경영학 석사학위 논문

Does movie's box office sale impact popularity of its original novel? - Empirical investigation of reciprocal spillover effect from movie to book

영화의 박스오피스 세일즈가 원작 책의 판매에 미치는 영향 연구

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Abstract

This paper examines the relationship between movie's box office sales and original book's sale in the view point of brand extension, and especially focuses on investigating reciprocal spillover effect from movie to book.

In study 1, two-way causality between box offices sales and book sales was examined with Simultaneous Equation model(3 SLS. 62 pairs of movie and book are studied, and it is found that movie's box office sales and book sales simultaneously affect each other during the first four weeks after movie's release. Study 2 explores the impact of box office sales and other extension related variables on sales of original book. Cross-sectional analysis is conducted with 90 pairs of the book and movie. It revealed that as movie's box office sales gets higher, original book's sales gets higher after movie's release. Also, it is found that when book is well known before movie's release, has movie tie-in version, uses the same title with the movie, and book is mentioned in movie trailer, the parent novel's sales after movie's release is higher.

Keyword: Brand extension; Reciprocal Spillover Effect; movie; novel; box office sales; Entertainment product

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1. INTRODUCTION

Turning the already popular book into movie has been a popular strategy in movie industry. The movie *Hobbit: The Battle of the Five Armies* that has the story based on J.R.R. Tolkien's long time bestseller novel *The Hobbit*, was released in 2014 and earned 956 million dollars box office sales worldwide (Boxofficemojo). *The Forrest Gump* and *The Harry Potter* series are also successful film adaptations of all time, and there are a plethora of examples that book based movies garnered financial success as well as received praise from critics.

Also, it is not difficult to find the cases that the movie itself reciprocally brought great financial benefits to original book. The copies in print for Hunger games Trilogy jumped 55% at the beginning of 2012 when the first Hunger games movie was released (Lewis 2012). The book *War Horse* had been sold 50,000 copies worldwide for 25 years since it was published in 1982, but when the movie adaptation was released in 2011, the book was sold more than 30,000 copies in UK alone in two weeks after movie release (Masters 2012).

As illustrated in real world examples, it seems that the success of book based motion picture is not only important for movie makers but also for publishers, because it can have an impact on sales and reputation of original book. However, even though this reciprocal

spillover effects from book to movie are often observed, there has been a lack of empirical studies which examine such reciprocal spillover effect from movie to novel in entertainment industry. In brand extension context, "Reciprocal Spillover Effect" can be defined as the influence that child brand has on the parent brand, and the "Forward Spillover Effect" is the influence that parent brand has on the child brand (Balachander and Ghose, 2003). "Parent brand" refers to the original brand that owns the core value that could be extended to, and "child brand" is the extension of parent brand, which leverages parent's value. Thus, here the parent brand is the novel, and movie is the child brand, which takes advantage of value of the original book. Most of the previous studies in entertainment industry primarily focus on the forward spillover effect from parent to child in line extension context (e.g., movie sequel, music album series). To make contribution on insufficient collection of literature regarding reciprocal spillover effect of brand extension in entertainment area, this research mainly explores the reciprocal spillover effect from movie to novel and the factors that affect the strength of this effect. In study 1, the simultaneous equation to see the interdependency between movie sales and book sales is examined. In study 2, cross sectional analysis that explores the factors taken into account in the reciprocal spillover effect from movie to original book.

2. LITERATURE REVIEW

Previous Studies in Brand Extension

Brand extension is firm's strategy to take advantage of brand name recognition and image to enter new markets (Aaker and Keller 1990). For instance, "Snickers Ice cream" is a brand extension of "Snickers chocolate bar", and baby products such as baby bottles and powders from "Gerber", originally the baby food company, can be another example of brand extension. In this point of view, the movie based on the novel can be also considered as a brand extension of the book, since it takes the advantage of novel's established reputation and value.

Many researchers have focused on identifying benefits elicited by brand extension strategies, and the factors that affect consumers' evaluation on brand extension. A lot of previous research on brand extensions showed that evaluations of brand extension is depending on consumers' perceptions toward parent brand, such as perceived quality, and "fit" between the parent brand and the extension brand (child brand) (Aaker and Keller 1990; Park, Milberg and Lawson 1991). They also argue that when the "fit" between parent brand and child brand is considered high, consumers' positive perceptions on original brand will be more readily transferred to proposed extension. These brand extension studies reveal that consumers' brand evaluation and

brand equity are transferrable between original brand and extension brand. It can be inferred that if the consumer's attitude toward the parent brand is positive, then it will have positive effect on its extension, and vice versa. This positive feedback mechanism indicates that the success of the movie (the extension of the novel) and success of the novel (parent brand) can positively impact each other.

