Time-Newsweek Cover Story Game

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ABSTRACT

Dixit and Nalebuff (1991) provided a simple example of how Time and Newsweek compete with each other through their cover story decisions. This paper goes beyond this example to specify the conditions under which the two competing magazines (Time and Newsweek) issue the same or different cover stories. The main result of this paper can be described as follows. The difference in relative market power and relative market size of story A to story B are critical in determining the cover story decision (business strategy). If the market size of potential story A relative to story B is sufficiently large, then both magazines may issue the same cover story. However, if the market size of potential story A relative to story B is not large enough, the relative market power (rather than the relative market size) becomes more relevant and both magazines may issue different cover stories. This paper provides empirical evidence that supports our hypothesis and shows how our finding is related to Hotelling's paradox.

JEL Classification: L1, M21

Keywords: Cover Story Game; Relative Market Power; Relative Market Size; Hotelling's Paradox

1. INTRODUCTION

*D*ixit and Nalebuff (1991) provided a simple example of how Time and Newsweek compete with each other through their cover story decisions. This paper goes beyond this example and examines what actually determines the cover story decisions of these two magazines. We specifically address why the two competing magazines (Time and Newsweek) issue either the same or different cover stories.

This paper aims to pinpoint the basic factors in cover story decisions by extending Dixit and Nalebuff's (1991) analysis. To do so, we provide a simple game framework and empirical evidence supporting our story. The main feature of this paper is that the cover story decision depends on the difference between the (potential) market size of news A relative to news B in a hypothetical week and relative market power. When the market size of news A relative to news B is sufficiently large, then unexploited profit margins are large enough that the follower can issue the same cover story. In this case, the market power difference between the two may not matter. The follower can enter into the same news market and still maximize its own sales. However, when the relative market size is not sufficiently large, then the market power difference may matter, and the follower may be better off issuing a different cover story. Our empirical evidence supports our rationales.

The next section begins with the examples provided by Dixit and Nalebuff (1991). Then, we provide a simple game framework to analyze the cover story decisions of the two competing weekly magazines and make some predictions. Section IV sets up an empirical model to test our hypothesis and reports the results. Section V offers some discussion. The final section provides concluding remarks and some limitations of this paper.

2. BACKGROUND

Weekly magazines like Newsweek and Time generate their incomes mainly from advertisements, subscriptions, and newsstand sales. As Dixit and Nalebuff (1991) explained, the cover story is a prime determinant of newsstand sales. Arango-Kure, Garz, and Rott (2014) also note that the cover page is the most important factor in determining sales of magazines at newsstands. Therefore, each magazine chooses its cover story strategically to maximize its own sales, given the other's strategy: a classical game situation.

Table 1A. Cover Story Game with Equal Market Power

		Newsweek	
		AIDS	Budget
Time	AIDS	**35, 35**	70, 30
	Budget	30, 70	15, 15

Note: Reproduced from Dixit and Nalebuff (1991)

Dixit and Nalebuff (1991) first introduced a hypothetical cover story game between Time and Newsweek. Suppose that a hypothetical week produces two major news events: the discovery of new drug for AIDs and the debacle of the US budget deficits between the House and the Senate. In their first example, they assume symmetric market power (equal reputation) between Time and Newsweek: Table 1A. The Nash equilibrium strategies in this game are given as {AIDS, AIDS}. That is, the two magazines issue the same cover story (homogeneous strategy).

Table 1B. Cover Story Game with Unequal Market Power

		Newsweek	
		AIDS	Budget
Time	AIDS	42,28	**70, 30**
	Budget	30, 70	18,12

Note: Reproduced from Dixit and Nalebuff (1991)

Their second example assumes that Time has more market power than Newsweek. This implies that Time acquires a greater market share than Newsweek with respect to newsstand sales when both magazines issue the same cover story. With unequal market power, Time and Newsweek issue different cover stories. The Nash equilibrium strategies are given as {AIDS, Budget}.

Their analysis can be summarized as follows: both magazines issue the same (different) cover stories when they have equal (different) market power. However, the reality is not so simple as their example may imply. Time and Newsweek issue the same as well as different cover stories even though Time is regarded as having more market power than Newsweek. In fact, both magazines publish the same cover stories in approximately 30% of total issues. To explain this phenomenon, we provide a simple (but realistic) model in the next section.

3. A SIMPLE FRAMEWORK

Suppose that A and B are two potential major news events for a hypothetical week. Assume that the market size of potential news story A, measured by payoffs, is 'a' and the market size of news story B is 'b'. We assume that the potential market size of news story A is larger than B, a>b. If the news contains notable and significant contents, then the market size of the potential news story may be large. For example, news events such as the tragic death of Diana and the Virginia Tech Massacre generate large market sizes. Moreover, it is unlikely that two major news outbreaks would occur during the same week. Thus, if a sensational and notable news story breaks out during a particular week, then 'a' is larger than 'b'. 't' is a parameter that indicates Time's market power relative to Newsweek. If both magazines have the equal power, then t=1. Assume that t is greater than or equal to 1. This game is summarized in the following payoff matrix Table 2. It is easy to find that {A} is the dominant strategy of Time.

