Predicting Success of Theatrical Movies: An Empirical Study

Barry R. Litman

The recent financial success of such diverse theatrical movies as *Superman, Grease, Animal House, Rocky, Every Which Way but Loose,* and *Kramer Vs. Kramer demonstrates the uncertainty and unpredictability associated with investments in the motion picture industry. Jack Valenti, president of the Motion Picture Association of America recently echoed this very point:*

With all of the experience, with all the creative instincts of the wisest of people in our business, *no one, absolutely no one* can tell you what a movie is going to do in the marketplace.... Not until the film opens in a darkened theatre and sparks fly up between the screen and the audience can you say this film is right.... Excellence is a fragile substance.[1]

It is undeniable that every creative or artistic product must ultimately face the final judgment of a constantly changing public taste; however, one wonders if there are any signposts along the way, which while not guaranteeing success, nevertheless, prevent one from taking the wrong fork in the road and thus narrow the range of uncertainty.

Musson[2] and Mayer[3] have advanced theories to explain the high road to success in this industry. This article is the first attempt to quantify this conventional wisdom and test whether the process of predicting success is as mysterious as Valenti seems to imply.

Theories of Motion Picture Success

There are three crucial decision making areas that seem important in determining the success of a theatrical motion picture.[4] They are the creative sphere, the scheduling and release pattern, and the marketing effort. Incorrect decisions in any of these areas can adversely affect the revenue potential of a film.

The first area is the creative sphere which refers to the total creative effort expended in making the film. Of paramount importance is the actual story itself. It must be "genuine, believable, and timely."[5] To the extent that the story is well-known from a previous medium such as a play or best selling book, it will have a natural advantage in pre-selling the film.[6] According to Mayer, the most popular movies cover such areas as spectacles which depict some great historical event; sentimental themes that appeal to the emotions; action-adventure stories that awaken an escapist desire; and bizarre or unusual themes which shock the viewer through violence or horror.[7] It now seems axiomatic that some element of sexuality also be woven into the storyline. In all cases "it takes the right thing at the right

moment to catch the public fancy." Since there is nearly a two year lead time required before theatrical release, a large element of luck is involved in the timing.

It is also important that the cast and director are competent and work well together. It is commonly believed that the director is more important than the cast since he has primary responsibility for welding all the creative inputs into a final artistic product. It is his reputation which is considered crucial in obtaining outside financing to begin the project.[8] As for stars, it appears that they are not as important as in previous years. In the past, movie-goers would frequent shows simply to watch their favorite actors and actresses. The studios would accentuate this star worship with unending streams of publicity about the public's favorites. The storyline was subservient to the cast. The emphasis is placed on content. The movie-going audience seems more discerning today. They expect more than mere diversion from the motion picture industry.[9] In short, there appears to be no "bankable" stars anymore. "Talented actors can aid a good film but they cannot salvage an inferior one."[10]

Another important determinant of film quality is the production budget. To the extent that a large budget means that greater production value is being built into the picture, this should be reflected in higher quality and greater popularity at the box office. The higher production value can be spent on more lavish sets and clothing, more special effects, more exotic geographical locations, and greater care and skill in filming and editing the picture. Of course, to the extent that the budget is inflated because of excessive salaries to stars, inordinate production delays or inefficient management, it is not really measuring extra production quality. The issue of budget size is perhaps the most controversial of all the determinants of film success because of the many examples of both big and small budgeted films which have become financially successful.

