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Abstract
The motion picture industry has provided a fruitful research domain for scholars in marketing and other disciplines. The industry has high economic importance and is appealing to researchers because it offers both rich data that cover the entire product lifecycle for many new products and because it provides many unsolved "puzzles." Although the amount of scholarly research in this area is rapidly growing, its impact on practice has not been as significant as in other industries (e.g., consumer packaged goods). In this article, we discuss critical practical issues for the motion picture industry, review existing knowledge on those issues, and outline promising research directions. Our review is organized around the three key stages in the value chain for theatrical motion pictures: production, distribution, and exhibition. Focusing on what we believe are critical managerial issues, we propose various conjectures—framed either as research challenges or specific research hypotheses—related to each stage in the value chain and often involved in understanding consumer movie-going behavior.

Keywords
motion picture industry, entertainment industry, review, research and models

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Educational Assessment, Evaluation, and Research | Other Education | Recreation Business

THE MOTION PICTURE INDUSTRY:
CRITICAL ISSUES IN PRACTICE, CURRENT RESEARCH & NEW RESEARCH DIRECTIONS

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ABSTRACT

The motion picture industry provides a fruitful research domain for scholars in marketing and other disciplines. The industry has a high economic importance and is appealing to researchers because it offers both rich data that cover the entire product lifecycle for a large number of new products and because it provides many unsolved 'puzzles'. Despite the fact that the amount of scholarly research in this area is rapidly growing, its impact on practice has not been as significant as in other industries (e.g., consumer packaged goods). In this article, we discuss critical practical issues for the motion picture industry, review existing knowledge on those issues, and outline promising research directions. Our review is organized around the three key stages in the value chain for theatrical motion pictures: production, distribution, and exhibition. We discuss various conjectures, framed as research challenges or specific research hypotheses, related to each stage in the value chain, followed by a set of specific research avenues for each of those stages. We focus on what we believe are critical managerial issues.

Keywords: Motion Picture Industry, Entertainment Industry, Review, Research and Models

INTRODUCTION

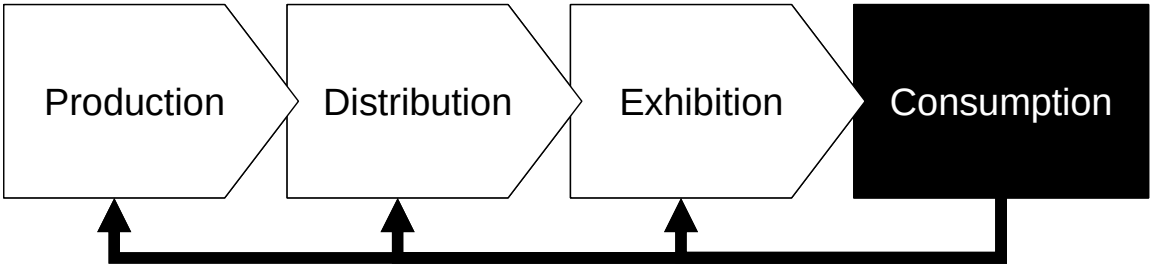
Over the last two decades, the amount of academic research on issues related to the motion picture industry has risen sharply. This growth might have a number of reasons. First, the industry has a high economic importance in the global economy. The motion picture industry employs over half a million people in the U.S. (U.S Department of Labor 2004). Spending on theatrical tickets was around $9 billion in the U.S. and close to $11 billion internationally in 2004 alone; revenues from ancillary markets (particularly home video, but also merchandising) are several times higher (Standard & Poor's 2004). Motion pictures are a key driver of the market for entertainment products – currently the number one export market for the U.S. Second, the availability of rich data makes the industry particularly appealing from a research perspective. For example, many new, unique products are released in a relatively short time period. The 'cradle-to-grave' scope, with data covering the entire product life cycle, provides ideal conditions for marketing researchers. Third, industry practitioners rely heavily on tradition, conventional wisdom, and simple rules of thumb, which often have not – but should – be closely examined. Intriguing puzzles still exist, such as the extent to which traditional contracts among channel partners or uniform ticket pricing policies are optimal. Fourth, insights from the motion picture industry may help to better understand industries that share certain characteristics as well as to examine the interface between technology and experience goods in the digital age (Schmitt 1999; Wolf 1999).

In this article, we set out to review the rapidly growing body of research on the motion picture industry. We do so for two main reasons. First and foremost, we believe that a reassessment of research directions is needed particularly at this point because many critical issues for practice remain unaddressed. Our goal here is to share insights into the motion picture industry in such a way that they will stimulate managerially relevant research. Second, because we are convinced that a greater focus on industry-specific research can benefit the marketing discipline, we hope that our review will serve as an example of an approach to the development of a research agenda, and as such will stimulate similar efforts for other industries.

We focus our attention on the theatrical motion picture industry, and divide the manuscript into three sections – production, distribution, and exhibition – that correspond to the three key stages

in the value chain for theatrical motion pictures that precede their 'consumption' by movie-going audiences (see Figure 1).

Figure 1: The Value Chain of Theatrical Motion Pictures



Different types of entities and individuals participate in each stage of the value chain. The competitive landscape includes vertically integrated major studios, independent production companies, independent distributors, major national exhibition chains as well as smaller regional exhibitors and art houses. Studios are often simultaneously engaged in four distinct functions: financing, producing, distributing, and advertising (Squire 2004, Vogel, 2001). Here, we consider the first two functions together under the heading 'Production'. It can be defined as the activities needed to produce one copy (or, in industry terms, one 'print') of the movie. The latter two functions are discussed under the heading 'Distribution'. In essence, these functions encompass all of the distributor's interactions with its two main groups of customers – exhibitors and audiences. 'Exhibition' refers to activities performed by theater chains and individual theater sites.

We recognize that the motion picture industry encompasses a number of subsequent revenue windows – including domestic theatrical, foreign theatrical, home video, pay television, network television, syndication, video games and merchandising. Although a comprehensive review of non-theatrical windows is beyond the scope of our study, we venture into these areas as far as they are relevant to the behavior of players involved in the theatrical arena.

The three sections are structured in a similar way. We begin each with a description of the general process and current status of research. Next, we describe key practical issues that in our opinion are worthy of research. We do not intend for our descriptions of practical issues to be exhaustive – instead, we set out to highlight what we, based on our knowledge of the industry, interactions

with industry executives and observers, and review of trade publications, view as critical issues, for each stage of the value chain. We propose various conjectures – inferences based on inconclusive or incomplete evidence – and research challenges. We acknowledge that the conjectures are often speculative. Our aim is to examine the extent to which critical issues have already been studied – and if so, what key findings emerge – and to what extent they have not. Our review shows that the range of methodologies employed in existing research is already quite broad, and includes regression-based econometric techniques, discrete-choice models, and operations research methods. However, our focus is not on the methodologies employed.

Closely related to our theme, but not reviewed in this paper because of the availability of other reviews (e.g., Litman and Ahn 1998), is the extant literature that deals with consumers and their movie-going behavior. Ever since 1914, in what must have been one of the earliest studies on the drivers of the behavior of movie audiences, DeMaday (1929) asked Swiss school children 'why do you like going to the cinema?' (Palmgreen, Cook, Harvill, & Helm, 1988), researchers have attempted to understand what drives movie consumption. Jowett (1985) provides an informative review of movie audience research in the first half of the 20th century. He observed that "no major American industry ever operated with so little research of its market as did the motion picture industry during the period of its greatest influence, from its early years until the mid-1950s". It was not until the 1940s that the industry began to move beyond anecdotal studies to more systematic research methods, mostly regularly administered surveys. In that period, academic researchers such as Lazersfeld (1947) laid the groundwork for further research on movie audiences, in areas such as psychology, sociology, communications, and film studies (see Blowers 1991). More recently, conceivably partly in response to Hollywood's increased focus on 'the bottom line', interest in the motion picture industry has spread to other fields – particularly industrial organization, economics, strategy, and marketing.

An understanding of audience behavior is fundamental to shedding more light on the challenges faced by producers, distributors, and exhibitors. For instance, it plays a critical role in forecasting movies' financial performance and assessing the impact of new technologies. The literature has been divided into two research traditions: the 'psychological approach' and the 'economic approach'. The *'psychological approach'* focuses on individual decisions to first attend movies from among the vast array of entertainment options and second, and more critically, to choose particular movies (e.g. Litman & Ahn, 1998). Researchers adopting this approach aim to relate such variables as opinions, needs, values, attitudes and personality traits to consumers' decision-

making processes. Such studies generally use data collected by surveying individual consumers. Examples are Austin (1986; 1989), Becker et al (1985), Cuadrado and Frasquet (1999), D'Astous and Touil (1999), De Silva (1998), Moller and Karppinen (1983), Palmgreen et al (1988), and Palmgreen and Lawrence (1991). Another relevant stream of research within the psychological approach has focused on the role of mood as an antecedent of individual consumption-related outcome. See for example Eliashberg and Sawhney (1994) for an application to movie watching.

Studies within the *'economic approach'* explore factors that influence collective movie attendance decisions. The economic approach seeks to explore the variables that influence the financial performance of motion pictures. These studies typically use aggregate data on movie-going behavior collected by industry trade sources. Examples of such studies include Litman (1983), Litman and Kohl (1989), Litman and Ahn (1998), De Vany & Walls (2000), Dodds and Holbrook (1988), Elberse & Eliashberg (2003), Eliashberg and Shugan (1997), Hennig-Thurau, Walsh and Wruck (2001), Jedidi, Krider and Weinberg (1998), Moul (2004), Prag and Casavant (1994), Ravid (1999), Simonoff and Sparrow (2000), Smith and Smith (1986), Sochay (1994), Wallace et al (1993), and Zufryden (1996; 2000). Effectively bridging both approaches, some studies model aggregate patterns of motion picture diffusion based on assumptions about underlying adoption processes on an individual level (e.g. De Vany & Walls 1996; Neelamegham and Chintagunta 1999, Sawhney & Eliashberg, 1996).

PRODUCTION

The development of a motion picture is a long succession of creative decisions with far-reaching economic implications for the different players involved. Each movie's development process is unique, but some general observations can be made. The process commonly begins with a story concept based on a literary property, a new idea or a true event (Vogel, 2001, Squire 2004), which can vary from a general idea (a 'pitch') to a completed screenplay (a 'spec'). In some cases, a studio or producer will ask a writer to develop a new (or adapt an existing) screenplay. Usually, however, with help from a literary agent, a writer submits a first draft of a screenplay for review to a number of independent and/or studio affiliated producers. If a producer is interested – many screenplays never pass this hurdle – both parties usually sign an option agreement, which gives the producer the right to purchase the complete screenplay, and the writer an advance payment (of which the literary agent takes a percentage).