Reciprocal Spillover Effect

Reciprocal spillover effect is used when describing the situation in which extension brand has influence on original brand. It was investigated under different names in brand extension studies, such as feedback effect and reciprocity effects. Park at el. (1996) examined the attitude toward parent brand in composite brand extension, which combines the names of the two existing brands and create a composite brand name for a new product. Lane and Jacobson (1997) show that reciprocal effect from brand extension evaluation to brand evaluation, how the effect can be different across individuals (i.e., Need for Cognition), and attribute cues. Balachander and Ghose (2003) measure the spillover effect of advertising in brand extension. The paper suggests that the probability of choosing the parent brand increases when one is merely exposed to advertising of child brand. Another research from John et al. (1998) demonstrated that inconsistent brand

extension can not only dilute the beliefs about individual products but also the beliefs about the parent brand in general. So there has been a consistent effort to clarify the reciprocal spillover effect from child to parent brand in brand extension research, which shows that consumer's attitude, beliefs, and evaluation of evaluation can also influence and be transferred to original brand.

As aforementioned, research on reciprocal spillover effect in brand extension is rarely found in entertainment industry. Sood and Dreze (2006) investigated how difference between original movie and its sequel can impact consumer evaluation on movie sequel. Basuroy and Chatterjee (2008) compared the box office revenue of movie sequels to their parent film and found that if the time between original movie and sequel is shorter, the sales of sequel will be higher. Another paper from Hennig-Thurau et al. (2009) provided the framework to measure the economic value of movie sequels. Hendrics and Sorensen (2009) examine weekly sales of music albums and find the average effect of the introduction of an artist's second album on the sales of the preceding album to be positive. Likewise, most of the research regarding entertainment products only investigated the forward spillover effect of products in the same category.

Joshi and Mao (2012) expanded the extension research boundary of entertainment products into brand extension of book and

movie. The study examined the elements that affect the revenue of book based movies, and found that movies based on books perform better on the opening week than non-book based movies, but the impact dissipates after opening week. This paper focuses on forward spillover effect from book to movie. Knapp et al. (2014) tried to develop framework for measuring reciprocal spillover of entertainment goods with an example of book and movie, however, the study itself is rather comprehensive than focusing only on movie and book industry. Thus, several variables that could be important in publication and motion picture industry were overlooked to increase the generalizability of the model.

3. HYPOTHESES

3.1. Interplay between movie box office revenue and book sales

This paper considers the film adaptation of the book as a brand extension and studies the reciprocal spillover effects from movie to book after film's release. The main logic behind reciprocal spillover effects is that consumers use their brand knowledge of a brand extension when making judgments and decisions regarding the parent brand. Lane and Jacobson (1997) show that reciprocal influence flows from brand extension evaluation to brand evaluation. Likewise, in this

context, larger the movie sales can be interpreted as positive evaluation on the movie, and incur positive feedback on parent brand.

Figure1.

Dynamics of daily box office revenue and book sales – Example of the book & movie "Fault in our stars"

(a) Daily movie sales change

Daily Movie Sales change
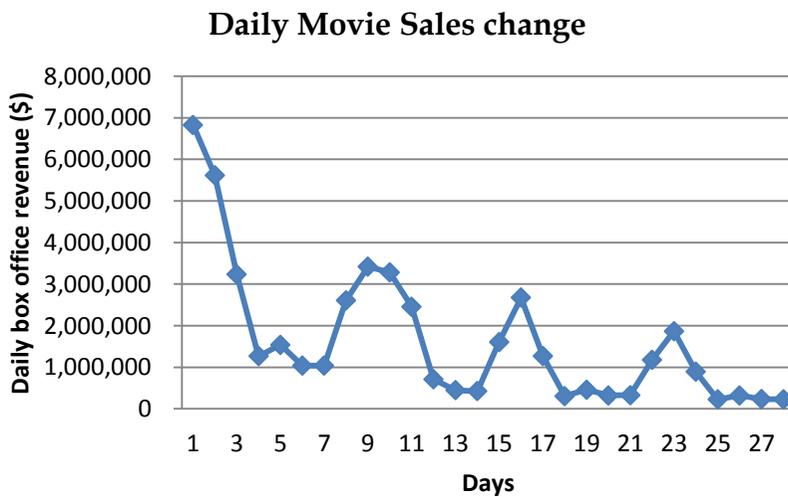
(b) Daily book Sales change

Daily Book Sales Change
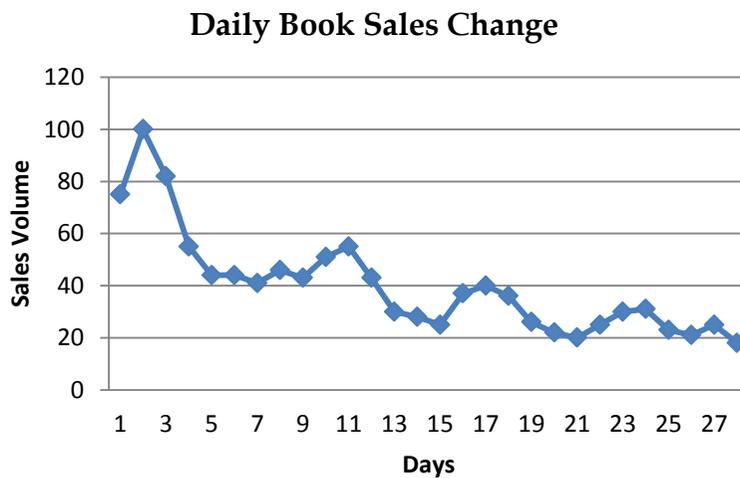
This positive feedback mechanism can not only affect sales of book, as movie sales increase, but also influence the sales of movie as book sales increase concurrently. For instance, it is clearly observed in **Figure 1a** and **1b** that sales of book and movie show similar patterns. Thus, I expect that the bigger the box office sales of the movie, it will positively influence sales of original book. Also, as the book sales grows bigger, then box office sales of movie adaptation will increase.

