}$	0.1746*** (0.0160)	0.1514*** (0.0096)	0.1804*** (0.0171)	0.1451*** (0.0097)	0.1788*** (0.0184)	0.1547*** (0.0102)
$OWN_{Lotte-Lotte}$	0.3548*** (0.0232)	0.2563*** (0.0118)	0.3517*** (0.0249)	0.2604*** (0.0121)	0.3888*** (0.0288)	0.2650*** (0.0126)
$OWN_{Showbox-Megabox}$	0.1114*** (0.0213)	-0.0124 (0.0143)	0.1102*** (0.0223)	-0.0166 (0.0148)	0.1123*** (0.0247)	-0.0154 (0.0157)
$RIV_{Lotte-CGV}$	-0.0633*** (0.0222)	-0.0299*** (0.0110)	-0.0772*** (0.0239)	-0.0238** (0.0113)	-0.0777*** (0.0277)	-0.0278** (0.0118)
$RIV_{Showbox-CGV}$	-0.0227 (0.0178)	-0.0475*** (0.0126)	-0.025 (0.0186)	-0.0499*** (0.0130)	-0.0177 (0.0204)	-0.0456*** (0.0137)
$RIV_{CJ-Lotte}$	0.0870*** (0.0173)	0.0562*** (0.0107)	0.0940*** (0.0184)	0.0586*** (0.0109)	0.0970*** (0.0199)	0.0695*** (0.0114)
$RIV_{Showbox-Lotte}$	0.0059 (0.0189)	-0.0310** (0.0140)	-0.0009 (0.0197)	-0.0330** (0.0144)	0.0035 (0.0216)	-0.0291* (0.0152)
$RIV_{CJ-Megabox}$	0.0730*** (0.0195)	0.0233** (0.0111)	0.0723*** (0.0209)	0.0186* (0.0112)	0.0665*** (0.0227)	0.0240** (0.0118)
$RIV_{Lotte-Megabox}$	0.0146 (0.0268)	-0.0344*** (0.0125)	-0.0004 (0.0289)	-0.0315** (0.0128)	-0.0222 (0.0343)	-0.0233* (0.0134)
Observations	45,397	97,209	40,846	92,968	34,904	85,882
R-squared	0.77	0.81	0.77	0.81	0.77	0.82

Notes: 1. The results before the merger (Before) and after the period (After) are shown.

2. Standard errors are in parentheses.

3. Significance level: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , and \* $p < 0.1$ .

4. The movie and theater fixed effects are included in the regression analysis.

[Table 9] Robustness check of the regression results on log (days)

	Drop July 2007		Drop $\pm$ 3 months		Drop $\pm$ 6 months	
	Before	After	Before	After	Before	After
$OWN_{CJ-CGV}$	0.0809*** (0.0131)	0.0750*** (0.0087)	0.0890*** (0.0140)	0.0700*** (0.0089)	0.0965*** (0.0150)	0.0735*** (0.0094)
$OWN_{Lotte-Lotte}$	0.3862*** (0.0190)	0.2620*** (0.0107)	0.3754*** (0.0205)	0.2652*** (0.0110)	0.3769*** (0.0235)	0.2590*** (0.0116)
$OWN_{Showbox-Megabox}$	0.0898*** (0.0175)	0.0058 (0.0130)	0.0825*** (0.0183)	0.0058 (0.0135)	0.0750*** (0.0202)	0.0016 (0.0144)
$RIV_{Lotte-CGV}$	-0.0238 (0.0182)	-0.0345*** (0.0100)	-0.0327* (0.0196)	-0.0276*** (0.0103)	-0.0144 (0.0226)	-0.0305*** (0.0108)
$RIV_{Showbox-CGV}$	-0.0317** (0.0146)	-0.0646*** (0.0114)	-0.0345** (0.0153)	-0.0584*** (0.0119)	-0.0212 (0.0166)	-0.0591*** (0.0126)