Table 2. Time-Newsweek Cover Story Game

		Newsweek	
		A	B
Time	A	a, a/t	a, b
	B	b, a	b, b/t

When they issue different cover stories, then each magazine becomes the monopoly in a separate market. In Table 2, Newsweek has to choose between A and B, given that Time employs its dominant strategy {A}. Therefore, the equilibrium strategy for Newsweek is as follows:

A   if (a/b) > t
B   Otherwise

The above condition demonstrates that the equilibrium strategy boils down to the comparison of the relative market size of news A to news B, (a/b), to Time's relative market power against Newsweek (t).

If the relative market size of news A to news B is sufficiently large given Time's relative market power, then both magazines issue the same cover story. Because the relative market size of news A is sufficiently large, Newsweek can enter into the same market and still obtain the larger payoffs than when it issues a different cover story. On the other hand, if Time's relative market power is greater than the relative market size [(a/b) > t], then the magazines issue different cover stories. Given that the relative market size of A is not large enough, Newsweek should consider Time's market power and is better off not to fight in the same market. While the story of the present paper evolves on cover story war between the two magazines, the basic insight of the present paper is related to firm conduct in the context of industrial organization. For example, Morton (1997) provided similar reasoning in explaining entry predation in the British shipping conference which either accommodates or preys depending on relative market power difference.

4. EMPIRICAL ANALYSIS

This section sets up an empirical model to test our hypothesis and reports the results.

4.1 Data Descriptions

The data come directly from the US editions of Time, Newsweek, US News & World Report (US News, hereafter). We collected the data from 1996 to 2006 (eleven-year period). The total number of issues was 378. Of those issues, Time and Newsweek have issued the same cover stories 110 times, and different cover stories 268 times, respectively. Table 3 reports the cover story strategy between Time and Newsweek over 1996-2006.

Table 3. Cover Story Strategies from 1996 to 2006

Cover Story Strategy	Time & Newsweek	Time & US News-W.R	Newsweek & US News-W. R	All 3 Magazines
Same	110	58	63	42
Different	268	320	315	336

We first identified the cover story for each week over the sample period. Then, we counted the number of pages and the number of pictures used for each cover story of Time, Newsweek, and US News, respectively. The page length of a story and the number of pictures in the story may indicate the importance of that cover story; the story length and the number of pictures are likely to increase as the importance of the news increases. For example, cover stories such as the Virginia Tech massacre (Seung-Hui Cho) and the tragic death of Diana have more pages and more pictures than other cover stories, indicating a large potential market size for this news. We used this information in constructing a proxy variable for relative importance of the story perceived by each magazine. Specifically, the perceived importance of the cover story is measured by the proxy variable that is given by the page numbers of the story multiplied by the number of pictures in the story.

4.2 Model

We employ a binary logistic regression model for the empirical analysis. This model aims to test how the relative market size matters in determining cover story decisions, given the relative market power. The proposed model is described as follows:

$$Y = \alpha + \beta_1 Ln(X_1) + \beta_2 Ln(X_2) + \lambda_1 D_1 Ln(X_1) + \lambda_2 D_2 Ln(X_2) + \varepsilon$$

For the dependent variable,

$$Y = \begin{cases} 1 \text{ if the same cover story between Time \& Newsweek} \\ 0 \text{ otherwise} \end{cases}$$

X_1 is a proxy variable for the importance of a cover story as perceived by Time, calculated as the length (pages) of Time's cover story times the number of pictures used in that cover story. X_2 is another proxy variable for the importance of a cover story as perceived by Newsweek. It is also calculated as the length (pages) of Newsweek's cover story times the number of pictures used in the cover story. D_1 is the dummy variable for the cover story between Time and US News. It is 1 if the same and 0, otherwise. D_2 is the dummy variable for the cover story between Newsweek and US News. It is 1 if the same and 0, otherwise. Table 4 provides descriptive statistics.

Table 4. Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Ln X1	5.38	0.99	1.79	9.85
Ln X2	5.34	0.86	3.74	8.94
Slope_D1	0.91	2.17	0.00	9.25
Slope_D2	0.97	2.22	0.00	8.94

4.3 Results

Table 5 reports the results of the logistic regression model described above. First, as the potential market size of the cover story (or importance of news) captured by X_1 and X_2 increases, the probability that Time and Newsweek run the same cover story also increases. This result confirms our hypothesis.