> **H1: As the sales of movie based on novel gets higher, the sales of original novel after movie's release gets higher concurrently.**
>
> **H2: As the sales of original novel gets higher, the sales of movie based on novel gets higher concurrently.**

This interplay between sales of two is investigated in study 1.

3.2. Cross-sectional analysis on reciprocal spillover effect

As explained above, higher box office results of the movie can incur higher sales of original book, because of the positive feedback mechanism in brand extension. This will also happen in cross-sectional context. Therefore, the hypothesis for main effect between movie and the book is as follows.

> **H3: As the sales of movie based on novel gets higher, the sales of original novel after movie's release gets higher.**

With main effect of movie sales on book sales, indirect effect of other factors considered in extension context will also be investigated and explained in the following section.

8

Parent Brand characteristics

If the parent brand was successful before the movie's release, it would have already been known to many people. Knapp et al (2014) suggested that in category extension of entertainment products, parent brand characteristics moderate the reciprocal spillover effects. Keller (1999), Balanchander and Ghose (2003) asserted that parent brand image and awareness, and the interaction between two positively affects the success of extension. Also, Hennig-Thurau et al. (2009) used parent brand awareness (PBA) and parent brand image (PBI) as brand extension success drivers and found that they positively influence the spillover effect. Since it is difficult to measure the brand image of the book in this case, only the parent brand awareness is employed in the analysis. Parent brand awareness refers to the how much one can recognize and recall the brand (Keller 1993). Parent brand awareness prior to the movie release will positively influence the sales of the book after movie's release, since high brand awareness indicates the possibility that more people know about the novel and use such information in purchasing the book. This parent brand awareness can be examined with two variables, the number of reviews of the book, and whether the book has ever received an award. Thus, I propose that the characteristics of parent brand will positively impact the sales of the book and relationship between movie box office revenue and book

sales.

H4: As the number of reviews of the parent novel gets higher, reciprocal spillover effect is stronger.

H5: If the book has ever received the award, the reciprocal spillover effect from movie to book is stronger.

Extension fit between parent and child brand

The fit between parent and child brand enables the perceived quality of a brand readily transferrable. (Aaker and Keller 1990) Hennig-Thurau et al. (2009), and many other researches in brand extension also demonstrated that increased fit between parent and child movie, there is more positive spillover effect. Therefore, if the fit between movie and novel is high, then the effect of movie sales on book sales will be stronger.

H6: As the fit between movie and novel gets higher, the reciprocal spillover effect is stronger.

Association Cue

Association cue indicates the factors that provide the information related to extension to consumers. This can be considered as a clue given to consumers that signals the movie is an extension of the book. By acknowledging that the movie is an extension of the book, consumers can more easily connect the film with original book. Extension information in book-movie context can refer the marketing

effort from both book publishers and film makers. (Shown in **appendix 1**) Knapp et al. (2014) first introduced the term "backward integration" which indicates the marketing support from parent brand regarding extension. For instance, the publisher's activity that mentions that it is now made into major motion picture on book cover can be considered as backward integration. They assert that this can enable extension information more accessible, and moderates the reciprocal spillover effect of entertainment products. I argue that there is also a child brand's marketing effort which makes extension information more accessible and salient to consumers. I will use the term "Association cue" to describe this concept and encompass marketing efforts from both parent and child brand. So "Association cue" here includes whether the book has the movie tie-in version, whether the movie trailer mentions about original novel, and whether the movie uses the same name with original book. If this sort of information about the extension is more salient, it will be more readily available to consumers when they use such information in searching for the products in the parent's brand category. Hence, I propose that variables under the term "Association cue" are cues that raise the accessibility of the brand extension information, and thus positively impact the spillover effect.

> **H7: If the book has "tie-in" version, the reciprocal spillover effect from movie to book is stronger.**

H8: If the movie trailer mentions that it is based on novel, the reciprocal spillover effect from movie to book is stronger.

H9: If the movie uses the identical name with the novel, the reciprocal spillover effect from movie to book is stronger.

Time Interval

It is reasonable to think that movie makers would like to create favorable associations between the parent film and the sequel as salient as possible. Also, how accessible this association between movie and book is depends on their strength in memory; if the basis for the recall is presented short time after the event, the memory is more easily accessible (Wyer and Srull, 1986) Hence, I expect that the short time interval between film release and book publication helps consumers to more easily associate the parent novel and movie, which in return assists consumers' search in products.

H10: As the time interval between the publication of parent novel and release of the movie is shorter, reciprocal spillover effect is stronger.

Figure 2.