$RIV_{CJ-Lotte}$	0.0562*** (0.0142)	0.0135 (0.0097)	0.0606*** (0.0152)	0.0126 (0.0099)	0.0645*** (0.0162)	0.0143 (0.0105)
$RIV_{Showbox-Lotte}$	0.0058 (0.0155)	-0.0282** (0.0127)	-0.0041 (0.0162)	-0.0258** (0.0132)	0.0035 (0.0176)	-0.0292** (0.0140)
$RIV_{CJ-Megabox}$	0.0244 (0.0160)	-0.0051 (0.0101)	0.0258 (0.0172)	-0.0098 (0.0103)	0.0155 (0.0185)	-0.0108 (0.0108)
$RIV_{Lotte-Megabox}$	0.0164 (0.0220)	-0.0104 (0.0114)	-0.0026 (0.0238)	-0.0089 (0.0117)	-0.0338 (0.0280)	-0.0057 (0.0123)
Observations	45397	97209	40846	92968	34904	85882
R-squared	0.67	0.69	0.67	0.69	0.68	0.70

- Notes: 1. The results before the merger (Before) and after the period (After) are shown.  
 2. Standard errors are in parentheses.  
 3. Significance level: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , and \* $p < 0.1$ .  
 4. The movie and theater fixed effects are included in the regression analysis.

In terms of the robustness check for heteroscedasticity, our regression with robust standard errors (Huber–White sandwich estimators) finds the standard errors only slightly corrected, without any change in statistical significance. The same regression analysis, excluding July 2007 (i.e., the month of the Showbox–Megabox breakup) and the  $\pm 3$ -month data around the time of the breakup, to check for possible short-term distortions owing to the structural break shows results similar to the those shown in Table 7.

## VI. Conclusion

We investigated how the foreclosure behaviors of the integrated theaters in South Korea against rival and independent distributors was affected by the structural change caused by the breakup of a previously integrated firm by using a rich data set of observations over a period of 7 years. We showed the vertically integrated theaters' favoritism toward their own movies compared with independent theaters. Moreover, this foreclosure behavior tends to weaken as the degree of vertical integration, which is measured by the number (or proportion) of integrated theaters–distributors, decreases in the market. Interestingly, the existing integrated firms showed intensified foreclosure against the newly separated firm after the breakup, thereby demonstrating the strategic behavior of weakening the competitiveness of their previously integrated rival. The newly separated theater also behaved similarly to independent theaters, with no sign of foreclosure.

Such foreclosure behavior can potentially harm consumer welfare in the movie industry by restraining competition and limiting screening times for potentially high-quality movies. This study provided useful policy implications on foreclosure in vertically related markets by showing the relationship between the intensity of

vertical foreclosure and market structure. In particular, policymakers should consider the degree of vertical integration in the relevant industry when assessing the anticompetitive effect of foreclosure. Furthermore, the efficiency benefits of vertical integration, if any, should be considered to evaluate its overall welfare effect.