At this point, substantial financing is required to take the project into production. Financing is less problematic if the producer is affiliated with a studio (an example is the deal that Ron Howard and Brian Grazer's *Imagine Entertainment* has made with *Universal Studios*). By signing a studio contract a producer usually gives up a wide range of rights relating to sequels, spin-offs, merchandising, and other opportunities, but at the same time increases his chances of securing bank loans or tapping into the studio's own capital, and securing favorable distribution and exhibition deals for completed movies. Such contracts are beneficial from the studio's perspective because they guarantee the inflow of products from firms with solid track records. Financing is significantly more problematic if the producer does not have a pact or a deal with a studio, which is the case for a large majority of projects. In that case, the producer will have to obtain initial financing from other sources, a difficult task in particular when no distribution deals are guaranteed (Vogel 2001).

While they pursue different fund-raising options, producers also have to develop the film along other lines: they recruit the director, cast, and crew, scout possible shooting locations, and design sets and costumes, among other things. Talent agents (such as *CAA* and *ICM*) play a key role in these activities. At this stage, producers also determine an estimated production budget, based on such factors as the script, likely post-production expenses (e.g. for special effects), star salaries, and financing possibilities. After these activities, which are all part of the 'pre-production' phase, the project enters the actual 'production' phase where the film is shot. This usually lasts a few months. Next, the project enters 'post-production', which consists of activities such as editing, dubbing, creating special effects, and adding music. Before it can be released in a particularly country, the movie also needs to be rated (e.g., by the MPAA in the U.S.).

The above description applies mostly to the movie development process in the U.S. Movies originating in 'Hollywood' dominate box-office rankings across the globe. On average, international theatrical markets now bring in more revenues than the domestic theatrical market. However, of the more than 4,000 movies that are produced worldwide each year, only about 700 are produced in the U.S. (MPAA, 2003; also see Scott 2005). India is the most productive country. Sometimes referred to as 'Bollywood', it produced more than 1,000 films in 2001, which together generated over 45 billion rupees (at the time close to $1 billion) in revenues (U.K. Film Council, 2002). Overseas markets such as the U.K. have become increasingly lucrative for Indian films, sometimes generating nearly a third of total revenues, and allowing for higher production

budgets. With the notable exception of India, Hollywood products dominate major markets around the world. Even in countries with highly acclaimed local productions, such as France and Italy, non-U.S. movies often represent only a small fraction of box-office grosses (EAO 2003).

Financing the development of a movie is an extremely risky decision rooted in artistic and business considerations. However, we conjecture that:

The Success Rate of the Traditional 'Green-Lighting' Process Can Be Improved

An important puzzle about the motion picture industry is why movies that flop miserably at the box office ever get made. Caves (2001) provides arguments for why such 'ten-ton turkeys' advance through the development process. He explains how, when costs are sunk progressively and information on a project's quality is revealed gradually, rational decision makers can carry projects to completion that realize enormous ex post losses. The movie *The Adventures of Pluto Nash*, which cost over $100 million to produce but earned less than $5 million in U.S. theaters, is an example of such a type II error. Type I errors, which involve rejecting a potentially successful project, are also a common practice in the industry: a recent example is *The Passion of the Christ*, the highest-grossing independent movie to date, which was reportedly turned down by several major studios (Quelch et al 2004).

It is because of the 'triggering' effect outlined by Caves (2001) that mistakes in the green-lighting process—the initial decision to approve or decline a project—is very costly. While maximizing the green-lighting success rate (i.e., minimizing the two types of errors) is extremely challenging, it is staggering to discover how little 'science' usually goes into the process. A senior executive at a major studio described the process as follows: "We bring together all studio department heads. Beforehand, our financial department prepares an overview of key estimates to get a sense of the financial viability. It really revolves around the production costs. That is our most reliable estimate, and that thus forms the basis for our launch decision. (…) The idea is to work towards the bottom line. We ask ourselves whether we can recover our production costs, and whether there is room to spend on marketing. In the end, though, it comes down to the fact that someone has to sign off on the deal. Someone in the meeting has to put his or her reputation on the line and say 'yes' – regardless of whether the numbers add up" (Elberse, 2002).

The green-lighting decision can never be completely foolproof, and an economic analysis should not always guide the decision. However, given the advances that marketing scholars have made in the general area of new product development in the past decades (e.g. Urban and Hauser 1980; Wind and Mahajan 1997, Crawford and Di Benedetto 2003), and in particular with expert and knowledge-based computer systems, already employed in creative industries such as the advertising industry (e.g., Burke et al 1990; Rangaswamy et al 1989), quantitative and qualitative research methods may be able to facilitate decision-making and improve the success rate. If only a marginal decrease in failure rates is achieved, that could imply tremendous financial and reputation benefits for studios and other players that are involved in the green-lighting process.

Marketing researchers have already made significant progress in developing early-stage box-office forecasting models and decision support tools, including models that set out to predict success and aiding decision-making *after* the movie has been completed but *prior* to its theatrical release (e.g. Neelamegham and Chintagunta 1999; Eliashberg, Jonker, Sawhney and Wierenga 2000; Shugan and Swait 2000). Also applicable to earlier stages of the development process, work by DeVany and Walls (1999) and Collins, Hand, and Snell (2002) provides insights into the probability that a film's revenue will exceed a given threshold value. A team evaluation approach as proposed by Shugan (2000a; 2000b), whereby predictions are based on information about the past performance of production team members, is promising as well.

Another interesting new method involves the use of stock markets simulations. Used to identify 'winning concepts' in the eyes of consumers for other goods (see Dahan and Hauser, 2002), some marketing researchers have shown that such 'predictive' markets can generate, at an early stage, valuable insights into the likely success of motion pictures (Gruca 2000; Elberse & Eliashberg 2003; Spann and Skiera 2003; Elberse and Anand 2005). The Hollywood Stock Exchange (HSX, www.hsx.com) has been the most popular application in the motion picture industry. For example, Spann and Skiera (2003) show that data obtained using HSX, when incorporated into a conventional regression model, lead to a significant improvement in opening weekend forecasts.

One possible reason for why virtual stock markets are helpful in assessing demand stems from a key observation about movie consumption – moviegoers appear heavily influenced by others' opinions and choices. 'Others' could refer to friends and acquaintances, critics and other opinion leaders, as well as the market as a whole. The most direct influence is likely to come from people that accompany consumers to the theater. It is well established that movie attendance has a strong

social component (e.g., Austin 1986). Weinberg (2003) speculates about the effect of the collective nature of the decision-making process on consumption. He suggests that there might be an elimination rule, whereby a movie is eliminated from the consideration set if any of the group members has already seen it, or if any of the group members vetoes against it. Prior information, opinion leadership, and group composition could impact this process. In essence, the problem involves understanding how to 'translate' individual utility to joint utility.

The large body of econometric research on the many factors that drive the success of motion pictures may provide useful guidance as well (see Litman (1983) for pioneering work in this area, and Elberse (2002) and Elberse and Eliashberg (2003) for recent overviews). Many of these models consider factors that are under the direct control of a studio and/or producer (e.g. the director, cast, genre, and production budget) and often form the basis for the green-lighting decision. However, it is important to consider potential endogenous relationships in empirical examinations (see Shugan 2004). For example, a high budget means that the movie can employ high-profile stars, but high-profile stars generally also attract financing, which in turn enables a higher production budget. Decisions which stars to employ, what budgets to set, and financial estimates based on both considerations should take this endogeneity into account. Another factor that is worthwhile to consider at an early stage in the development process is the expected rating – both in the U.S. and overseas. Leenders and Eliashberg (2004) found that ratings for parental guidance of a particular movie often significantly differ across countries. In addition, they found that the relationship between movies' ratings and their box office success differs across countries.

The following questions may capture particularly worthwhile research avenues:

- How should agents and other intermediates bring screenplays to the market?
- What screenplays are picked up by studios – and why?
- How do those responsible for green-lighting decisions currently select projects, and how can that process be improved? The focus here could be on designing appropriate stage-gate procedures with specific metrics and milestones that allow for shelving or aborting the project, committee composition, and voting rules, among other things.
- What determines the manner in which projects progress (or fail to progress) in the development funnel? How do studios make the trade-off between artistic and business objectives? How can this process be optimized?
- Can accurate forecasting models be developed based on early indicators, such as a movie's script, the cast, and the expected rating?

We anticipate improvements in the accuracy of risk assessments by studios and independent production firms. As far as *managing* risk is concerned, we conjecture that there will be a stronger reliance on content that audiences are familiar with:

Studios Will Increasingly Pursue 'Hit Franchises' Based On Established Intellectual Properties in an Effort to Reduce Risks

Producing movies is very costly *and* very risky. In 2003, a major studio movie required nearly $64 million in production ('negative') costs and another $40 million for prints and advertising costs (MPAA 2004), but the lion's share of movies never recoups those costs. Desai, Loeb and Veblen (2002) describe three main risks that motion pictures face: completion risk, performance risk, and financial risk. Films face *completion risk* due to the high level of required investment and the changing motivations and relationships between producers, talent, and financiers. They face *performance risk* because uncertainties regarding the appeal of stars, fickle reaction of audiences and critics, and other factors make it difficult to accurately predict revenues and profits – each movie is unique. For that very reason, equity investors face *financial risk* as well. Desai et al (2002) argue that, in line with an increase in production and marketing costs, the level of *financial risk* for equity investors has increased steadily since the 1980s. Higher dollar returns are now required in order to yield a positive net present value for investors. Many individual and institutional investors have been disappointed by the return on investment. Managing increased costs with fewer potential investors has created a serious funding problem for major studios and independents alike.

One way in which studios are coping with risk is to pursue franchises based on properties that have demonstrated their appeal in the market place. Studios are capitalizing on brand equity. The popularity of movie sequels best exemplifies this trend. It is by no means characteristic of the motion picture industry alone – 'tweaking' established formats is also a popular strategy in a variety of other creative industries, such as television and video games (Variety 2004a; 2004b). However, the prevalence of sequels (and prequels or beginnings) in Hollywood is striking. At least a dozen sequels were shown in theaters in the summer of 2003 alone (Variety 2003d). There are a number of reasons for this preference for sequels. They appear to outperform original concepts at the box office – i.e. seem a 'safer bet'. Of the ten highest-grossing movies in 2003, four were sequels: *The Matrix Reloaded*, *X2: X-Men United*, *Terminator 3*, and *Bad Boys 2*. A

fifth movie, *Chicago*, was based on a successful Broadway musical. Furthermore, sequels might be more cost-efficient to develop and market. Exhibitors and other players will display more enthusiasm for a well-established movie property, which makes a wide distribution strategy more viable. Audiences will have a higher familiarity with the concept, which makes advertising the movie easier. Increasingly important, the establishment of a movie franchise also seems advantageous in the home video window – sequels appear to have particularly strong DVD sales – and in ancillary windows such as video games and merchandising (Variety 2004a; 2004b).