Model diagram

| Parent brand characteristics | Association Cue (Available information about extension) |

| Motion Picture Box office sales | | | Sales of Original Novel |

H4, H5   H7,8,9   H3

H6   H10

| Fit (Similarity between book and movie) | Time Interval (Time interval between book publication and the release of the movie) |
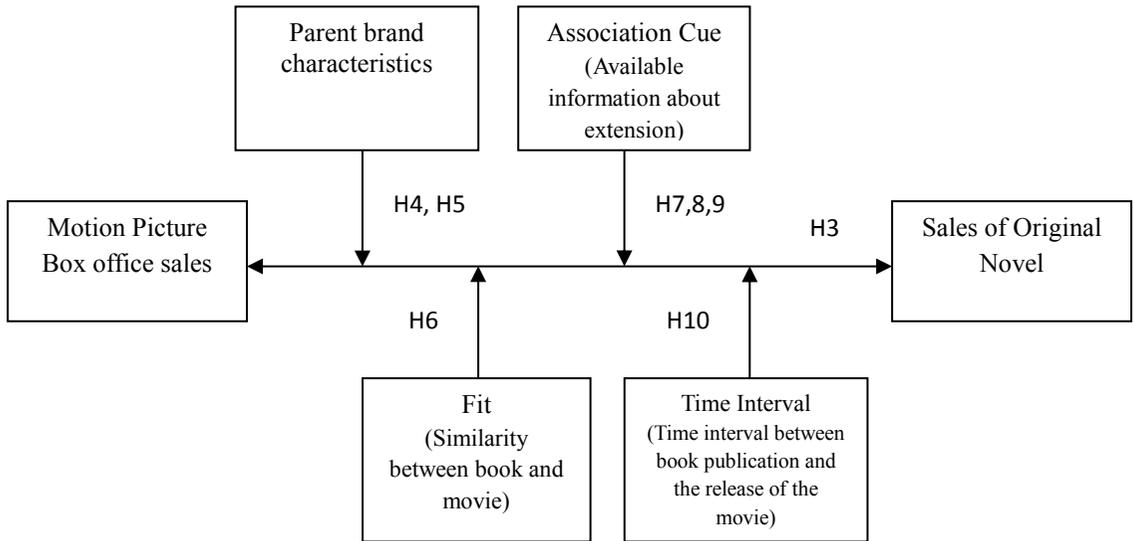
4. DATA & MEASURE

For simultaneous equation model in study 1, the movie's box office sales and sales of the book were collected. The daily box office sales and book sales of four weeks from the movie's release are gathered. Only the movies released after 2005 were listed up for the both study 1 and study 2. For the list of movies based on books, we referred IMDb and other internet sources, but IMDb was the main source for the list. IMDb is the Internet Movie Database owned by Amazon, which provides the detailed information about movies such as actors, crew, screenplay writers, running time, release date and so forth. The movies

based on comic books or graphic novels, and the movie that combines the story of several books (e.g. Sisterhood of Traveling pants 2 was excluded from the sample since the story was based on second, third and fourth book of its novel series.) were not included in the study. All the movie sales figures are gathered on boxofficemojo website, which shows the daily box office revenues and daily sales figures for movies. For book sales data, since it is hard to access book's daily and gross sales of the data, Google trends data are used as a proxy of book sales. Google trends show how often a particular search-term is entered relative to the total search-volume across various regions of the world. By using Google trends data, you can observe when interest for certain search term was peaked or hit the bottom. As it is found in **Figure 3**, the Google trend data shows almost same pattern with sales data and used a lot in predicting current sales of products, and sometimes as proxy of sales. (Choi and Varian 2010)

In study 2, how many weeks a book stayed in USA today bestselling books list was used as proxy of book sales. It ranks the 150 top-selling titles each week based on an analysis of sales from U.S. booksellers. Contributors represent a variety of outlets: bookstore chains, independent bookstores, mass merchandisers and online. Since it combines sales from these various channels and rank them in order every week, the duration of the weeks that the book was listed is used

as dependent measure in study 2, as a proxy of book sales.

Figure 3.

Examples of Google trends and Real Sales data: Chevrolet & Toyota
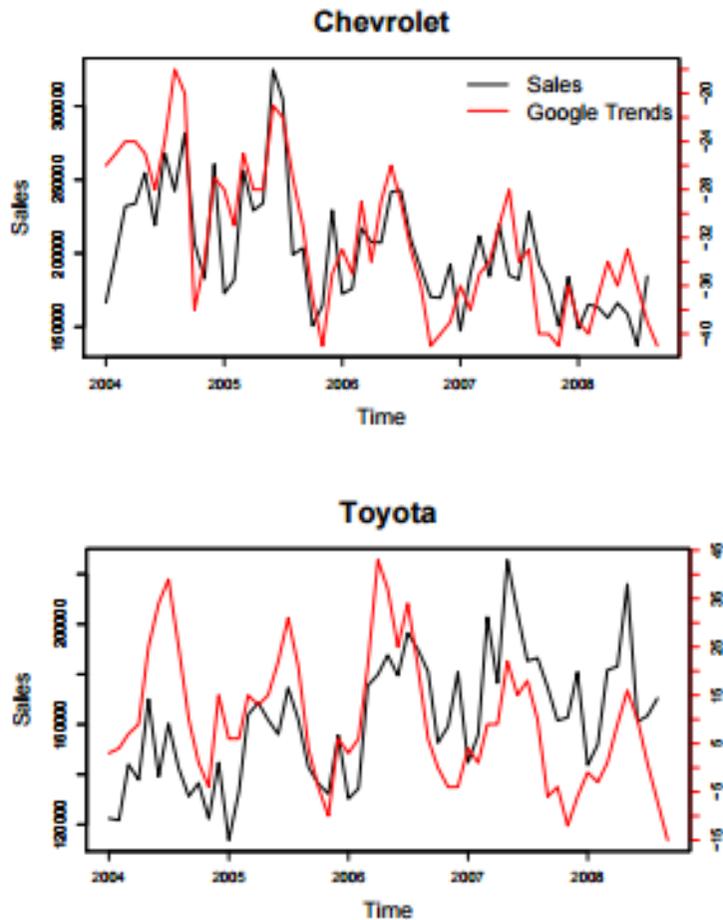
(Choi and Varian 2010)