Another element considered important in the creative sphere is the rating assigned by the Motion Picture Association of America (MPAA). The motion picture industry established the current code in 1968 as a means of giving advance information to parents and others about the theme and treatment of films. This voluntary code was adopted to prevent other more stringent forms of governmental controls such as prior restraint or obscenity laws. There are four possible ratings given to a film—G, PG, R and X.[11] The G rating means that the film is suitable for the general public with no age restrictions, and there is no material which is objectionable; PG—Parental Guidance suggests that some material is not suitable for pre-teenagers and that further investigation is needed before permitting youngsters to attend; R — Restricted means that those under 18 must be accompanied by a parent or adult. The "R" rating indicates that the film is adult in theme or treatement which means there might be scenes with sex, violence, or abusive language; and X which indicates that the film is exclusively adult in theme and treatment and no one under 18 can be admitted under any circumstances. The conventional wisdom is that the PG rating is the desirable rating for a film because the film is not as limited by age restrictions as an "R" film nor stuck with the Walt Disney label that accompanies "G" rated pictures. Numerous examples exist of film producers fighting the Ratings Council in order to obtain less restrictive

ratings for their films.[12]

Scheduling and Release Pattern
    The second major area which can determine theatrical movie success is
the scheduling and release pattern of the film. The best advice that can be
given to an independent producer is to become involved with a major
distributor. This involvement usually includes advance financing by the
major movie company with the accompanying right to distribute the film
and share in the profits. It is also possible but less common to find the major
handling distribution without first financing the picture.
    While a major may have greater bargaining power and thus strike a
tougher deal than an independent distributor, it also may have certain
advantages. These advantages include better personnel to aid in the editing
process; superior access to the financial community which becomes
valuable in obtaining a production loan at favorable interest rates; "deep
pockets" of its own or through its conglomerate parent organization to
generate a large internal source of financing; and preferential access to the
motion picture exhibitors.[13] This last area of preferential access to the best
theatrical bookings comes from experience in the industry, a prior
reputation for delivering high quality product, and a much more extensive
distribution network for servicing the films it is distributing. Furthermore,
it is no secret that the major producers-distributors are the most powerful
force in the movie industry[14] and consequently are able to exert their power
and leverage over recalcitrant exhibitors by denying them quality product
or tying inferior films to quality ones (block booking).[15]
    Thus, producers have discovered that the "one thing worse than being
involved with a major was not being involved"[16] and as a consequence, the
independent distributors are generally left with the scraps—the inferior
product passed over by the major distributors. This is the same problem that
ABC experienced during its early years in obtaining quality television
programs.
    A second important decision involves the release date and pattern of
release. The distributor must be aware of two general propositions. First,
the distribution of movie attendance is not uniform throughout the year but
bunched around major holidays. Second, his film will not operate or be
judged in isolation but rather will compete for the consumers'
entertainment dollar with other films released concurrently or carried over
from a previous time. Similarly, there is no "audience flow" from one picture
to another (unless double features) because the separation between pictures
at a theater may be several months. Furthermore, although films are not
judged by the releasing organization or production house, a negative
connotation still lingers for independently produced and distributed
films.[17]
    There are three distinct periods of peak audience attendance for
theatrical movies. The best period is the time around Christmas and New
Year's. The potential audience is near its maximum since "people who
seldom or never attend films are believed to be susceptible at the
holidays."[18] The second peak period is during the summer months
commencing with the traditional kick off of Memorial Day and ending
shortly before Labor Day.[19] The July 4th weekend is the second biggest

weekend of the year outside of the Christmas-New Year's period. The reason for the popularity of films during the summer months is the clustering of holidays during this period plus the attraction of movies to the young dating crowd who comprise the overwhelming majority of movie-goers.[20] The final peak time is around Easter.

These are the peak attendance periods with highest box office potential, so it is not surprising that they are also the peak releasing dates for the major distributors and this tends to have a countervailing impact on the revenue potential of the films. The truly great films will be able to swamp out the opposition and carry over beyond the peak season. However, some good films will not receive as good a showcase as they could if released during off-peak times. This practice is equivalent to the network strategy of "blunting" whereby two or three major attractions appear simultaneously in an attempt to neutralize each other.[21] The theater owners oppose this practice of peaks and valleys in the release of films. "Give us some of those films that are sure to be casualties in the Christmas crunch during the dry October days, or February or April, and we'll give them a better shot at the audience."[22]

The historical response of independent distributors has been to try to sandwich their releases in between the peaks of the majors and thereby take advantage of the slow seasons. Increasingly, however, they have begun to follow the releasing strategy of the majors under the theory that when the majors are doing well, they create an atmosphere conducive to movie attendance. This movie consciousness is then said to benefit all films currently playing including those of the independent distributors.[23]