However, the success of sequels is far from guaranteed. High-profile sequels regularly disappoint at the box office (Variety 2003d). In addition, particularly due to the exploding cost of talent, production costs are often significantly higher for sequels. Marc Schmuger, Vice Chairman at *Universal Studios*, commented in this regard: "It's a complex equation that figures in determining whether the sequel is capable of capturing the same level of excitement as the original" (Variety 2003d). Interesting in this regard, Sood and Dreze (2004), who consider movie sequels as brand extensions and focus on the role that their titles play, find that a sequel with a numbered title (e.g., *Daredevil 2*) may have a less favorable evaluations than a sequel with a more descriptive title (e.g., *Daredevil: Taking it to the Street*).

Studios' eagerness to produce movie sequels and movies based on properties established in other media, such as in musicals, but also in books, in comics, on TV, and in video games, is likely to continue. However, it remains to be seen whether pursuing hit franchises based on proven properties leads to more favorable risk-return ratios.

Promising avenues for further research include:

- To what extent are sequels more successful in generating profits than movies based on original concepts?
- What kind of movie is amenable to a successful sequel – and what kind is not? What type of market research is most useful in testing for a movie's sequel potential, both before and after the movie has been released?
- What type of contracts is most appropriate for movies with a high "sequel potential"? For example, how should studios contract actors and other creative talent when a sequel is likely?

- How can studios use sequels in order to build and sustain valuable franchises? What is the appropriate positioning strategy for a sequel? How can they best forecast and manage revenue streams of sequels in other windows or media?

In addition to managing risk for one particular movie or for a set of movies based on the same intellectual property, we expect that studios will pay more attention to risk management across their entire slate of movies. In this regard, we believe that:

More Effective Portfolio Management Strategies Could Help Studios to Further Reduce Risks and Improve Profitability

Bringing one movie project to a successful end is difficult enough, but most studios are, at any given time, dividing their attention across a number of projects in various stages of development and across types. It is difficult to obtain reliable data, but according to a comprehensive database, Buena Vista led the major studios with the highest number of projects – twenty-seven – in pre-production, production, or post-production in early 2004 (Showbiz Data, 2004). It is crucial for a studio to effectively manage its development 'pipeline' – a carefully balanced portfolio can help the studio to manage its risk (see Ding and Eliashberg 2002 for an example of effectively managing pipelines in another industry, namely pharmaceuticals).

The issue extends to finding the optimal portfolio of movie types – for example in terms of genre, storyline, age restriction (e.g., De Vany and Walls 2002), and star power – that protects a studio against changing audience tastes. More and more, a portfolio-based organizational structure is believed to lead to improved performance due to the development of specialized skills. For instance, *Focus Features*, a production and distribution unit of *Universal Pictures*, is structured such that each of its three units specializes in a particular genre: "upscale action", "thriller", and "urban fare". Bob Wright, chairman and CEO of *NBC Universal* commented on the need for studios to have areas of expertise: “I see *Universal* focusing on comedies and action films. Those have been areas of real strengths” (The Wall Street Journal 2004d). Other portfolio dimensions that may be considered include original versus familiar concepts (e.g., remakes and sequels), low versus high budget, in-house financing versus co-financing, track-record talent versus new creative talent, and acquisition versus in-house development.

Studios increasingly turn to co-financing arrangements in an attempt to share risks. For instance, while there was only one multi-studio effort in 1993, eleven major releases were co-ventures of two or more studios in 2003 (Variety 2003b). In most cases, the parties involved agree to share costs of a picture that appears a particularly risky proposition, because of its storyline, creative talent involved, or sheer production budget. Such co-financing deals usually take shape at the green-lighting stage, when estimates show that additional financial support is needed to safely go ahead with a project. Recent examples include *Seabiscuit* (*Universal* (30%), *Dreamworks* (30%) and *Spyglass Entertainment* (40%) shared the $87 million budget), *Master and Commander: The Far Side of the World* (*Fox* (50%), *Miramax* (25%) and *Universal* (25%) shared the $120 million budget) and *Peter Pan* (*Sony* (33%), *Revolution* (33%) and *Universal* (33%) shared the $102 million budget) (The Wall Street Journal, 2003). Some of these arrangements follow from ongoing production relationships between the companies involved; others are one-off deals.

Interestingly, using an econometric modeling approach, Goettler and Leslie (2004) found no support for the idea that studios tend to co-finance the relatively risky films, nor that it helps to mitigate risk via portfolio diversification. They did find that co-financing helps to soften release competition, particularly for movies with a large budget at stake. That is, studios that have co-financed a movie tend to avoid head-to-head competition with other movies on their slate, thereby essentially reducing the risk of a failed opening week for the co-financed movie.

Several other factors affect studios' portfolio decisions. Producers who can bring substantial amounts of money to the table increasingly gain access to studios, and therefore drive project selection decisions (Variety 2003a). Some agencies have set up production funds to remove the financial burden from studios and generate jobs for their clients (Variety 2003b). Start-up companies offering novel ways of financing movies have entered the marketplace. One example is *Civilian Pictures,* which gives investors the chance to participate in small-budget films by offering film-specific IPO's. Studios are growing more dependent on companies that are able to tap into overseas subsidies and tax incentives. Effective portfolio management strategies may help to secure product placements, which can also help reduce costs—and thereby risks. Product placements have proliferated in many forms of entertainment, but the opportunities in motion pictures appear particularly lucrative, and reached a new high when Samsung paid a reported $100 million to associate itself with *The Matrix Reloaded* (Variety 2003e). The phenomenon can be traced back to the late 40s, when companies like *Proctor & Gamble* first asked for their products to be worked into scripts. Placement deals come in a variety of forms, ranging from

spontaneous give-away deals where no money changes hands but the product is deemed useful from a creative perspective (as was the case with *Reese's Pieces* in *E.T.* and *BMW*'s first deal with the *James Bond* franchise) to fully planned placements deals that are exactly stipulated in the script against a fee. In some occasions, movie stars are required to participate in commercials for the product. Given the rise of new technologies (such as DVR) that allow consumers to skip commercials, product placements may become a more popular option for brand managers who are seeking ways of exposing consumers to their products. As product placements blur the line between entertainment and advertising (or art and commerce), research addressing two perspectives is called for. From the movie producer's perspective the key issue is determining consumers' threshold level for product placement. From the advertiser's standpoint, the key questions are what movies or movie scenes best capture the consumers' attention, and what the value is of product placements relative to traditional media vehicles such as 30-second television commercials.

Relevant research questions include:

- Does co-financing lead to greater profitability for studios? And what is the impact of co-financing deals on relationships with other players? For example, if two or more major studios share the costs of a picture, does that give them a stronger foothold in the exhibition market for that movie, and therefore less competition? Or does softer competition mostly play out on the demand side?
- What portion of a studio's slate of movies is to be financed by the studio itself, acquired from independent production firms, or funded in other ways? What other sources of finance should studios tap into?
- Studios currently appear to define core competences in terms of the size of projects and the movie genre – what are valid alternative dimensions along which they can organize portfolios?
- Are some studios 'better' at managing their pipeline? Is there a significant difference between studios' success rates? If so, why? What are determinants?
- How effective are product placements in reaching a target audience, in particular relative to traditional means of advertising? What is the value to advertisers? And are product placements acceptable to moviegoers? Under what conditions?

Studios share risk not only with investors, or in the case of co-productions with other studios, but also with talent involved in the production. The conventional contract between the studio and the talent has two main parameters: fixed and performance-based compensation. We anticipate that:

Conventional Contractual Arrangements with Talent Will Come under Pressure

Thousands of people with creative roles are employed in the motion picture industry in the U.S. alone, and most of them work for low salaries. However, an extremely small group is able to command much higher salaries – superstars like Tom Cruise, Tom Hanks, and Julia Roberts may receive salaries of up to $20 million for a movie. In some instances, stars are even able to command a percentage of the gross profits. Tom Cruise's profit sharing arrangement for *Mission: Impossible II* is legendary – it reportedly yielded over $70 million. Such salaries weigh heavily on movies' overall production budgets.

Several researchers have studied the effect of star power. Most studies consider star power as one of the covariates in a regression model with box office performance as the dependent variable (e.g. Litman 1983; Litman & Kohl 1989; Sochay 1994; Litman & Ahn 1998; Wallace et al 1993). Focusing solely on the role of stars, Albert (1998) empirically shows that stars serve as the most consistent 'markers' for successful films which, he argues, explains their power in Hollywood. However, also using a probability modeling technique, De Vany & Walls (1999) conclude that audiences make movies hits, and "no amount of 'star power' or marketing can alter that". In another study on the role of stars, Ravid (1999) finds no correlation between star participation and film revenues or profitability, which is consistent with the view that stars capture their 'economic rent'. Overall, existing evidence on the extent to which stars drive box office performance is mixed, and more research is needed to resolve this debate.

Talent compensation is likely to be a particularly pressing research issue now that some industry executives have called for a change in the reward structure for creative talent. Jeff Bewkes, a Time Warner Executive, is quoted as saying: "The only viable way to create incentives for film talent is to share the risk and the upside, and to make movie net profits mean something again" (Variety, 2002). The opinion that creative talent must share in the risk as well as the return of motion pictures is gaining popularity. However, it remains to be seen whether such a model will emerge as a viable alternative. The very box office power that makes them stars is likely to also make actors immune for such risky deals – their services are in such high demand that they can

negotiate favorable terms. On the other hand, their popularity and marquis value varies with time, and it is not clear that is accurately reflected in the existing contracts. Talent compensation may also be an important issue given the increased power of guilds and other unions of creative workers. The Writers Guild, for example, has recently called attention to what it sees as an unfair DVD sales reward structure for writers.

Contracting terms for actors, directors, producers, and other members of the creative community have received some attention from researchers. Chisholm (1997) has examined the choice between sharing and fixed-payment compensation schemes. She addressed various competing determinants of the decision which contracting terms to select, including moral hazard mitigation, liquidity constraints, risk sharing, and the superstar phenomenon. Weinstein (1998) has examined competing theories of the economic function served by profit-sharing contracts. He finds it is unlikely that they are the result of a standard principal-agent problem. Relevant to the optimality of contracts and contracting terms, Zuckerman and Kim (2003) studied what the type of roles actors should accept at different stages in their careers. They found that it pays for actors to accept 'typecasting' early in their careers, as it helps them to stand out in the crowd, but that there some trade-offs at later stages.