To assess parent brand characteristics, the number of reviews of the book before movie's release and whether the book received the award were used to measure original novel's brand awareness. Parent brand awareness was also used in Hennig-Thurau et al. (2009), as one of the important factor that drives success of movie extension in

examining spillover effects. These two variables can be considered as parameters that indicate how much the book might be known, since the number of reviews reflects the number of people who have already known and had information about the book and receiving awards can increase the exposure of the product to consumers, which raises the possibility that more people know about the existence of the book. I collected the count of reviews from Amazon website, up to the date a month (30 days) before movie's release, and collected book award information from Wikipedia.

To measure "Association cue" I obtained data of whether the book has "tie in" version (Joshi and Mao 2012, Knapp et al. 2014), whether the movie trailer indicates it is based on book, and whether the book and movie use the same title. These factors can directly signal to the consumers that the novel and the movie are related and reinforce the relationship between two. The examples of movie tie-in version of the book and other marketing support from movie can be found in **Appendix 1**.

For the fit between book and movie, whether the novel's author participated in writing screenplay was used (Joshi and Mao 2012; Knapp et al. 2014). Novel writer's participation in writing screenplay can be considered as movie maker's effort to fully realize the book's contents on the screen, and thus increase similarity. More detailed

explanation on these variables included in the cross sectional model can be found in **Table 1** and **Table 3**.

Table 1.

Description of variables

Context	Variable	Empirical measures
Parent Brand Characteristics	**Parent-brand awareness (PBA) (Keller 1993)**	Number of reviews before movie's release Whether the book has ever been awarded
Extension Context	**Fit (Similarity between movie and book)**	Author of the book participates in writing screenplay (Joshi & Mao 2012, Knapp 2014)
	Association cue	Trailer of the movie mentions that the film is based on book The book has "Tie in" version (Knapp et al. 2014) Whether the movie uses identical title with book
	Time Interval	Difference between book publication date and movie release date (in days)
Child Brand Characteristics		Movie Box office Sales, Budget

5. STUDY

5.1. Study 1

To examine the interdependency between movie sales and book sales, simultaneous equation (3 Stage-Least Squares Time series) is conducted as shown below with 62 pairs of book and movie.

$$\log(Book\_Gt)_i^t = \alpha_0 + \alpha_1 log(Moviesales)_i^t + \alpha_2 \log(Book\_Gt)_i^{t-1} + \mu_i + \varepsilon_i^t$$
(1)

$$\log(Moviesales)_i^t = \beta_0 + \beta_1 log(Book\_Gt)_i^t + \beta_2 \log(Moviesales)_i^{t-1} +$$
$$\beta_3 WEEKEND_t + \rho_i + \sigma_i^t \qquad (2)$$

where

$Book\_Gt_i^t = GoogleTrends$ measure of App i in day t

$Moviesales_i^t =$ Box-office revenue of movie i in day t

$WEEKEND_t =$ Dummy for weekend; weekend= Friday, Saturday, and Sunday

$\mu_i =$ Book-specific fixed effect

$\rho_i =$ Movie-specific fixed effect

To consider the effect of the release date, the dummy for weekend was included in the equation; since it is likely that if the movie is released on the weekend, its box office sales of the release date will be higher than those released on week days. $\log(Book\_Gt)_i^{t-1}$ and $\log(Moviesales)_i^{t-1}$ indicate the values of lagged sales data for book and movie; these are included to consider the impact of sales of previous day on next day's sales. μ_i and ρ_i represent book specific fixed effect and movie-specific fixed effect respectively which capture idiosyncratic characteristics associated with each book and movie, such as genre and distributor, as well as its intrinsic quality.

The interplay between the movie's box office revenue and original novel's sales for the four weeks after movie's release was significant indicating that the box office sales of the movie and the

sales of the book positively affect each other. Test result figures are shown in **Table 2.** The results table demonstrate that the coefficient of all the variables included in the equation are statistically significant at the .01 level. The results show that box office sales of movie and book sales after movie's release concurrently affect each other, and thus support H1 and H2.