The final consideration in the scheduling sphere involves the pattern of release. The film distributor may opt for an exclusive area booking for his film in a city (or a part of a large city) or a pattern of more popular release with several showings in an area.[24] The idea behind the exclusive booking[25] is to slowly cultivate a market by permitting only a limited number of available seats. The avid movie-goers will generate excess demand for this picture. The fact that the theater is always sold out gives the impression that the picture is of high caliber, and when combined with favorable word-of-mouth publicity, it can mean extraordinary financial success. Unfortunately, exclusive booking is quite expensive in terms of the advertising cost per viewer and is only reserved for the most special of all movies.

The usual release pattern is that of popular release whereby several local outlets simultaneously exhibit the picture. Tickets are not so difficult to obtain and thus overcrowding is avoided. This differs from exclusive booking only in a faster payout period and perhaps lower eventual box office revenues.[26] Even if the film starts out in an exclusive run, it eventually will be played off in popular release.

The other alternative release pattern is called multiple bookings and involves a saturation of the market with special emphasis on the drive-in circuits. This release pattern is usually followed with low and medium budgeted first-run pictures which are heavily advertised for a few weeks and attempt to create a "temporary excitement" before adverse reviews and word-of-mouth reaction catch up with them.[27] The second or later runs of hit movies also follow this multiple booking-saturation approach.

Fig. 1 Philo Beddoe (*Clint Eastwood*) and Clyde (*Manis The Orangutan*) in a scene from *Every Which Way But Loose.*
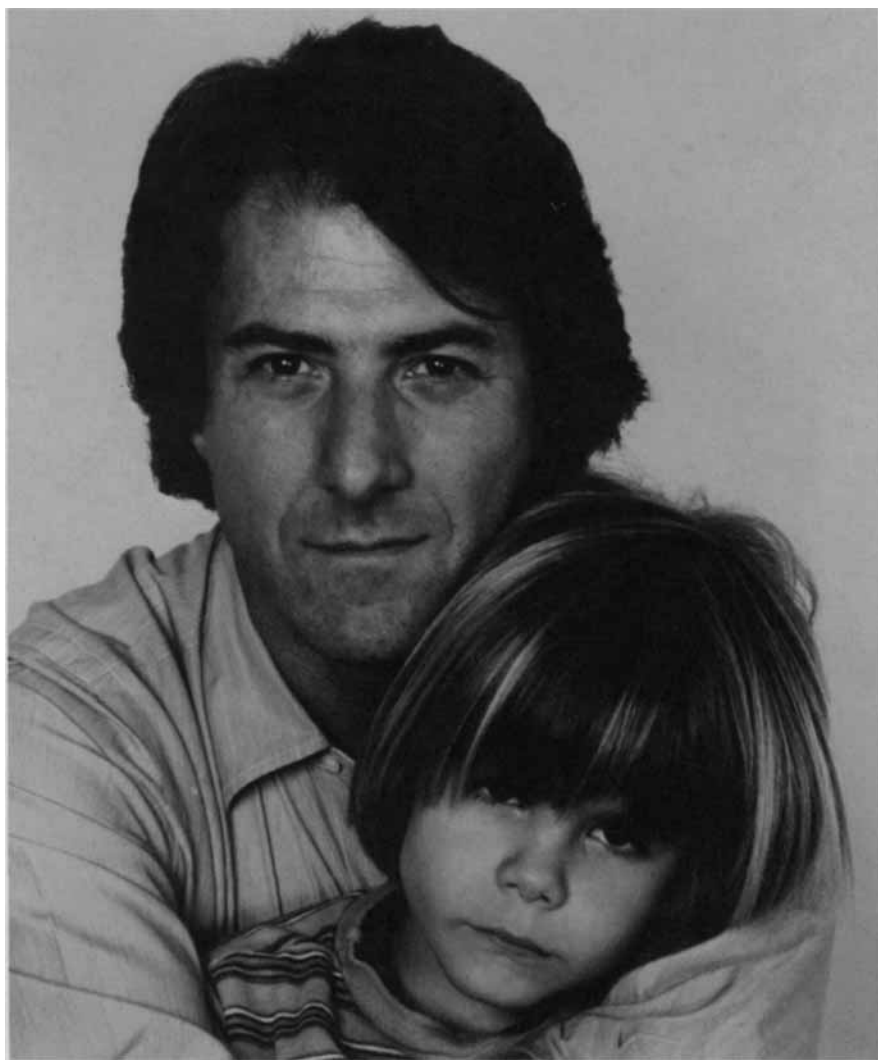