A related issue is the desirability of long-term relationships with producers or other creative talent in the form of deals (or 'pacts', in industry jargon) that are increasingly popular among studios. Trade magazine *Variety*, which regularly tracks such deals, reported that over 200 producers could claim studio deals in 2003 (Variety 2003a). *Sony* led the other major studios with 36 deals, ranging from a deal with Adam Sandler's company *Happy Madison* to one with Joe Roth's *Revolution Studios*. Most deals give the studio a 'first look', i.e. the right to option a screenplay before other studios do. A few deals involve a longer-term relationship, for example where a studio has invested in a production company.

Using data that cover the financial performance of Hollywood film studios from 1936 to 1965, Miller and Shamsie (1996) study the relationship between studios' property-based resources (exclusive long-term contracts with stars and theaters) and knowledge-based resources (production and coordinative talent and budgets) versus their financial performance. Using the same data, Miller (1999) directs his attention to the impact of uncertainty on product line variation in a study of the film genres of the major Hollywood film studios, and Miller and

Shamsie (2001) examine the relationship between the level of experimentation among studio heads and their companies' financial performance.

Several future research avenues emerge:

- What is "star power"? How can it be operationalized? Does past performance, on which most current metrics are based, have predictive validity? To what extent is star power contingent on the nature of the movie and the characteristics of the other creative talent involved?
- To what extent do stars actually contribute to the success of movies? To what extent do they benefit from the success of movies?
- How can creative talent best pursue a career? How can actors, actresses, and other creative talent build, lose, and regain star power?
- Does the industry fluctuate in its reliance on stars in the production process? If so, why?
- What is the nature of contracts with creative talent, and how much does that vary from project to project, talent to talent, or year to year? What are the profitability implications?

Often regarded as the key driver of change in the industry in the near future, rapid advances in digital technology have the potential to affect virtually all players involved in motion picture production, distribution, and exhibition. As far as production is concerned, we anticipate that:

The Benefits of Digital Technology Will Change The Production Process But Not Lead To Fundamental Shifts In Power Structures

Advances in digital technology have the potential to radically change the pre-production, production, and post-production stages of filmmaking (Screen Digest 2002). Digital technology may hold a number of important advantages for movie producers (Belson 1996). Apart from potential efficiency improvements (about 85% of the film shot at production is not used), most fundamentally, it could give producers greater control over the *process*, by enabling a switch from a linear to a non-linear process.

A consideration of the post-production stage serves as a good illustration. In its traditional, analogue form, the process is carried out in a sequential manner: the negative is processed and the selected shots are shipped to a post-production house for assemblage, where individual sequences are physically spliced together, after which special effects are added, the film undergoes color

timing, and the soundtrack is included. The assembled whole is then incorporated into a cut of the original negative, one long reel, which in turn is used to create prints. Digital technology has the potential to make this process non-linear, and thus faster and more manageable. Scenes can be transferred from one location to the other almost instantaneously at the touch of a button, the film can be assembled without the need to process negatives, and visual and sounds effects can be prepared in advance and integrated with a great deal of flexibility (e.g. Belson 1996). Digital technology also gives producers more control over the environment in which the story is told. That is perhaps best exemplified by the use of Computer Generated Imagery (CGI), which enables intricate special effects and is now commonly used in films to create a completely virtual environment (e.g., as in *Shrek*), to create virtual characters that interact with a real environment (e.g., as in *Jurassic Park*), or to produce stand-ins for real actors in scenes requiring dangerous or impossible stunt work (e.g., as in *The Matrix*). The advantages extend beyond editing and recording activities. Digital technology can aid production activities performed by script writers, storyboard artists, musicians, costume designers, and location scouts, among others. Even areas such as product placement (which can be custom designed for specific audiences – e.g., products can differ for U.S. and foreign audiences) could benefit from digital technology.

There are potential disadvantages, however. Some feel the quality of digital images does not match that of analogue images captured by means of analogue (35mm) cameras. While digital video recording and editing equipments are less expensive, they require upgrading sooner, and make producers dependent on software as well as hardware. As such, it also requires a different set of capabilities. Finally, there are piracy concerns.

Nevertheless, advances in digital technology are generally seen as a positive influence for producers. George Lucas, who shot the second part of his *Star Wars* saga entirely on digital video cameras, is known for stating "I can safely say that I'll never shoot another film on film" (Screen Digest 2002). Tradeoffs between development time, production cost, and product quality have already received attention from marketing researchers (e.g., Cohen, Eliashberg and Ho 1996; Bayus 1997; Bayus, Jain and Rao 1997; Hauser 2001; Bajaj, Kekre and Srinivasan 2004). It seems worthwhile to adapt the models proposed to the peculiar context of the motion picture industry.

Some industry observers expect that the embrace of digital technology will lead to a change in power structures. Because lower-cost digital video cameras come close to, if not actually match,

the image of conventional 35mm cameras, and because less expensive consumer or semi-professional cameras are increasingly used in movie production, they believe that the digital technology will lower the barriers to market entry. That is, some think that digital technology enables almost anyone with a camcorder and a personal computer to create a feature-length film – "it frees talent from the stranglehold of the Hollywood elite" (Screen Digest 2002). In addition, some think that the rising use of digital technologies will lead a more powerful intermediary role for technology companies in the motion picture industry. While to date there is little evidence that the marketplace will indeed broaden significantly – and that studios will want to empower an intermediary that extracts significant value – some international consolidation (where production tasks are performed in locations across the globe) seems likely. The emergence of new players that more fully exploit new production technologies (such as *Pixar* has done in digital animation) also appears probable. A thorough analysis of strategic and (regional and national) policy implications for existing and emerging players is thus warranted.

Relevant research questions may include:

- How will the motion picture value chain change in the digital age? What are implications for the existing power structure, and the roles played by studios and (existing or new) intermediaries? For instance, what capabilities are should studios have in-house, and what should they outsource to other companies?
- What are the specific trade-offs (including time to market, quality, and costs) involved in moving from a mostly analogue to a fully digital movie development process?
- To what extent does digital production of a film facilitates its distribution in non-theatrical windows, such as video on demand, the internet and mobile phones? What are viable new channels?
- What opportunities does digital technology offer, at the production stage, for seamless integration of product placements or other forms of advertising?

DISTRIBUTION

Once a project has completed production, it is ready for the next stage – distribution. Commonly, this stage is perceived to encompass both the physical distribution of the prints to the theaters as well as the marketing activities in each of the markets in which it is released. Studios/distributors

face a wide range of marketing decisions in this stage, including when to release theatrically, on how many screens to open, and which media to use in the advertising campaign.

As far as the key players in this stage are concerned, a distinction is usually made between 'major' and 'independent' studios/distributors. The 'majors' include *Paramount* (*Viacom*), *Columbia Tristar (Sony)*, *Buena Vista* (*The Walt Disney Company*), *Twentieth Century Fox* (*News Corp.*), *Universal* (*NBC Universal*), and *Warner Bros.* (*Time Warner*). They produce, finance, and distribute their own films. They also finance and distribute pictures initiated by independent filmmakers who either work directly for them or have projects 'picked up' after some progress has been made. Smaller, 'independent' production companies feed their (typically less commercially oriented) productions into established distribution pipelines of larger companies, or have mini-distribution organizations of their own. A third group, the so-called 'mini-majors', which includes *MGM, New Line Cinema, Miramax, and Lion's Gate,* has become a more significant force in the past decade. Companies in this group generally have production and distribution capabilities, but their activities tend to have less scope (Vogel 2001).

However, exactly how and where to draw the line between these groups is becoming less and less clear. For example, 'mini-major' *New Line Cinema* is responsible for one of the biggest film franchises of all time, *The Lord of the Rings* trilogy, while 'major' *Warner Bros.* has established its own 'independent' film subsidiary, *Warner Independent Pictures*, to produce non-mainstream movies. In fact, it is worth noting that each of the major studios has an autonomous division that is responsible for 'independent' movies. Mergers and acquisitions and, more generally, the emergence of media conglomerates, further blur the lines. Both *New Line Cinema* and *Warner Bros.* are part of *Time Warner*.

One key performance metric for distributors is the movie's U.S. theatrical box-office gross, which in turn is often an indicator of the sales potential in other distribution 'windows' (e.g., foreign theatrical, home video, and pay television revenues). The importance of this metric reflects the (disproportionally) strong emphasis on revenues instead of profits in the motion picture industry. A movie that grosses more than $100 million cumulatively in U.S theatres is typically considered a 'blockbuster'. We expect that:

Distributors' Overall Box-Office Performance Will Increasingly Depend On A Small Number Of Blockbusters

Studios and distributors hedge their bets by releasing a slate of movies each year. The most promising projects (so-called 'tent pole' or 'event' movies) will generally receive the most attention. These movies often receive the highest production budgets as well as the highest marketing budgets and, critical to a successful theatrical release, a favorable release date. Because the share of revenues captured by blockbuster movies continues to rise, this appears a valid strategy. For example, in 2003, 19 movies generated over $50 million each at the box office (accounting for 22% of the year's total), compared with 14 in 1998. Also, 5 movies generated over $100 million each in theatrical revenues in 2003 (accounting for 14% of the year's total), compared with 2 in 1998 (MPAA 2004). However, ever-higher investments in the development and marketing of potential blockbusters are required to produce and market such blockbusters. The average 'negative cost' for a movie has increased from less than $30 million in the early 1990s to close to $65 million in the early 2000s; advertising budgets have jumped from roughly $10 million to close to $35 million in the same period (MPAA 2004). In the summer of 2004 alone, Hollywood studios released more than two dozen $100 million-plus films (The Wall Street Journal, 2004c). This, in turn, makes distributors ever more dependent on the success of their potential blockbusters, which puts enormous pressure on the industry, and forces studios to find creative ways to turn the release of a movie into an 'event'. If a tent pole movie fails miserably at the box office, it substantially affects a studio's bottom line (an infamous example is *United Artists* which was virtually bankrupted by the failure of just one movie, *Heaven's Gate*).

This phenomenon is not exclusive to the motion picture industry. A general trend towards 'winner-take-all' or 'winner-take-most' markets has been well documented (e.g. Frank & Cook 1995). Many industries are characterized by the same cycle – a need for successful innovations, which drives ever higher R&D investments, which in turns fosters a higher need for successful innovations. The pharmaceutical industry is one good example (The Economist 2003). These developments have received little attention from marketing researchers. However, it is crucial for motion picture executives to understand how to cope with this phenomenon. Partly, this challenge involves more accurately predicting the success of projects and recognizing blockbusters at an early stage and more effectively managing the pipeline of projects in development (as discussed in the "Production" section).

Several other future research questions emerge:

- Is 'blockbuster' an ex-post or an ex-ante construct? That is, can a movie be designated validly as a (potential) blockbuster before or only after its theatrical release? If before, at what stage in the development process?
- How should a studio manage a blockbuster across windows? To what extent and how should a studio adapt its marketing strategies when it becomes clear that a movie is a hit?
- What is the optimal way of releasing a slate of movies, either wide or limited releases, in a highly competitive marketplace?