## References

- Chipty, T. (2001), "Vertical Integration, Market Foreclosure, and Consumer Welfare in the Cable Television Industry," *American Economic Review*, 91(3), 428–453.
- Choe, B., K. Lee, and S. Choi (2014), "The Determinants of Movie Run Length in the Korean Movie Industry: Revenue Sharing, Opportunity Cost of Running, and Vertical Integration," *Journal of Industrial Economics and Business*, 27(2), 607–633.
- Cho, J. (2015), "The Effects of Vertical Integration on Screening Assignments in Opening in Korean Movie Industry," *Master Dissertation of Economics*, Korea University.
- Choi, Y. (2007), "Vertical Integration and Screening Period in Korean Film Industry," *International Business Review*, 11(1), 73–89.
- Church, J. (2008), "Vertical Mergers, in Issues in Competition Law and Policy," Vol. 2, p. 1455, ABA Section of Antitrust Law 2008.
- Crawford, G. S., R. S. Lee, M. Whinston and A. Yurukoglu (2018), "The Welfare Effects of Vertical Integration in Multichannel Television Markets," *Econometrica*, 86(3), 891–954.
- Davis, P. (2006), "Spatial Competition in Retail Markets: Movie Theaters," *RAND Journal of Economics*, 37(4), 964–982.
- Fu, W. (2004), "Vertical Integration, Movie Foreclosure and Exhibitors' Screening Behavior in the Singapore Cinema Market," Working Paper, Nanyang Technological University.
- \_\_\_\_\_ (2009), "Screen Survival of Movies at Competitive Theaters: Vertical and Horizontal Integration in a Spatially Differentiated Market," *Journal of Media Economics*, 22(2), 59–80.
- Gil, R. (2008), "Revenue Sharing Distortions and Vertical Integration in the Movie Industry," *Journal of Law, Economics, and Organization*, 25(2), 579–610.
- Goolsbee, A. (2007), "Vertical Integration and the Market for Broadcast and Cable Television Programming," University of Chicago, Graduate School of Business, mimeo.
- Grossman, S. and O. Hart (1986), "The Costs and Benefits of Ownership: A Theory of Vertical Integration," *Journal of Political Economy*, 94, 691–719.
- Hart, O. and J. Moore (1990), "Property Rights and the Nature of the Firm," *Journal of Political Economy*, 98, 1119–1158.
- Hart, O. and J. Tirole (1990), *Vertical Integration and Market Foreclosure*, Brookings Papers on Economic Activity: Microeconomics, Special Issue, 205–286.
- Hastings, J. S. (2004), "Vertical Relationships and Competition in Retail Gasoline Markets: Empirical Evidence from Contract Changes in Southern California," *American Economic Review*, 94(1), 317–328.
- Hwang, Y. (2013), "Vertical Integration and Market Foreclosure in the Korean Movie Industry," mimeo
- Korea Fair Trade Commission (KFTC) (2009), *Korean Movie Industry Analysis and Competition Policy*, Seoul (in Korean).
- Jeong, P. (2017), "Vertical Integration, Market Foreclosure and Movie Budgets: A Case of

- Imported Movies in Korean Movie Industry,” *Korean Journal of Economic Studies*, 65(4), 85–128.
- Kim, Mee-hyun (2007), *Korean Cinema from Origins to Renaissance*, Seoul: Communication Books, ed. Kim, Mee-hyun.
- Lee, K., B. Choe, and J. Jeong (2009), “The Economics Behind Free Tickets in the Korean Movie Industry,” *Journal of the Korean Economy*, 10(1), 29–54.
- Lee, K., S. Choi, and B. Choe (2009), “The Effects of Vertical Integration on Movie Exhibition in Korea: Foreclosure, Run-Length Preference, and Diversity,” *Korean Journal of Economic Studies*, 57(2), 63–92.
- Loertscher, S. and M. Reisinger (2014), “Market Structure and the Competitive Effects of Vertical Integration,” *RAND Journal of Economics*, 25(3), 471–494.
- McAfee, P. and M. Schwartz (1994), “Opportunism in Multilateral Vertical Contracting: Nondiscrimination, Exclusivity, and Uniformity,” *American Economic Review*, 84, 210–230.
- O’Brien, D. and G. Shaffer (1992), “Vertical Control with Bilateral Contracts,” *RAND Journal of Economics*, 23, 299–308.
- Ordover, J., G. Saloner and S. Salop (1990), “Equilibrium Vertical Foreclosure,” *American Economic Review*, 127–142.
- Paquet, Darcy (2009), *New Korean Cinema: Breaking the Waves*, New York: Columbia University Press.
- Riordan, M. (1998), “Anticompetitive Vertical Integration by a Dominant Firm,” *American Economic Review*, 88, 1232–1248.
- \_\_\_\_\_ (2008), Competitive Effects of Vertical Integration, in *Handbook of Antitrust Economics*, ed. by P. Buccirossi, MIT Press, Cambridge, 145–182.
- Salinger, M. (1988), “Vertical Mergers and Market Foreclosure,” *Quarterly Journal of Economics*, 345–356.
- Tirole, J. (1988), *The Theory of Industrial Organization*, The MIT Press.
- Waterman, D. and A. Weiss (1996), “The Effect of Vertical Integration between Cable Television Systems and Pay Cable Networks,” *Journal of Econometrics*, 72(1-2), 357–395.
- Williamson, O. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*, New York: Free Press.
- \_\_\_\_\_ (1985), *The Economic Institutions of Capitalism*, New York: Free Press.
- Yoon, C. and H. Kim (2012), “The Impact of Vertical Integration on the Conducts of Multiplex Theaters in the Korean Movie Industry,” *Review of Culture and Economy*, 15(2), 127–149.