Results

Table 2

Estimates of Simultaneous Equation models: Time-Series Analysis

Variables	Parameter estimate (SE)
Book equation,3SLS, R-square=0.91, N=1145	
Constant	-0.917(0.07)***
Movie sales $(log(Moviesales)_i^t)$	0.164(0.01)***
Lagged Book $(\log(Book\_Gt)_i^{t-1})$	0.668(0.01)***
Movie equation,3SLS, R-square=0.92, N=1145	
Constant	3.385(0.18)***
Book $(log(Book\_Gt)_i^t)$	0.171(0.05)***
Lagged Movie sales $(\log(Moviesales)_i^{t-1})$	0.646(0.02)***
Dummy for Weekend (WEEKEND)	0.642(0.03)***

Note: ***P<0.01

5.2. Study 2

Study 2 extends the study 1, and more thoroughly examines the relationship between movie and the book by considering many other variables in in extension context. Cross-sectional analysis was conducted since most of variables considered in this study are internal characteristics which do not change over time. 90 pairs of book and movie were put into the analysis. For variables with highly skewed distribution (i.e., movie box office revenues, movie budget, days between movie's release and book publication book reviews), logarithmic values were used to approximate a normal distribution. For dependent variable, the number of weeks book stayed on the list was divided by the count of the days after book's publication and logged. Since it is likely that the book published long ago can stay on the list longer than the book published relatively lately, the number of weeks has to be used as a ratio of weeks to books ages (as days). The detailed explanation on variables put into the equation is shown in **Table3,** and descriptive statistics for variables are shown in **Table 4**. The equation for the cross sectional analysis is below **Table 3**.

Table3.

Operationalization and data sources of the variables used in the reciprocal spillover effect model

Variable	Name	Description	Source
Main effects			
Parent brand awareness	B Reviews	Logarithm of number of book reviews before movie's release	Amazon.com
Parent brand awareness	B Award	Binary variable taking the value of 1 if the book has received the award	Wikipedia.org
Association cue	BM Trailer	Binary variable taking the value of 1 if the movie trailer mentions about the book	Metacritic.com
Association cue	BM Renewal	Binary variable taking the value of 1 if the book has movie tie in version	Amazon.com, Barnes & Noble
Association	BM Title	Binary variable taking the value of 1 of the book has same name with original book	Wikipedia.org
Fit	BM Writer	Binary variable taking the value of 1 if the writer is associated with making of the movie	IMDb
Timing	BM Days	Logarithm of days between movie's release date and book's publication date	Boxofficemojo, Wikipedia.org
Child brand	M Budget	Logarithm of	IMDb,

characteristics		movie budget	Boxofficemojo
Child brand characteristics	M Sales	Logarithm of movie's box office sales	Boxofficemojo
Interaction Effects			
Interaction of movie budget and movie sales	M.budget*Msales	Cross product term of two variables	See main effects
Interaction of book award and movie sales	B.award*Msales	Cross product term of two variables	See main effects
Interaction of book reviews and movie sales	B.reviews*Msales	Cross product term of two variables	See main effects
Interaction of movie sales and association	BM trailer*Msales	Cross product term of two variables	See main effects
Interaction of the movie sales and association	BM renewal*Msales	Cross product term of two variables	See main effects
Interaction of movie sales and association	BM title*Msales	Cross product term of two variables	See main effects
Interaction of movie sales and fit	BM writer*Msales	Cross product term of two variables	See main effects
Interaction of movie sales and timing	BM days*Msales	Cross product term of two variables	See main effects
Dependent Variable			
Book Sales	B weeks	Logarithm of book's listed number of weeks divided by days past after book's publication	USA today

$$Book_i = \beta_0 + \beta_1 M.sales_i + \beta_2 M.budget_i + \beta_3 B.award_i + \beta_4 B.reviews_i$$
$$+ \beta_5 BM.days_i + \beta_6 BM.title_i + \beta_7 BM.renewal_i$$
$$+ \beta_8 BM.writer_i + \beta_9 BM.trailer_i + \beta_{10}(Mbudget * Msales)$$
$$+ \beta_{11}(Baward * Msales) + \beta_{12}(Breviews * Msales)$$
$$+ \beta_{13}(BMdays * Msales)_i + \beta_{14}(BMtitle * Msales)_i$$
$$+ \beta_{15}(BMrenewal * Msales)_i + \beta_{16}(BMwriter * Msales)_i$$
$$+ \beta_{17}(BMtrailer * Msales)_i + \varepsilon$$

Where

Book_wk$_i$= logged value of number of weeks book listed/days past from book's publication

Msales$_i$= logged value of Box-office revenue of movie i

To estimate the equation, we applied OLS regression analysis; **Table 5** shows the correlation between variables and **Table 6** reports the results of the regression. The R^2 value (0.7011) and the F-statistic $[F_{(17, 72)} = 13.28]$ indicate that post-movie release parent brand (original novel) success is well explained by the model variables. The analysis provides evidence for the existence of the reciprocal spillover effect in our data – financial success of the extension (b=2.467, $p<0.01$). Thus, the H3 is supported.

Also, from the parent brand characteristics, the number of book reviews before movie's release both directly and indirectly affect the reciprocal spillover effect (b=0.05, $p<0.05$). However, the book award is not significant in this equation. H4 is supported, where H5 is not.

Table 4.