Also in light of the above trends, advertising is and remains a major strategic decision variable for distributors. We anticipate that:

Distributors Will Continue The Upward Trend In Advertising Budgets, But Will Allocate Those Budgets Differently And More Evenly Across Media Vehicles

Distributors spend hefty sums on advertising for their movies. In addition to the nearly $64 million in production costs spent on an average movie in 2003, $35 million worth of advertising directly impacted that movie's bottom line (MPAA 2004). According to Nielsen Monitor-Plus data, overall spending on advertising by the studios and major independents was nearly $3.3 billion in 2003 (The Hollywood Reporter 2004). Several studies have established a link between advertising expenditures and box-office grosses. Prag and Casavant (1994), Zufryden (1996; 2000), and Moul (2004) all found evidence for a positive relationship between advertising and weekly or cumulative revenues. Lehmann and Weinberg (2000) showed that the level of advertising for a movie is positively correlated with opening strength. Elberse and Eliashberg (2003) found that the positive relationship between advertising expenditures and opening-week revenues is largely due to a second positive correlation, namely that between advertising expenditures and the screens allocated to a movie in its opening week. It is plausible that movies that are expected to be popular receive more advertising (Sorenson and Waguespack 2003). As such, it remains largely unclear to what extent and how advertising impacts sales, and therefore to what extent advertising is allocated over time in an optimal fashion. An experimental research design, or a modeling approach in which advertising spending is adaptively controlled (e.g., Little 1966), may help increase our understanding.

In theory, the amount of advertising necessary to market a movie is inversely related to the amount of word-of-mouth that it is likely to stimulate. That is, marketing campaigns that generate

a disproportionate amount of word-of-mouth communication might be able to get away with less mass media advertising spending or may require a less traditional allocation of advertising spending across media types. This relates to the difference between a wide and limited release strategy. Word-of-mouth communication is typically critical to the formation of demand. (e.g. Katz and Lazarsfeld 1955). Word of mouth appears to be a particularly important driver of the success of entertainment goods (e.g. Chevalier and Mayzlin 2003), because such goods are often consumed collectively and because they often feature in daily conversations.

Movie studios have pioneered "buzz marketing", for example by giving opinion leaders free access to the product (i.e., inviting them to a free preview), in the hope that it will stimulate positive word-of-mouth. In addition, content-related decisions (such as the inclusion of a particularly graphic scene or the casting of an actor with high star power) may trigger widespread "free publicity" for movies. However, studios seem hesitant to rely on word of mouth as a key driver of sales for high-profile films. In fact, it seems the trend among studios is to bet on strong opening weekends supported by mass media advertising to reduce the risk of negative word-of-mouth communication hurting sales later in a movie's run. This heavy reliance on advertising deserves further research attention.

Increasingly, the emergence of internet-based 'word-of-mouse' communities where people share opinions on companies, products, and events is likely to impact word of mouth dynamics (e.g. Dellarocas 2003). A proliferation of online sources that provide information on motion pictures, including chat rooms, web logs, portals (like *Yahoo Movies*), recommendation sites (like *Moviefone*), customer review sections of online retailers (like *Amazon*), databases (like *IMDb*), and critics sites (like *Rottentomatoes*), has made it easy for consumers to find out what others think about a particular movie. Motion picture studios and other players are slowly coming to terms with this phenomenon. Fortunately, online environments also provide excellent conditions for research on word-of-mouth dynamics, and academic researchers are starting to respond (e.g., Chevalier and Mayzlin 2003; Godes and Mayzlin 2004).

Our knowledge of the effectiveness of various advertising media vehicles is still limited. Television advertising currently represents the largest investment – it accounts for nearly 40% of total advertising expenditures for new releases. Print advertising, trailers, internet advertising, radio commercials, billboards and other advertising media together account for another 40%. Non-media advertising, including creative services, exhibitor services, promotion and publicity,

and market research accounts for the balance (MPAA 2004). Whether this represents an optimal media mix, and how much the optimal mix varies across movies, remains unclear. Given the probable role that word-of-mouth communication plays in driving sales across movies' entire run, and given the internet's role in facilitating and disseminating word-of-mouth, it is likely that the internet's share of total spending will increase. The success of the movie *The Blair Witch Project*, for instance, is attributed partly to an innovative internet campaign in which all kinds of fake materials related to the old Blair Witch legend were posted on a website (e.g., alleged diaries of one of the "missing" characters). The site received millions of visitors and the very low budget movie grossed over a $100 million in a few weeks. Studios are now often actively working with fan Web sites to increase their control over this medium (Variety 2004c). In addition, given the rise in commercial-free programming (e.g., on cable television and satellite radio) and given the increasing use of technologies that allow consumers to skip commercials, with, for example, Digital Video Recorders (DVRs), the share of advertising allocated to television is likely to decrease.

While total advertising spending is extremely high, studios/distributors appear to make hardly any attempt to increase consumer loyalty across their entire slate of movies. They are paying attention to establishing movie franchises around unique movie concepts that spawn sequels and generate revenues in non-theatrical windows (*The Lord Of The Rings* is a good example). Some directors and actors (e.g., Steven Spielberg and Tom Hanks) have established 'brand equity' in the marketplace. Also, some intellectual properties (e.g., *Marvel*'s superheroes) have a loyal following (Elberse, 2004). However, perhaps with the exception of *Disney* and some smaller, independent distributors, no studio has managed to establish a strong brand identity among end consumers that supports a substantial part of their entire portfolio of movies. In fact, very few moviegoers will know which studio and distributor is behind the movies they watch.

As such, relevant future research questions include:

- What is the optimal level of advertising expenditures, and how should they be allocated across media – traditional and non-traditional?
- How do online review sites, movie databases, search engines, and other feedback systems affect movie consumption? How does information about a movie's quality that originates from reputable sources (e.g. critics, festival juries, and award committees) interact with word of mouth created by 'regular' consumers? How does this affect sales?

- To what extent do consumers respond differently to 'official' information that stems from movie studios compared with information created by their peers? How do they respond to studios' attempts to manipulate word-of-mouth communication?
- What is an optimal 'buzz' marketing strategy – a campaign convincing enough to encourage audiences to attend the movie but, at the same time, not generate unrealistic expectations among audiences that lead to disappointment and negative word of mouth?
- On what basis should the decision for a limited versus wide opening (i.e. a low versus high number of screens) be made?
- Is there a benefit from building brand equity?

Another strategic decision variable for distributors is the timing of releases. This decision has two dimensions: (1) the theatrical release in the U.S. and in foreign markets, and (2) the subsequent release in successive distribution outlets. As far as theatrical markets are concerned, studios have traditionally made their movies available first in the U.S. theatrical market and then in various foreign theatrical markets. We anticipate that:

Distributors' Theatrical Release Timing Decisions Will Become Increasingly Important

Fueled by popular media outlets fascination for reporting on "the number one movie" in any given week, securing a successful opening weekend has become almost a necessary requirement for long-term success across all windows. A movie that fails to open strongly almost always loses the attention of the media, audiences, and exhibitors. Timing the opening carefully therefore is crucial.

The question when to release a movie theatrically has already received some attention from researchers. To date, most studies have focused on the role of competition and seasonality in the domestic market. Krider and Weinberg (1998) use a game-theoretic model to analyze the high-season release timing of two motion pictures with different drawing power that are competing directly for the same target audience. They examine the trade-off between trying to capture as much of the revenues during the season as possible and trying to avoid the competition, which is trying to do the same. Krider and Weinberg empirically show that a primary concern in timing releases is 'to stay away from movies that have the same target audience'. Chisholm (2000) models the competition between movies' release timing as a war of attrition. Her findings suggest that studios may be playing a complicated game as they choose holiday releases, and that they

balance the benefits of optimizing on a per-film basis with maximizing profits across their stable of film releases. Radas and Shugan (1998) estimate seasonal patterns, and find that the average box office is higher for movies released in the high season.

Einav (2003a; 2003b) looks at both seasonality and competition. He breaks the observed seasonality down into seasonality in underlying demand and seasonality in the quality of movies released. He uses a multinomial logit model to fit weekly market shares for each movie, and then uses the demand estimates to construct and estimate a timing game played by distributors. He finds that observed release patterns are closely aligned to observed patterns in sales, but not to the underlying demand. This implies that distributors could significantly increase their revenues by pushing some of their high-season releases to low-season dates. Building on these insights, one avenue for future research is to consider the timing decision as part of a wider portfolio strategy. Given that a studio's movies compete with each other and with other studios' releases for the attention of audiences and exhibitors, this requires the modeling of a complicated timing game. Work on the introduction of successive generations of new products (e.g., Norton and Bass 1987) is relevant in this regard, but will need to be adapted to the specific context.

The optimal timing of releases in the subsequent theatrical window – international theatrical markets – is another intensely debated issue. International markets are an important and increasing source of revenue. A large majority of Hollywood movies now generate higher revenues overseas than domestically (Variety, 2004a). While some studios have considered (and, in some instances, implemented) the notion of releasing movies first in foreign markets and then in the U.S. market, the debate mostly revolves around the question whether studios should release movies 'day and date', that is, simultaneously in domestic and foreign territories (Variety 2003c). There has been a gradual trend toward earlier theatrical openings. Elberse (2002) reports the findings of interviews with motion picture industry executives that shed light on the complexities of the international release strategy decision-making process, as well as on the forces and counter-forces that go hand in hand with simultaneous and sequential releases. The ability to save interest on investments, to prevent piracy from cannibalizing revenues, and to capitalize on the 'buzz' that a movie has generated in the U.S., push distributors toward a simultaneous release strategy. A wide range of practical reasons (e.g., it takes time to subtitle the movie), additional costs of prints, and the ability to learn from the US performance (and have a chance to adjust marketing strategies for foreign releases), push distributors toward a sequential release strategy. In a quantitative examination of movies' box office performance in the U.S. and the five largest

European markets, Elberse and Eliashberg (2003) find that there is an association between a movie's performance in the US and its performance in these European markets, and that this is not just a consequence of the sheer availability of the movie in theaters. They also find that the time lag between releases moderates this relationship, which suggests that the 'buzz' that a movie is able to generate in the domestic market may quickly wear out over time. This implies that, provided a movie performs reasonably well in the U.S., it is worthwhile to schedule the movie's foreign releases close to its domestic release. Precisely what the optimal time lag is still needs to be determined.

We can thus summarize important research challenges as follows:

- What are optimal release times across a studio's entire slate of movies?
- To what extent do co-financing deals between major studios impact release dates?
- What is the optimal order of entry as well as release timing for movies in foreign theatrical markets?
- How do the profiles of fans of different movie genres differ across the various foreign markets?