Table 5. Logistic Regression Result

Variables	Standard Error	Coefficient
Constant	1.05	-5.108**
Ln X_1	0.13	0.300*
Ln X_2	0.16	0.399*
Slope_D_1	0.07	0.314**
Slope_D_2	0.07	0.116
N		378
-2 Log Likelihood		372.58
LR chi2(Prob.)		83.32 (0.00)

Note: * Significant at 5%, ** Significant at 1%

When both Time and US News run the same cover story, the probability that Time and Newsweek run the same cover story may increase (the slope dummy is significant). However, when Newsweek and US News run the same cover story, this does not significantly affect the probability that Time and Newsweek run the same cover story.

5. DISCUSSION

Before we discuss the main results of this paper, we offer some facts about the relative market power of the three weekly magazines.

Table 6. Circulations

Magazines	Verified Circulations
Time	3.30
Newsweek	2.70
US News & World Report	1.60

(unit: million copies)
Source: www.accessabc.com ABC Circulation (2008)

Table 6 describes the circulation standings of the magazines, indicating that Time enjoys the largest market share, followed by Newsweek, and US News. If the three magazines run the same cover story, then it is likely that the ranking order of sales will be Time, Newsweek, and US News. Thus, Time can first choose the cover story of the larger market size (news A) among the two news stories: A and B. Then, the follower (Newsweek) can either move into the same market (same cover story) or into a different market (different cover story). Notice that the relative market power is fixed even over the relatively long term.

Suppose that the relative market size of news A to news B is sufficiently large. Then, the market power difference between the two may not be important. Newsweek can enter into the same (story) market and still maximize its sales. The significant first slope dummy (D_1) indirectly supports this rationale. If Time and US News issue the same cover story, then this implies that the relative market size of news A is large enough that even US News may enter into the same market and maximize its sales despite the market power difference. In this case, the relative market power may not play an important role in determining the cover story decision, increasing the probability that Time and Newsweek run the same cover story.

However, the second slope dummy is not significant. When Newsweek and US News run the same cover story, this does not imply that the relative market size of A to B is sufficiently large or the relative market power is irrelevant. According to Table 4, the difference in market power between Newsweek and US News may not be significant compared to the difference in market power between Time and US News. Even if both magazines run the same cover story, this does not indicate that the relative market size of news A to news B is large enough. This information alone is insufficient to draw any conclusive inference. Either the market size of news B is relatively large enough so that the two followers may enter into this market or the market size of A is sufficiently large so that all three magazines may issue the same cover story. Therefore, this may not change the probability that Time and Newsweek run the same cover story.

6. CONCLUDING REMARKS

This paper highlights the strategic positioning of cover story decisions by the two weekly magazines. The important finding of this paper is that the difference between the relative market power and the relative market size of news may be critical in determining the cover story decision (strategy choice). When the relative reputation (difference of relative market power) is fixed, the relative market size of potential cover story A to B can play an important role because the relative market size may change from week to week. Our empirical evidence supports this idea. That is, when the relative market size of cover story A to B is sufficiently large, both magazines issue the same cover story: no differentiation.

The rationale of this paper is simple but powerful enough to explain the cover story positioning of weekly magazines. In fact, the findings of this paper are related to Hotelling's paradox (1929). If the relative market size changes over time and the relocation choice is relatively costless, then our findings suggest that the two competitors position themselves on the same or different locations depending upon the difference in relative market power and relative market size. Following Hotelling (1929), a supermarket with strong market power can pull consumers who are located far away (more traveling cost) whereas a competitor without market power loses consumers nearby. Relative market size implies its distribution and its shape. Therefore, this paper applies Hotelling's (1929) paradox to the positioning decisions of weekly magazines.[1]

Although this paper has analyzed the cover story decisions of weekly magazines for the first time (to the authors' knowledge), it has some limitations. This paper provides empirical evidence that supports our hypothesis and shows how our finding is related to Hotelling's (1929) paradox. Wright and Kaiser (2006) examined the magazine industry from the perspective of two-sided (subscription and circulations) markets. The present study omits pricing strategies and concentrates on positioning strategies. However, Oster and Morton (2005) explained how subscription and newsstand prices may differ with respect to leisure or future investment magazines. They showed that the behavioral

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[1] D'Aspremont, Gabszewicz and Thisse (1979) scrutinized Hotelling's (1929) stability of competition. Our paper's finding complements their result. Their result suggests that the one may possess a greater degree of market power when there is a greater degree of product differentiation. Our finding indicates when a different strategy may be advisable. For a recent discussion on Hotelling's (1929) paradox, see Puu (2011).

biases of consumers may be responsible for the different pricing strategies as publishers take advantage of consumers' present bias preferences.

The model and rationale of the present paper may be applicable to other industries as well. If the market deems lucrative, firms may enter into a market or produce goods irrespective of whether there already exists an incumbent firm and a product or not. If the market deems not so much lucrative, they would rather enter into another markets or try to produce differentiated goods. Exploring the relationship between relative market power and relative market size in a specific context would be an interesting research agenda.

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