Fig. 2 Sylvester Stallone in *Rocky*

Fig. 3 Dustin Hoffman in *Kramer Vs. Kramer*

Fig. 4 John Travolta in *Grease*

The Marketing Effort

Like any new product introduced, a first-run film must be advertised to its prospective audience through all the various mass media. The distributor in financial cooperation with the local theater owners will plan a media blitz shortly before the opening date for the film. The extent of the media campaign will depend on the release pattern selected, the production budget of the film, the stars involved, and initial estimates of the probable box office gross.[28] The advertising budget will thus differ for each picture according to these factors, but it costs $3 or $4 million in print advertising alone for a major distributor to give an average release to a film.[29] In some cases it costs nearly as much to launch a film as to make it and this will be especially true for independents who tend to scrimp on the production costs but make a big splash in the media prior to the release in a multiple booking-saturation setting.

While the size of the advertising budget provides the clearest indication of potential influence, the campaign must also be cleverly handled and the budget allocated efficiently among the mass media to obtain the greatest impact per dollar of expenditure. In sum, the role of advertising and publicity is to entice the avid movie-goer into the theater. But after that, word-of-mouth reaction tends to replace advertising as the prime promotional vehicle. If the word-of-mouth response is negative, additional advertising will be totally ineffective—"the most ingenious advertising campaign won't bring a 'dog' to a box office life."[30]

There are two other forms of publicity which are not initially conducted by the distributor but which can form the basis for further box office exploitation; these are the critics' reviews and the movie awards game. Conventional wisdom would suggest that critical reviews are extremely important to the popularity of films, at least in the initial stages before word-of-mouth reaction can take over. Musson argues that critical acclaim can accelerate the demand of the avid movie-goers whose advice is sought through the informal word-of-mouth grapevine.[31] In a sense, good reviews tend to stir their curiosity. Conversely poor reviews can be expected to have a retarding effect on the behavior of the influential early adopters. Musson points out that poor reviews, unfairly given can be overcome by a patient, slow release pattern and favorable word-of-mouth response. It is only when the distributor panics and overreacts to these unfair reviews that they can cause the film to die before its time.[32] More practically speaking, the advertising agency will select favorable excerpts from reviews and incorporate them in its media campaign to give the impression (either rightly or wrongly) of critical acclaim.

The industry itself tends to create favorable publicity for certain films through the various awards given for film excellence. The most popular and influential of these awards are the Academy Awards. It is generally agreed that films nominated for the major categories such as Best Actor, Best Actress, and Best Picture will generate increased business prior to the Awards ceremony. The nomination process thus becomes the prime motivating force for a renewed round of exploitive advertising. Avid movie-goers rush to the theaters to see all the major films so they can compare their judgments with those of the critics and, of course, with the final results.[33]

Those films which win the major prizes can also expect increased

business for a short period of time following the Awards Ceremony. According to *Variety,* the Oscar lustre can add $10 million in domestic box office revenues plus increase the stature of the film in foreign markets.[34] This increased box office revenue will also increase the television value of the film unless the television rights were sold prior to the film's release.[35] With such a lucrative market it is not surprising that the major movie producers-distributors spent $300,000 each in 1979 in search of the Oscar. This amounts to $500 of publicity for each voting member of the Academy.[36]

Methodology

To test the theories of film success outlined above, a revenue equation will now be estimated. In this equation, film revenues will depend upon a number of independent variables. After the equation is estimated, one can then gain insight into the relative importance of each independent variable in explaining the variation in revenues of the different films.