As far as the timing of non-theatrical windows relative to theatrical windows is concerned, we believe that:

Distributors Will Benefit From Shortening The Time Between Theatrical And Non-Theatrical Windows – But They Are Walking A Fine Line

The trend towards shorter time lags between domestic and foreign theatrical releases is fueled by another development – the growing importance of non-theatrical windows as a source of revenue. That holds especially for DVDs, which have become the largest revenue window, accounting for roughly $20 billion in 2003 – twice what is spent on domestic theatrical tickets (Standard & Poor's 2004). In fact, it is widely believed that most movies do not break even until they are released on DVD. Shortening time lags between theatrical and non-theatrical is relevant because the sooner movies have completed their theatrical run (in major markets) overseas, the sooner they can be released on video, and thus the sooner the investment in the movie can be recouped.

However, timing decisions for non-theatrical windows are complicated – and increasingly so. In general, windowing is determined by the principle of 'the second-best alternative' (Vogel 2001).

That is, films are normally first distributed to the market that generates the highest revenues over the least amount of time. They then 'cascade' in order of revenue contribution down to markets that return the lowest revenues per unit time. Historically, that has meant the theatrical release was followed by pay-cable programming, home video, network television, and finally local television syndication.

DVDs are capable of generating higher revenue than theatrical tickets over a shorter amount of time. The same holds for other new technologies, such as Pay Per View (PPV) and Video On Demand (VOD). This puts pressure on the existing windowing structure, and could cause fundamental shifts in sequencing strategies. Some executives, for example, have hinted at the possibility of having the home video window run at the same time as the pay-cable window (The Wall Street Journal, 2004a). The underlying assumption is that pay-cable will eventually replace video rentals (a declining business with relatively low margins for distributors) but not video sales. In addition, once these technologies are well established, it is not inconceivable that new movies released on PPV or VOD channels prior to their theatrical release could be sold to millions of viewers, generating revenues on par with a regular theatrical release. While this scenario may seem far-fetched, vertical integration in the motion picture industry could make such unconventional release strategies more attractive for key players.

Some studies on the substitutability versus complementarity of revenue windows have already been conducted. For example, using data obtained by means of a telephone survey, Williams and Shapiro (1985) studied the link between the use of in-home entertainment alternatives and film attendance. Gambaro (2004) examined the relationship between theatrical performance of movies in Italy and their subsequent share of TV network viewership. Currently, it seems particularly worthwhile to investigate the effects of video openings on theatrical moviegoers' behavior. The possibility of new partnerships and mergers, such as between theatrical and home entertainment distributors, or between cable TV distributors and content providers, are likely to reduce the time lags between successive movie releases. Existing research on the timing of the video window (Frank 1994; Lehmann and Weinberg 2000) provides a good starting point.

Several questions need to be resolved in order for distributors to make informed timing decisions in this new context:

- What is the likely audience size and revenue per audience member in each revenue window? How much overlap exists between theatrical and non-theatrical segments of consumers?

- To what extent are theatrical and non-theatrical windows substitutes or complements (i.e. either negatively or positively affecting each other's revenue potential)? For example, does the availability of DVDs deter people from going to the theater? Does the prospect of being able to see a movie on pay cable, network or syndication television deter people from going to the theater? How much do consumers value 'owning' versus 'renting' content in these settings? How much do they value the social aspect of movie consumption? How time sensitive are consumers? And do the answers to the above questions differ across segments of consumers, across types of movies, and/or across different segments of theaters?
- What windowing strategies maximize studios' revenues and/or profits? More specifically, what revenues windows will remain viable windows to pursue, and in what order can studios best set out to tap into those opportunities?
- To what extent do launch strategies differ across markets and across distribution outlets? What lessons can be carried over?

We note that arguments can be put forth for both substitutability (i.e., overlapping segments of consumers) and complementarity (i.e., distinct segments of consumers) hypotheses – earlier windows can be substitutes in the sense that they cannibalize later sales, and complements in the sense that there is spillover of marketing effort and word-of-mouth communication. Given that going to the theater is a different social experience than watching a movie at home, severe concerns about the substitutability of the theatrical window seems misplaced. Nevertheless, precise insights into the extent to which both windows are substitutes or complements in the eyes of consumers, and how much that differs depending on the particular movie and the exact timing of windows, can significantly benefit distributors in assessing financing implications of alternative release plans. Even if, as Weinberg (2003) puts it, domestic theatrical releases have become 'loss leaders' for a stream of products that together earn the lion's share of revenues, these are critical insights.

The above discussion indicates that new technologies aimed at the consumer market (e.g. DVD, VOD, HDTV, and DVR) are starting to have a significant impact on theatrical distribution strategies. However, the debate on the impact of digital technology on this stage of the value chain is much broader – and several issues deserve further attention from researchers. We expect that:

The Benefits of Digital Technology Will Continue To Outweigh The Costs For Distributors – At Least For The Foreseeable Future

Advances in digital technology hold a number of *opportunities* and *threats* for studios. *Threats* mostly relate to movie piracy. Not only has the illegal reproduction of copies become easier and cheaper, but the Internet also enables the sharing of electronic copies on a global scale. Consequently, analogous to developments in the music industry, piracy is widely regarded as the key threat to movie distributors' business models (e.g., Deloitte 2004). The MPAA (2003) valued global piracy at $3.5 billion in 2003, and the problem has received widespread attention in the popular press. Studios are actively attempting to fight the threat of piracy via court battles as well as by educating and inducing consumers to use legal alternatives, particularly the Internet sites established by studios themselves (e.g., *Movielink*). So far, these activities seem to have had limited success.

However, despite the entertainment industry's apparent conviction that this represents a significant problem, evidence that suggests that piracy is a significant threat remains limited. Peitz and Waelbroeck (2003) review economics literature on the piracy of digital products. Based on the results of a cross-sectional analysis, a recent study by Peitz and Waelbroeck (2004) that focused on the music industry concluded that "internet piracy played a significant role in the decline in CD sales in 2001, but can hardly account for the subsequent drop in 2002". A more comprehensive time series analysis for the same industry did not find a significant negative effect of file sharing on music sales in a 17-week period in 2002 either (Oberholzer and Strumpf 2004). Similarly, it remains to be seen to what extent piracy affects the behavior of moviegoers and consumers of movies in other windows – it is unknown whether a dollar lost to piracy is one the distributors could have collected, e.g. in theater ticket or DVD sales.

Piracy can be regarded as a separate window (albeit one that generates no income for studios/distributors), or even as a set of windows with varying quality (e.g. ranging from theatrical showings taped with a camcorder to copies made directly from a DVD). Seen in that light, questions that were raised in the previous section also help to frame the debate about the impact of movie piracy:

- Does the 'movie piracy' window substitute or complement the consumption experience for other release windows? To what extent are consumers willing to pay more for legal alternatives?

- What drives movie pirates? What are the determinants of downloading and file sharing behavior? Are some movies more amenable to pirating?
- How can the impact of movie piracy be quantified? How does it affect production and innovation?
- Do the answers to these questions differ across territories or cultures (e.g., Husted 2000)?

Particularly as far as the theatrical experience is concerned, pirated movies seem a poor substitute. Given the obvious comparability in product characteristics, most industry insiders appear more concerned about the impact of piracy on DVD sales than on theatrical revenues (see Weinberg 2003 for a more comprehensive discussion). Consumers, they fear, might perceive high-quality pirated movies copied directly from a digital version (e.g. a DVD screener) to be particularly good substitutes for legitimate DVDs. However, to our knowledge, empirical evidence for this view does not yet exist.

Opportunities related to digital technology in the distribution stage lie mostly with what has been referred to as 'digital cinemas' – the distribution and projection of movies in a digital format, without the need for actual film prints. This development allows studios increased flexibility and substantial cost savings. For example, if all cinemas were to operate with digital projectors tomorrow, actual movie prints (costing about $2,000 each) would become obsolete, leading to a cost saving for studios of about $4 million for the average movie in its U.S. release alone, and a multiple of that in foreign territories. The Boston Consulting Group (2002) has estimated annual savings to amount to over $1 billion annually in the U.S. alone, with roughly 80% going to the distributor (and the remainder to the exhibitor), and over $1.5 billion internationally. Also because exhibitors will have to bear the lion's share of the investments that are required to upgrade to digital cinemas, these are important benefits for studios. However, studios might be hesitant to push the envelope on digital cinemas because it potentially implies a loss of control over exhibitors (digital technology gives them more scheduling flexibility, as discussed in the "Exhibition" section below), and potentially allows intermediaries to enter the marketplace and erode the studios' dominant position.

Key future research avenues regarding digital cinemas are:

- What do players in the value chain stand to gain and lose from digital cinema initiatives, and how can they be incentivized to adopt new distribution and projection technologies?

- What are the key strategic drivers of emerging incompatible technology standards and what role across the globe do they play?
- How should relevant players manage the transition to a fully digital cinema landscape? What business models are appropriate in this new environment?

EXHIBITION

Practitioners consider the theatrical performance of a movie in the U.S. to be a critical driver of its success in subsequent release windows. One insider commented: "Theatrical exhibition is the major factor in persuading the public what they want to see, even if that public never sets foot inside a motion picture theater. And how well and how long a picture plays in theaters has everything to do with its value in other markets" (Daniels, Leedy and Sills, 1998, p. 34). The 'buzz' that studios generate for movies prior and during their theatrical release – a combination of advertising , media attention, and word-of-mouth communication – is widely believed to be the main underlying reason for this phenomenon.

Recent trends in home video and widescreen television do not appear to have had any significant negative impact on movie-going behavior. In fact, also because of new improvements in theatrical facilities such as the availability of multiple and bigger screens, more comfortable seating, improved sound and picture presentations, and the offering of a range of ancillary services, theater attendance is at record levels in the U.S. and overseas (e.g. Doyle 1998; Standard & Poor's 2004). The growth in the exhibition sector has been mainly in 'multiplexes' (facilities with 8 to 15 screens) and 'megaplexes' (those with more than 16 screens). In 2003, such facilities accounted for about 35% of the over 6,000 theatrical facilities in the U.S. Such larger facilities allow exhibitors to efficiently use their real estate, and allow them to offer a wide variety of movies to consumers.

However, the theatrical exhibition business is characterized by a number of operational inefficiencies. One fundamental question is:

Is The U.S. Motion Picture Market Still Over-Screened?