Descriptive Statistics for the variables

	Mean	Std. Dev.	Min.	Max.	N
Bweeks	-4.61	1.85	-10.06	-1.83	90
Msales	17.70	1.42	12.25	19.71	90
Mbudget	69.86	63.45	11	250	90
Baward	0.47	0.50	0	1	90
Breviews	6.78	1.71	3.00	10.25	90
BMdays	7.80	0.95	5.35	10.25	90
BMrenewal	0.76	0.43	0	1	90
BMwriter	0.06	0.23	0	1	90
BMtitle	0.93	0.25	0	1	90
BMtrailer	0.61	0.49	0	1	90

Logarithmic values are used for B.weeks, M.sales, B.reviews, and B-M days

Furthermore, the result shows that BM writer variable which represents the similarity between book and movie is not significant and has no direct or indirect impact on the reciprocal spillover effect. Therefore, the H6 is rejected. Among the association cues, even though only BM title has the direct effect to book sales, all three variables, BM title (b=2.23,p<0.05) BM renewal(b=0.028,p<0.1) and BM trailer(b=0.084,p<0.01) are all found that their interaction with movie sales are significant and have indirect effect on book sales. That means, when the book and the movie has the same title, book has the movie tie in version, and movie trailer includes the information about the original novel (as shown in **Appendix 1**), the effect of movie sales on book sales gets stronger. Thus, from these results, it can be concluded that H7,8, and 9 is supported.

Table 5.

Correlation Matrix of variables

	1	2	3	4	5	6	7	8	9	10
1 Bweeks	1	.278**	.021	.405**	.751**	-515**	.068	-.227*	.081	.312**
2 Msales	.278**	1	.562**	.230*	.320**	.009	-.215*	-.371**	-.028	-.118
3 Mbudget	.021	.562**	1	.300**	.311**	.383**	-.375**	-.270*	-.149	-.248*
4 Baward	.405**	.230*	.300**	1	.425**	-.040	-.277**	-.332**	-.028	.061
5 Breviews	.751**	.320**	.311**	.425**	1	-.098	-.033	-.263**	.043	.359**
6 BMdays	-.515**	.009	.383**	-.040	-.098	1	-.319**	.141	-.182	-.005
7 BMtitle	.068	-.215*	-.375**	-.277**	-.033	-.319**	1	-.046	.059	-.029
8 BMrenewal	-.227*	-.371**	-.270*	-.332**	-.263**	.141	-.046	1	.132	.034
9 BMwriter	.081	-.028	-.149	-.028	.043	-.182	.059	.132	1	-.101
10 BMtrailer	.312**	-.118	-.248*	.061	.359**	-.005	-.029	.034	-.101	1

Logarithmic values are used for Movie sales, Movie budget, Book review, BM days
Note: **P<0.01, *P<0.05

Lastly, BM days (timing) has indirect impact on reciprocal spillover effect as it interacts with movie sales variable (-0.001, p<0.1). As expected, as the days between book's publication and movie's release are shorter, the book sale is bigger. This means if the movie is released shortly after the book's publication, it will strengthen the reciprocal spillover effect from movie's sales to book sales.

From the variables used in the analysis, variables other than Movie budget, Book award, and BM writer are all have indirect effect on reciprocal spillover effect through statistically significant interaction with movie sales. Movie budget and book award are rather variables that illustrate each parent and child product's characteristics than the variables that represent the features of the extension. On the

other hand, BM days, BM title, BM renewal, and BM trailer are the variables that can explain the characteristics of the extension context. The statistical significance of BM title, BM revewal and BM trailer variables' interaction with movie sales suggests that how important the context of extension and information cue in reinforcing the positive effect the book can attain from movie's release.

Results

Table 6.

Estimates of Linear model: Regression Analysis with Cross-sectional data

Variables	Parameter estimate (SE)
DV: #of weeks Book listed	
Constant	-51.778 (21.65)***
Movie Sales	2.467 (1.17)**
Movie Budget	0.005 (0.04)
Book Award	-0.916 (3.40)
Book Reviews	0.001 (0.00)**
B-M days	-0.001 (0.00)***
B-M title	41.489 (20.84)**
B-M renewal	0.012 (0.34)
B-M writer	6.919 (12.00)
B-M trailer	0.046 (0.37)
M.budget*Msales	0.001 (0.00)
B.award*Msales	0.091 (0.19)
B.reviews*Msales	0.001 (0.00)**
BM days*Msales	-0.001 (0.00)*
BM title*Msales	2.23 (1.12)**
BM renewal*Msales	0.028 (0.02)*
BM writer*Msales	-0.401 (0.69)
BM trailer*Msales	0.084 (0.02)***
Adjusted R-square=0.7011, N=90, F(17, 72) = 13.28***	

Note: ***P<0.01, **P<0.05, *P<0.1

6. GENERAL DISCUSSION

6.1. Implication

This paper develops a dynamic simultaneous equation system to capture the interrelationship between movie's box office sales and its original novel's sales. Also, it explores the factors that can have impact on book's sales after book-based movie's release. This topic related to book and movie in brand extension context has been rarely studied, and it is meaningful in that it empirically opened the gate for further research of brand extension of entertainment products in the future. The positive feedback mechanism proven by 3SLS model suggests book publishers and movie marketers to increase the marketing after movie's release to achieve the reciprocal benefits. Also, it should be noted that activities such as using the same name with original book and showing that it is based on the novel in movie's trailer can positively affect the book sales figures as they boost the reciprocal spillover effect from movie's box office sales to novel sales. Movie marketers and book publishers should keep in mind that these factors can play critical role in novel-movie context when they plan marketing strategies for the movie extension in the future.