Multiple regression analysis is the statistical technique used to fit the observed data into the estimating equation. Regression analysis generates the coefficients for each independent explanatory variable in the equation. *The coefficients represent the change in revenues resulting from a unit change in the corresponding independent explanatory variable* (everything else having been held constant.)[37] The higher the statistical fit (R^2), the more of the variation in the dependent variable (revenues) is explained, and the greater is the accuracy of the estimating equation. F tests are also used to determine if the estimated coefficients differ significantly from zero and thus are important explanatory variables.

The Variables

The dependent variable is theatrical rentals accruing to the distributor. The data on theatrical rentals come from the annual editions of *Variety* which each year list all films earning at least $1 million in such rentals.[38] Unfortunately, there is no way to obtain rental information on films below $1 million, and in the analysis below, those films in the sample have been assigned a rental value of $500,000. Furthermore, since the films were released in different years, it is necessary to standardize the rentals by taking account of the impact of rising admission prices on theatrical rentals. Accordingly, the theatrical rentals have been adjusted by the consumer price index for indoor movie admissions (1967 = 100).[39] There are 125 films in the sample. The films cover the period of 1972 to 1978 and were chosen according to the criterion of whether information could be obtained concerning their production costs.[40]

The first independent variables are binary variables[41] for the type of story. Five possible story types were used to determine the impact of content on film rentals. They are Science Fiction, Drama, Action-Adventure, Comedy, and Musical. Descriptions in two film guides[42] were used to place the sample films into these categories. The a priori theory concerning these film types sugggested that science fiction and action-adventure storylines should generate higher rentals on average than the other categories. Hence, we should expect positive coefficients (and correlations) for these variables.

The second set of independent variables are binaries for the four ratings by the Motion Picture Association of America. As explained above, it is

expected that "PG" films will generate higher rentals (positive coefficient) than the other classifications while "R" and especially "X" rated films should have significantly lower rentals (negative coefficients). Since there were no X rated films in the sample, this latter hypothesis cannot be tested. The data on the MPAA ratings came from the *International Motion Picture Almanac,* 1973-1979.

The third measure of content involves a binary variable for whether there were any box office superstars in the cast of the films. This was determined by checking if the cast contained any of the top 10 box office stars[43] for the previous two years before the film's release date. The reason for not using the current year's top 10 box office stars is that the film itself may have been so successful that it caused the inclusion of its stars in the list. Rather, we are looking for the presence of "bankable stars" who are so familiar to the audience that they attend without regard to the film's content. As hypothesized above, one expects no significant correlation between the inclusion of superstars and the rentals for a film.

The fourth independent variable is a variable for the production cost of the film. These data were the most difficult to find and essentially were extracted from each issue of *Variety* for the years 1974 to 1978. Because *Variety* does not report on the production costs for every film, the information that was reported became the device for choosing the sample of films in this article. In every case where there were differing reports on the costs for any particular film, the information nearest to the completion date of the film was used. It was thought this would more accurately capture cost overruns from the initial budget.

Since the sample films were made in different years, it was necessary to standardize the production costs by taking account of the impact of rising input prices on these costs. Accordingly, the production costs have been adjusted by the Bureau of Labor Statistic's Index of Wages for Motion Picture Filming and Distributing (1971 = 100).[44] Finally, it should be noted that even if the reported production costs were perfectly accurate, it still would not be known whether the creative personnel received flat salaries or percentages of the future profits or some combination of these. In short, it is perfectly possible that a film's production costs are relatively low yet the film has high production value because the creative people are being compensated with deferred payments based on the success of the picture. Unfortunately, the actual production cost data are considered confidential by the various production companies and are unavailable for research purposes. As theorized above, one expects a positive correlation and coefficient for adjusted production costs.