The U.S. theatrical exhibition landscape is comprised of major theater chains and independent exhibitors. Many industry insiders have argued that during the 1990s, and possibly even later, the U.S. market has been 'over-screened', i.e. that its total number of theater screens was disproportionately high given the size of its movie-going population, their frequency of going to the movies, and the supply of movies. One set of statistics support this hypothesis. An examination of the total number of screens and theaters over time suggests that the U.S. exhibition industry started a trend towards a downward adjustment of the total number of screens in the year 2000, in response to a halt in admissions growth. Growth rates in the total number of screens between 1997 and 1998 (8 %) and between 1998 and 1999 (9%), for example, are higher than the corresponding growth (and decline) rates in terms of number of admissions (6.7% and –1.0%, respectively). This gap brought a debate on the level of over-screening to the forefront. While the total number of screens rose from roughly 23,000 in 1989 to 37,000 in 1999 (a 62% growth rate), the number of admissions grew at a much lower rate of 17%, from 1.26 to only 1.47 billion. The exhibition industry responded by lowering the number of screens from its peak of 37,396 in 2000 to 36,764 and 35,280 in 2001 and 2002, respectively (in 2003 the number was 35,786). Using an econometric modeling approach, Elberse & Eliashberg (2003) showed that the relationship between screens and revenues for movies released in 1999 and 2000 was concave for the U.S. but convex for four major European markets. This again is in line with the idea that, at that time, the U.S. was 'over-screened' and foreign markets were largely 'under-screened'.

However, the situation may not be as clear-cut as it seems. Davis (2003) empirically studied the extent and nature of exit, entry, and revenue cannibalization in the U.S. exhibition sector during the 1990s. In contrast to common beliefs, he argued that the problem of overcapacity of screens was not that severe, and that the market participants did not act irrationally when making entry or exit decisions. Instead, he revealed that new rival entrants succeeded in 'stealing' incumbents' revenues, and that high-quality theaters managed to expand the market. Davis (2001) developed supply and demand models to derive the exhibitor's optimal scale of operations. He investigated the relationship between theater characteristics (price and quality), the distance consumers have to travel to theaters, and their demand for movies. His results suggest that theaters are often local monopolists, and that "business stealing effects" across theaters are small and significantly decreasing with distance, and that they are likely to under-provide movie screens relative to a socially optimal number. The strong demand for movies (and thus screens) in high-season periods, and the trend to use theaters increasingly for non-movie events in low-season periods, may have also lessened the problem.

Relevant future research questions include:

- What is the equilibrium number of screens in a country or region? One rule of thumb used in the industry is that when the estimated movie-going frequency is 5.5 movies per year per person, one screen for every 10,000 people is needed. Evaluating these and other heuristics represents an important research direction.
- What measures (other than the commonly used 'screens per 1 million inhabitants') can be employed to evaluate the extent to which a country/regional market is over/under screened?
- What determines the optimal level of screens?
- How can one measure the extent to which two competing theaters offer similar/dissimilar assortments of movies?

The answers to the above questions depend partly on the structure of the market. More specifically, it depends on how many major players the market will consist of, who these players are, and what sorts of business strategies they adopt. We expect that:

The Exhibition Market Will Become More Concentrated, More Integrated (Through Mergers and Acquisitions), And New (More Sophisticated) Players Will Emerge

The exhibition industry has been undergoing major structural changes recently. One such change, concerning the level of concentration, can be illustrated by comparing the current landscape with that a decade ago. Back in 1994, the five major U.S. exhibition chains (*United Artists Theaters*, *Carmike Cinemas*, *Cineplex Odeon*, *AMC Entertainment*, and *General Cinema Theaters*) owned over 8,000 screens, which was over 30% of the total. In 2003, ownership is more concentrated. The top five exhibition chains (*Regal Entertainment Group*, *AMC Entertainment*, *Carmike Cinema*, *Cinemark U.S.A*, and *Loews Cineplex Entertainment*) together account for 45% of the total number of screens (and 25% of the total number of sites). It is conceivable that the U.S. will become even more concentrated in the near future, and thus more like countries such as the UK, where the leading five exhibitors accounted for over 60% of the total screens in 1998.

Exhibitors have increased their market shares through horizontal integration (mergers and acquisitions) and through the selection and development of real estate. Various factors serve as input in the new-site selection decision, mostly related to demographics and economics. Some particularly business-savvy established players have become very powerful. One example is

Regal Entertainment, which has emerged as the biggest player under the leadership of Philip Anschuts. It is comprised of *Regal Cinemas*, *United Artists Theatres*, and *Edwards Theatres*, and now operates more than 6,000 screens – nearly 1/6th of the total – in 562 locations in 39 states. However, niche players are likely to play an increasingly important role in the future. Examples include *Game Works*, a Los-Angeles-based game arcades/restaurants/cinemas chain, and *Muvico Theaters*, a Florida-based chain of megaplex theaters and entertainment centers built in selected markets. Exhibitors often operate as local monopolists or duopolists, which can severely limit the range of films on offer. Eliashberg (2004) provides more details on major and niche exhibitors and gives some examples of duopolistic markets.

In a study on geographic regions, and with public policy implications, Davis (2005) examined price differentiation across markets as well as the relationship between local competition and admission prices. He found that ticket prices depend on the presence of other theaters within the local market, but that the effect is economically relatively small. The reduction in price resulting from the presence of a nearby rival theater is actually smaller than that resulting from the presence of a theater owned by the same chain. Importantly, this suggests that concerns regarding possible admission prices increases as a result of mergers and acquisitions are misguided.

Structural market changes have occurred in another major way. In 1948 a suit that was previously filed by the Department of Justice led to "the Paramount decrees" which prohibited distributors from vertical integration. In the 1980s, however, the regulation was relaxed, and allowed distributors to have exhibition interests as long as their share of the total screen capacity remains low.

Future research avenues are:

- What is the desired level of concentration in the exhibition sector? Does that differ across countries?
- How should investors value an exhibition chain?
- How should exhibitors select a geographical area for theatrical facility development?
- How can exhibitors initiate a niche or innovative-entry strategy?
- What constitutes an effective portfolio of entertainment assets that include, among other assets, one or more theaters?

The emergence of powerful and niche players in the exhibition sector is likely to change the rules of the game with distributors. We believe that:

The Contractual Arrangements Between Distributors And Exhibitors Are Inefficient And Will Change – And So Will Admission Pricing Strategies

The decision whether to negotiate directly with theaters or to solicit bids is made by the distributor. Most contractual arrangements between the distributor and the exhibitor stipulate a minimum playing time and an agreement as to how the box-office receipts are to be shared between the two parties. For many major movies a sliding-scale agreement is used. It has two components: an after house allowance ('nut') split, and a guaranteed minimum ('floor'). The house allowance is recognition, on the distributor's part, that the exhibitor incurs expenses in running the facility (e.g., rent, insurance, and maintenance). Both the split and the floor are typically such that the distributor's share is high in the first few weeks and it declines as the movie's run proceeds (Vogel, 2001). The specific values of the split, floor, and the rate at which they are sliding are determined by the relative power of the two parties. Traditionally, the distributor has been the most powerful party. Key power bases appear to be the total number of screens the particular exhibitor owns and their location, the relative shortage (or surplus) of screens available at the time, the expected success of the particular movie to be shown, and the amount of promotional support the distributor is willing to commit. While the exhibitor's share of the ticket sales increases as the movie is playing for a longer period of time, the distributor normally withdraws advertising support after the first two to three weeks of the movie's theatrical run. This essentially leaves the exhibitor with a dilemma: whether to opt for a small share from a larger pie (by playing a newly released movie) or a large share from a smaller pie (by sticking with an ongoing movie).

Surprisingly little work has examined the contractual arrangement between distributors and exhibitors, and this is a promising area for research. An analysis that concentrates on the practice of 'block-booking', whereby distributors sell motion pictures as a package, is warranted. The practice, which can be traced back to the early 1920s (Lewis 1933), was banned by the U.S. Supreme Court on grounds that it was unfair to the exhibitor – it forced them to play movies that turned out to be unsuccessful. However, in a recent study, Hanssen (2000) argued that the block-booking arrangement is not an unfair practice, but rather a helpful tool in the selling of motion pictures and other products that need to be provided cheaply in considerable quantities.

Additional analyses might provide further evidence that, at least in the short run, implicit 'block-booking' of films, which entails sending a threatening signal to the exhibitors that unless they provide screens to the less successful movies they will not receive favorable terms in future potential blockbusters, is likely to prevail.

The determination of the admission price – legally in the hands of exhibitors, but closely monitored by distributors – also raises an interesting contracting problem. Exhibitors might prefer a lower price in order to compete more effectively with other exhibitors. Lower ticket prices may increase attendance and consequently the revenues from concessions, which is a revenue source not shared with the distributor. Distributors, however, generally prefer a higher ticket price (Caves 2001). Some distribution executives have actively sought to increase revenues by changing the price structure. For example, several years ago Mr. Edgar Bronfman, then CEO of *Universal*, put forward an innovative but controversial ticket pricing idea (The Hollywood Reporter 1998). Believing that 'event films need event ticket prices', he suggested to differentiate admission prices of movies on bases such as production budget and star power. In addition, he argued that the demand for movies in their opening weekend is inelastic, and hence, there may be room for temporal price discrimination. Such a pricing scheme could increase the size of the pie that the distributor and exhibitor share, thereby making both parties better off. To date, the industry has not adopted these or other alternative pricing schemes for various reasons, including a lack of objective criteria for determining the 'right' price and potential resistance from creative talent. That is remarkable given that the wholesale price at which studios rent their movies to theaters varies considerably by appeal of the movie and time since release (Weinberg 2003).

The question of whether ticket prices will and should remain uniform across titles and over time is a deserving research topic. It has started to receive some attention. Orbach and Einav (2001) identified flaws in the existing pricing policy, and explored possible justifications for uniform prices. They concluded that several factors contribute to the persistence of the inefficient pricing policy: the likely perceived price unfairness by consumers; movies' short life cycle (which limits exhibitors' opportunities to adjust prices once the uncertainty concerning a movie's popularity is resolved); diverging interests of distributors and exhibitors; and the instability of demand. Orbach (2004) provides a more comprehensive overview of industry pricing. Research on pricing in relation to potential service bundles offered by cinemas (e.g. dinner and a movie) also seems worthwhile.

Relevant future research avenues are captured by the following questions:

- Is the currently employed contract fair, given the present situation in the industry?
- How should the contractual arrangement between the distributor and the exhibitor be redesigned to fit the new realities of the marketplace?
- What should the optimal sliding-scale agreement be? How can the welfare of the supply chain be improved?
- What are appropriate admission prices and pricing policies? Specifically, what are efficient and implementable price discrimination policies?
- What are the properties of pricing equilibria adopted by competing exhibitors?

There are other strategies under the exhibitor's direct control that can lead to improved profitability in the exhibition window. In our opinion:

Exhibitors Seeking To Effectively Manage Their Business Will Face A Highly Complex Strategic Space

Managing an exhibition chain involves juggling a variety of tasks, including selecting, acquiring, and developing sites, hiring and training personnel, advertising and promoting theaters and films, setting prices for tickets and concessions, and, of course, procuring and scheduling films. Procuring films involves a range of decisions, including what type of movies (in terms of genres, ratings, stars, and other characteristics) to play in theaters so as to maintain a competitive positioning vis-à-vis other theaters targeting the local audience, and how far in advance to book selected movies. The exhibitor's procurement strategy forms the basis for a macro-scheduling plan, in which the movies are allocated to different screens. The plan is adjusted as actual demand for those movies is revealed.