6.2. Limitations and Future Research

Even though this research has its contributions on enriching literature related to the topic of entertainment products, it also has limitations that could be further investigated and developed in the future. First, this paper does not include the movies that are based on comic books or graphic novels. There are a number of movies in the market that are based on comics and graphic novels, such as Iron man, Dark Knight, Avengers, etc. Future research can cover the movies based on comic books and expand the scope of the study.

Second, this study only considers the one type of extension of the book, the movie. However, in real world, stories of the books are adapted in a lot of different categories, such as TV show and video games. In addition, movies are also remade through TV shows and extended to PC or mobile games category, and thus the book and movie in this paper can be replaced with another entertainment product from many other categories.

Third, the Google trends data were used in analysis, as a substitute for sales data. Although the real sales data for book are hard to be accessed and the Google trends data can well represent the present sales, it will be more accurate if the study is conducted with real book sales data. Book sales data are often very expensive, but if data are available, then the validity of the model can be increased.

Finally, more diverse variables can be considered for cross sectional analysis. Several variables (e.g. Movie genre, book genre, etc.) were eliminated from the model since they dropped the validity of the model. However, if there is a way to include such variables and some other variables that have not taken into consideration in this research (e.g. movie sequel, the number of remakes of the movie) without reducing the validity of the model, then it can provide more insights to both academics and business managers.

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APPENDIX

Appendix 1. Examples of extension information provided by publisher and movie makers

Book Cover   Movie Poster
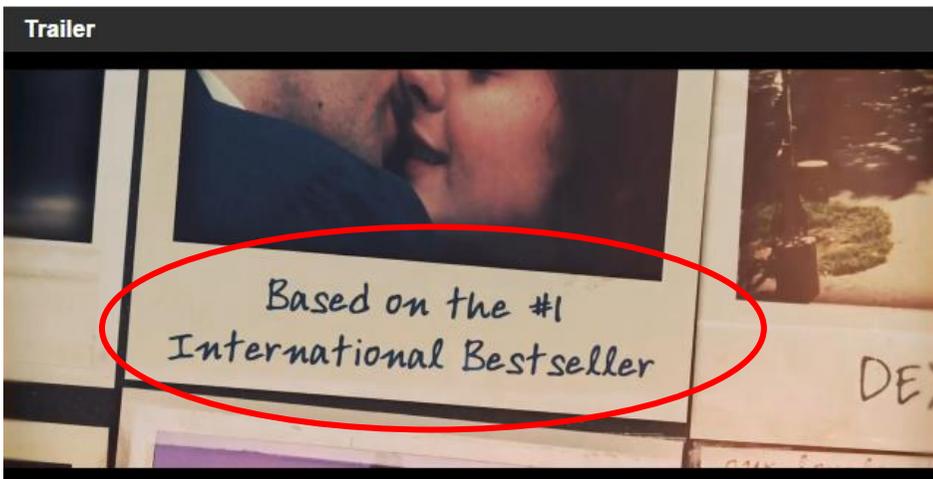
Movie Trailer

국 문 초 록

영화의 박스오피스 세일즈가 원작 책의 판매에 미치는 영향 연구

본 논문은 브랜드 확장의 관점에서 영화의 박스오피스 성적과 원작 책의 판매의 관계를 탐구하고, 특히 영화의 박스오피스 세일이 원작 책의 판매에 미치는 영향에 초점을 맞추어 분석하였다.

먼저 Study 1에서는 영화 개봉 후 영화의 박스오피스 세일즈와 원작 책 판매량의 양방향의 인과성을 Simultaneous Equation model(3SLS)로 알아보았다. 62개의 영화와 원작 책의 pair를 모델로 분석한 결과 영화 개봉 이후 4주간의 박스오피스 세일즈와 같은 기간 동안 책의 판매량의 양방향의 인과성이 확인되었다. Study 2에서는 영화의 성적이 원작 책의 판매에 미치는 영향과 특히, 영화의 박스오피스 성적과 그 이외의 변수들이 원작 책의 판매에 어떠한 영향을 미치는지 90 개의 책과 영화 쌍을 Cross-sectional 분석을 시행한 결과 영화의 박스오피스 성적이 높을 때에 책의 판매량 또한 높은 것으로 나타났다. 그리고 책이 상을 받았거나 책 판매처에서 리뷰 수가 많은 등으로 이미 잘 알려져 있을수록, 또한 영화의 트레일러 등을 통한 홍보에서 원작 책을 언급하고, 영화와 책이 동일한 타이틀을 사용하였을 때에 원작 책의 판매량에 더 긍정적인 영향을 미치는 것으로 나타났다.

주요어: 브랜드 확장; Reciprocal Spillover Effect; 영화; 소설; 박스오피스 세일즈