No attempt was made in this study to include variables measuring the source of the film, its timeliness, the reputation of the director, or the sexual or violent aspects of the film. These may be important explanatory variables but have been excluded due to risk of an unacceptable amount of subjectivity or lack of expertise by the author. They, nonetheless, remain fruitful areas for further research.

The fifth independent variable is a binary variable for whether the film was distributed by a major company or one of the independents. As noted above, one expects major distributors to have better access to the preferential theaters and more extensive distribution connections. Thus,

having a film distributed by one of the majors should yield higher rentals (positive coefficient) than if it were handled by an independent.

Since the timing of the release was considered to be important, binary variableshave also been added for the three peak periods. One binary was used if the film was released in November or December (Christmas-New Year's peak), another was used if the release date was March or April (Easter) and a third for the summer months of June, July and August. While it is true that these are the periods of peak attendance, it is also true that these are the primary releasing periods for the major distributors. The former should generate higher rentals per picture through a greater potential audience while the latter should have the opposite effect through greater competition for the increased movie dollars. What the resolution of these forces is cannot be predicted a priori. The data about the distribution organization and release date come from *Variety*, annual editions for 1972 to 1978.

Unfortunately, no information is available on the pattern of release nor on the amount of advertising spent on each picture during the pre- or post-release period. This is a serious limitation of this study but one which is unavoidable because of the proprietary nature of the business.

Two binary variables have been included to take account of the impact on film rentals of being nominated for and also winning Academy Awards in the categories of Best Actor, Best Actress and Best Picture. The first binary variable will receive the value of 1 if the film was nominated in any one of the three categories but subsequently lost in all the nominated categories. The second variable will receive the value of 1 if the film was nominated in any of the three categories and was victorious in one or more of these categories. The conventional wisdom is that films that are nominated should receive higher rentals than those that are not and furthermore, those that win should receive higher rentals than those that lose. Thus, one expects positive coefficients for both binary variables and the coefficient for the winners to be higher than that of the losers. This inforamtion was obtained from the *International Motion Picture Almanac*, 1972 to 1979.

The last independent variable tries to capture the impact of critics' reviews on rentals accruing to the distributor. No attempt was made to separate the reviews of the 125 films into categories of favorable or unfavorable. Rather, the star rating assigned by the *New York Daily News* was utilized as an indication of the relative intrinsic "quality" of each film.[45] While such a measure of film "quality" is obviously subjective, as long as the method of evaluation is consistent it will give an appropriate measure of *relative* quality which is desired in this case. As theorized above, the higher the star rating, the quicker the adoption process should begin by the influential movie-goers and presumably the higher will be the eventual rentals. Thus, to the extent that the critics accurately assess the "quality" of the film, one should expect a positive coefficient for this variable.

The Results

To facilitate the reporting of the results, several early computer runs were made to eliminate those independent variables which clearly had no statistically significant impact on the dependent variable, theatrical rentals. The low correlations for these independent variables can be

examined by looking at Table 1 which gives the simple correlations for all the independent and dependent variables.

In this process of elimination, it was discovered that the MPAA ratings are not highly correlated to film rentals. While the "PG" rating had the appropriate positive sign and the "G" and "R" had negative signs, none was significant in the regression equation. The same results were found to be true of picture type or theme. With the exception of the Science Fiction-Horror category, none of the other classifications of pictures are significantly related to theatrical rentals. This suggests that films which are of high "quality" can be successful regardless of MPAA rating or film type. It was also learned that box office superstars are not able to generate additional rentals when other variables have been held constant. This confirms the theory outlined above that viewers no longer idolize stars in the fashion they once did; rather, it is the content of the film which now carries the day. Of course, to the extent that the stars contribute fine performances, this enhances the "quality" of the overall film and can generate higher rentals in this fashion. The final set of variables found insignificant in the early runs were the binary variables for summer and Easter release dates. Evidently, the potentiality for increased revenues during these peak attendance periods was cancelled out by the increased competition from more pictures.

