Competitive strategies in the motion picture industry: An ABM to study investment decisions

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Article info
Article history:
First received on September 13, 2013 and was under review for 4 ½ months.
Available online 9 June 2016

Keywords:
Competition
Experience goods
Advertising
Word-of-mouth
Agent-based-modeling

Abstract
We study a parsimonious competition setting whereby two studio producers launch their movies simultaneously. They compete deciding about the positioning of their movies, as they can position close to or far from the mainstream, and investing in advertising and in quality. We study our competitive setting with an analytical model and solve it using a standard game-theoretical technique. Next, we use an agent-based model (ABM) to relax several assumptions of the analytical model and investigate more realistic market situations, such as symmetric as well as asymmetric positioning, competitions among big and/or small studios, settings with more than two competitors, and studios that use weighted and evolving decision rules. Our results explain interesting dynamics behind the scenes of the competition. They indicate the drivers of studios’ behaviors and shed light on some important aspects of their strategic competition. In this sense, our results offer relevant theoretical and practical implications.

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1. Introduction

Many experience goods, such as movies, video games, books, CDs, concerts, and sporting events, enter the market, have a very short life cycle, and exit. Competing firms launch them regularly, often on a weekly basis. Their success depends on how much buzz their advertising campaigns create before their products enter the market (Karniouchina, 2011; Liu, 2006), but also on how much firms have invested in their products’ quality (Kopalle & Lehmann, 2006). Both decisions are critical to win the competition, because future sales depend not just on advertising but also on the judgments of the consumers who actually experience the quality of the products and create word of mouth (Bass, 1969; Mahajan, Muller, & Kerin, 1984).

We consider a parsimonious, strategic competition setting for experience goods in which firms compete for the same target, launch their products at the same time, and decide how much to invest in advertising and quality. Several features distinguish our model from existing literature. First, we design our model to apply to the motion picture industry. Most marketing literature that refers to this industry focuses on the effects of advertising on sales and profits (Ainslie, Drèze, & Zufryden, 2005; Basuroy, Desai, & Talukdar, 2006; Elberse & Anand, 2007; Elberse & Elashfber, 2003; Hennig-Thurau, Houston, & Sridhar, 2006; Joshi & Hanssens, 2009; Prag & Casavant, 1994; Zufryden, 1996). Yet few studies investigate how studio producers compete strategically. In this paper we investigate which investment strategies studios should use, and how their decisions impact studios’ profits.

Second, we link studios’ budget decisions to the positioning of competing movies in the market. Studios can position their movies close to or far from the mainstream. When movies approach the mainstream, they aim at the mass market or the average...
preferences of the target segment, whereas when they move away from the mainstream, they focus on customer niches with more extreme preferences (Gemser, Van Oostrum, & Leenders, 2007; Zuckerman & Kim, 2003). Thus, our model also provides information about launching more or less mainstream movies.

Third, we take advantage of a stimulating method of analysis that exploits the interplay between analytical modeling and agent-based modeling (Rand & Rust, 2011). We begin by studying a duopolistic competitive setting with an analytical model and solve it using a standard game-theoretical technique. Next, we use an agent-based model (ABM) to relax several assumptions of the game-theoretical model and investigate more realistic market situations. In our ABM, studios decide how much to invest in advertising and in quality using two simple and realistic decision rules: a repeat/imitate rule in which a studio repeats its decision if it performed better than the competitor or copies the decision of the competitor if it performed worse; and a trend rule in which studios simply follow recent profitable trends. In this way, we use the analytical model to achieve generalizability and the ABM to investigate interesting extensions of the model that more realistically adhere to the motion picture industry. Specifically, our ABM allows us to study symmetric as well as asymmetric positioning, competitions among big and/or small studios, settings with more than two competitors, and a number of more realistic features of the market.

With these advances, we obtain several interesting results. First, focusing on two major studios positioning their movies equidistant from the mainstream, we find that strategies based on the trend rule are the most profitable. However, this occurs only with symmetric positioning. When studios do not position their movies equidistant from the mainstream and use different rules, the dynamics of the competition change substantially. We find that if a studio uses the trend rule, the competitor can obtain high profits using the repeat/imitate rule as well. This makes the competition very critical because if both studios use the repeat/imitate rule in an attempt to beat each other, they end up with significantly lower profits. Second, when simulating competitions between big and small studios, we find that the major studio should use the repeat/imitate rule, invest substantial budgets, and position very close to the mainstream; whereas the small studio should take some distance from the mainstream only if it reduces its investment considerably by using the trend rule. Third, we conduct several robustness checks and an additional study in which we simulate a market with more than two studios that use weighted and evolving decision rules. In all these cases our results contribute to explaining why competition in this industry is very tough and profits are so low.

2. Competition in the motion picture industry

2.1. Head-to-head competition

We begin by modeling competition between two film studio producers that release their movies at the same time—that is, head-to-head (Krider & Weinberg, 1998). Head-to-head competition occurs very often in reality, especially during high-demand periods (e.g., the Christmas season, pre-award periods), when powerful studios engage in fierce competition in the launch of their movies (Epstein, 2010; Krider & Weinberg, 1998).

In our model, two studios (i = 1, 2) produce and simultaneously release their movies after making choices about two strategic variables: how much to invest in advertising the new movie $a_i$, and how much to invest in making a good movie $b_i$. Similar to Krider and Weinberg (1998), we model competition between the two movies in a share attraction framework: When the studio allocates its money, it presumes that more prelaunch advertising increases its share of voice and lures more consumers to see its movie (Bell, Keeney, & Little, 1975; Jones, 1990; Schroer, 1990). Furthermore, the studio assumes that investing more in making the movie will increase its quality (Kopalle & Lehmann, 2006). We illustrate this competitive setting from the point of view of studio $i = 1$ in Fig. 1.

We collapse the movie life cycle into two periods, such that consumers attend Movie 1 at either its launch or at its post-launch. In our shared attraction framework, at launch, consumers are more attracted to Movie 1 if they have been exposed to more prelaunch advertising of Movie 1 than Movie 2—that is, when $a_1$ is greater and $a_2$ is smaller. We let $q_1^l$ indicate viewership of Movie 1 at launch. In the post-launch period, consumers’ attraction to Movie 1 depends on word-of-mouth effect, WOM. In line with
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