Research on the procurement and macro-scheduling of films has taken either the perspective of the exhibition industry as a whole or that of an individual exhibitor. Research on the former generally has been descriptive; the latter has tended to be more normative in nature. Both perspectives have contributed valuable knowledge to a topic that is crucial for exhibitors, who are faced with the challenge of scheduling a large number of more or less unique products with a relatively short life cycle. This task is particularly difficult in 'high season' periods when competition for screen space is intense.

Taking an industry perspective, Jones and Ritz (1991) have modeled the evolution of the demand for movies from consumers and the supply of screen 'shelf-space', while accounting for the effect that exhibitors' allocation of screens has on consumers' adoption of the movie. Taking this one step further, and considering a two-way endogenous relationship, Elberse & Eliashberg (2003) have studied the adaptive behavior of both exhibitors and audiences in the U.S. and foreign markets. Their empirical analyses revealed that variables such as movie attributes and advertising expenditures, typically assumed to influence audiences directly, mostly do so indirectly, namely through their impact on exhibitors' screen allocations. As indicated earlier, they also found that the longer is the time lag between releases, the weaker is the relationship between the U.S. and foreign market performance – an effect that is mostly driven by exhibitors' screen allocations.

Focusing on the level of individual exhibitors, Swami, Eliashberg and Weinberg (1999) introduced a decision support model, 'SilverScreener', to assist multi-screen exhibitors in selecting and macro-scheduling movies over a fixed planning horizon in such a way that they maximize the exhibitors' cumulative profit. Their model considers two phases – movie selection and adaptive scheduling. They conducted an ex-post analysis for a six-screens theater located in New York, in which they examined the facility's profitability over a twenty-seven week period in 1989, based on publicly available data and under conventional assumptions concerning house allowance, sliding shares, and concession profits. They showed that the exhibitor could have increased the theater's profitability by nearly 40% by running fewer movies for a longer period of time, and by procuring movies from a larger set of movies running elsewhere in the country over the same period by over 120%.

The SilverScreener model has now been implemented as an ex-ante planning tool by an exhibition circuit (Pathé Cinema) in the Netherlands, first for one of its facilities (Eliashberg, Swami, Weinberg, and Wierenga, 2001) and later for multiple facilities, each having multiple screens (Eliashberg, Swami, Weinberg and Wierenga, 2004). It has contributed to an improvement in the exhibitor's profitability. Swami, Puterman and Weinberg (2001) considered the adaptive component of the macro-scheduling challenge under a stochastic environment as an optimal replacement problem. They employed a Markov Decision Process model. In their application, which focused on a single exhibitor managing a single-screen theater, the exhibitor observes the movie currently playing, its length of play, and the box office rankings of all movies that could be chosen to replace it. The exhibitor has to decide whether or not to replace the movie and if so, with which available film. Examining the profit impact of various types of channel

contracts for the channel as well as for the individual channel members, Swami, Lee and Weinberg (2001) used the SilverScreener model to mimic a situation in which an exhibitor acts 'intelligently' as far as screen scheduling is concerned.

Providing insights that are useful to both distributors and exhibitors, Eliashberg, Jonker, Sawhney and Wierenga (2000) developed and implemented a pre-release market evaluation model for motion pictures. The model, MOVIEMOD, is designed to generate box-office forecasts and to support marketing decisions for a new movie after the movie has been produced but before it has been released. 'Consumer clinics' provide the necessary data. The researchers illustrated the value of MOVIEMOD in two applications: a pilot study conducted in the United States; and a full-fledged implementation conducted with cooperation of the movie's distributor and exhibitor in the Netherlands. The latter led to a modification of advertising and weekly screen scheduling plans for the movie *Shadow Conspiracy* – and consequently to an improved performance.

A related question is whether there is room for additional improvements in profitability by 'micro-scheduling' movies already selected for a given theater, that is, by determining the optimal slot for movies on a given day of the week. This involves modeling the performance of movies given various constraints, such as that no two movies can start at the same time, that preparation time is required between showings, and that the facility needs to open and close at certain times. Eliashberg, Miller, Swami, Weinberg, and Wierenga (2003) have presented preliminary work and some results in this area. One open issue that deserves attention is how to integrate macro- and micro-scheduling with the planning of other activities that the exhibition facility can be used for (e.g., advertising, sports events, and conferences). That is, it needs to be considered how exhibitors can best move from running a theatrical facility to managing a portfolio of entertainment assets.

Managing movie theaters increasingly encompasses a number of new activities aimed at increasing the loyalty of customers, but it appears opportunities to increase loyalty remain largely untapped. Consumers follow different decision-making processes in selecting which movie to watch, in which theater, and at which time. We can distinguish two different behavioral processes: (1) movie-first-theater-second, and (2) theater-first-movie-second. Theater circuits have begun efforts to induce more consumers to adopt the theater-first-movie-second heuristic. AMC Entertainment, for example, has a program called 'MovieWatcher' which provides moviegoers various benefits including free tickets, concessions, and entertainment news. The

program has been designed to create loyalty to a particular theater circuit and, possibly, to a particular site. Exhibitors' services range from usual marketing and advertising efforts to the servicing of perks such as 'after-movie mints' and 'ushers who clean the snow from windshields' (The Los Angeles Times, 2002).

Future research may focus on the following issues:

- How can consumers' movies attendance best be understood as a collective decision-making process?
- What is the value of various customer relationship management (CRM) programs for exhibitors? More specifically, to what extent can the loyalty programs help to improve customer acquisition and retention?
- What is the effectiveness of various promotional tools? How can this effectiveness be assessed on an ongoing basis?
- What role do the layout and atmospheric marketing play on the consumer enjoyment of the theatrical experience?

In regard to the last issue, the American Marketing Association (2004) defines the concept 'store atmosphere' as the affective (emotional) and cognitive states consumers experience in a store, but may not be fully conscious of when shopping. Research in this area has examined the impact of location, store design, layout, shape, size, product display and merchandise assortment, color, and lighting on consumer perceptions of the store, mood, shopping behavior, and the overall entertainment experience (e.g. Kotler 1973-4; Bellizi and Robert 1992, Lewison 1994, Levy and Weitz 2001).

Rapid developments in digital technology may provide the necessary infrastructure for new applications and are likely to affect exhibitors. We conjecture that:

The Costs Of Digital Technology Will Continue To Outweigh The Benefits For Exhibitors – At Least For The Foreseeable Future

Advances in new digital technologies are likely to present opportunities as well as threats to the exhibition industry. In addition to the implications of the surge in illegal file sharing through peer-to-peer networks (as discussed in the 'Distribution' section), the rise of 'digital cinemas' may have far-reaching consequences for exhibitors. Essentially, digital cinemas are a means of

projecting a moving image without using a reel of film. It provides a superior image and sound quality that does not deteriorate with time and multiple showings – a common problem with analogue movie prints. The market potential of digital cinemas is a much-debated issue. Based on a survey among industry insiders, Screen Digest (2002 p. 43) reported that "a clear majority of respondents think that at least 40% of European screens will be digital by 2010". However, other sources project adoption levels that are much lower (e.g., see the Boston Consulting Group (2002) for a comprehensive overview of industry thinking).

The advantages of digital technology for producers and distributors are clear: it can substantially reduce the costs of prints and advertising; it offers important opportunities for exhibitors; it provides a means to enhance the customer experience (and, consequently, to charge higher ticket prices); and it offers alternative and flexible programming possibilities (such as live events, games, interactive films, and business conferences). It can even introduce new advertising possibilities. For example, *Regal Entertainment* has introduced a 20-minute 'preshow' loaded with ads – tailored to local audiences – at its 27 theaters in Philadelphia (The Philadelphia Inquirer, 2003).

However, digital cinema technology also has important downsides. The biggest hurdle is the required high investment in digital projectors ($100,000-150,000 per screen), facilitating technology (e.g. data storage and satellite dishes), as well as operational and service support. Another problem is that digital technology can affect the distributor's control over how the exhibitor manages the allocation of movies to screens. It is not clear under what circumstances this investment is worthwhile for exhibitors – research is much needed.

Future research opportunities can thus be summarized as follows:

- What are advantages and disadvantages of advances in digital technology for cinema exhibitors? How can they be captured in an economic analysis?
- What is the most appropriate response for exhibitors? What opportunities should be pursued, and in what order? How can cinema operators best manage the transition to a fully digital cinema landscape?

CONCLUSION

In this manuscript, we have discussed what we believe are the most critical issues for practitioners involved in the motion picture industry. We have divided our assessment into three sections corresponding with the stages of the value chain for motion pictures – production, distribution, and exhibition. However, as our analysis indicates, most (if not all) issues are inherently linked. Even tough our review is undoubtedly (and unavoidably) subjective, numerous interactions with practitioners and a thorough reading of the trade literature lead us to believe that we have covered the key managerial issues.

In addition to the issues outlined in the preceding sections, over-arching issues also deserve attention. For example, we are not aware of any research that takes an industry perspective and addresses general questions such as: What is the nature of the power structure in the industry? How has it changed over time? What are its key determinants? What role does each player have in the future? How can media conglomerates best manage their motion picture assets and businesses? How can they find synergies with other assets? Knowledge of these 'bigger-picture' issues will not only be interesting in their own right; they also help frame potential studies on the managerial issues discussed here.

Technological advances emerge as an important driver of the research avenues that we propose. Technology has always played a major role in the evolution of the motion picture industry but today – more than in the past – technological developments seem to be integral to all stages of the value chain. It is easy to underestimate the implications – we only need to remember an infamous statement by H.M. Warner in 1927, near the end of the silent era: "Who the hell wants to hear actors talk? They're silent the way they should be!" The digital age has just begun, and its ultimate effects on film production, theatrical distribution and exhibition, and non-theatrical media such as television, video, the internet, and mobile devices remains largely unknown. As such, it seems wise to take a broad research perspective on the motion picture industry. Motion pictures come in all kinds of formats, and industry boundaries are increasingly difficult to draw as more industries (such as finance, cable, telecom, fast food, consumer electronics, and information technology) assume a role in the development, distribution, and exhibition process. Therefore, new metrics of success are needed, and existing knowledge on marketing strategies, for example the role of the number of opening screens on the success of the movie, needs to be re-examined.

We find it encouraging that some research on managerial issues has started to make an impact on business practices, particularly as far as exhibition is concerned. However, as our review also

demonstrates, much more work is needed to comprehensively tackle the most pronounced challenges that motion picture managers are faced with. We hope that our review provides the starting point for such research.

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