Table 2 presents the results of the regression analysis on the remaining independent variables. The results closely conform to the a priori hypotheses presented above. The variables will be presented in the order of importance as determined by the stepwise regression technique. "Adjusted Production Costs" is positively correlated with rentals. Each additional million dollars spent in producing a picture increases theatrical rentals by $390,000. Thus, holding all other variables constant, it appears that big budgeted pictures on average earn higher revenues than smaller budgeted films. However, *this does not say anything about whether they are more profitable.* In fact, on the surface it appears that every additional dollar spent on production returns only thirty-nine cents in the domestic film market. This of course neglects revenues earned abroad and in secondary markets such as network, syndicated and pay television.

The second significant variable is the critical rating as measured by the number of stars. Each additional star rating increases rentals by $3.376 million dollars. This evidence demonstrates the power of the critics in the marketplace and somewhat disproves Musson's contention that poor reviews need not sound the death knell for a film. Furthermore, to the extent that the critics are perfect judges of quality, this variable may simply be measuring the differential effects of "quality" on rentals.

The regression analysis clearly shows that during the period of 1972 to 1978, science fiction and horror films have been extremely popular in the movie theaters. On average, if a film has this subject matter, it will increase the rentals to the distributor by almost $5.9 million dollars over the rentals of a film in any other subject category. This confirms Mayer's theory that film-goers enjoy being shocked by bizarre and unusual themes. This type of film used to be the standard fare of the independent distributor since it could be produced on a shoestring budget. However, the recent trend is toward major distributor financed, big budget films such as *Star Wars, Jaws* and *Superman.*

TABLE 1

Correlation Matrix of Independent and Dependant Variables

	Adjusted Rentals	Adjusted Costs	Dist.+	Award Winner+	Award Nominee+	PG+	G+	R+	Star Rating	Science Fiction+	Drama+	Action Adven.+	Comedy+	Musical+	Stars+	Easter+	Summer+
Adjusted Costs	.227	-															
Distributor+	.354	.105	-														
Award Winner+	.338	-.076	.112	-													
Award Nominee+ (Losers)	.305	-.045	.117	-.051	-												
PG+	.080	.165	.168	-.083	.049	-											
G+	-.090	-.126	-.078	-.049	-.005	-.374	-										
R+	-.005	-.072	-.119	.124	-.038	-.796	-.205	-									
Star Rating	.432	.029	.198	.277	.393	.071	-.012	-.006	-								
Science Fiction+	.160	.132	-.059	-.068	-.068	-.082	.096	.044	-.046	-							
Drama+	-.014	.094	-.034	.131	.213	-.047	-.073	.117	.062	-.278	-						
Action-Adventure+	-.199	-.043	-.119	-.104	-.097	.195	-.144	-.096	-.017	-.288	.420	-					
Comedy+	.062	-.133	.151	.065	-.008	-.001	.005	-.031	.030	-.202	-.294	-.305	-				
Musical+	.086	-.060	.186	-.041	-.085	-.115	.265	-.031	.041	-.114	-.166	-.173	-.121	-			
Stars+	.229	.148	.261	.189	.048	.115	-.080	-.057	.214	-.213	.049	-.101	.148	.204	-		
Easter+	-.185	.042	-.133	-.070	-.074	-.237	.087	.215	-.125	-.021	.045	-.064	-.039	.145	-.013	-	
Summer+	-.014	.022	.168	-.096	-.077	.178	-.190	-.052	-.034	.224	-.230	.182	-.141	-.115	.053	-.275	-
Christmas+	.477	.147	.048	.349	.217	.068	.011	-.064	.230	.096	-.002	-.157	.129	-.030	.216	-.202	-.275

+ binary variables

TABLE 2

Regressions on Rentals of Theatrical Movies

Dependent Variable: Adjusted Rentals Accruing to Distributors for Theatrical
Movies, 1972 - 1978 ($ millions)

Independent Variables	Non-Standardized Coefficients	Standard Error	F
Adjusted Production Costs ($ millions)	.390	.175	4.945*
Critics' Ratings (no. stars)	3.376	1.271	7.059**
Science Fiction-Horror (1 if yes, 0 otherwise)	5.897	2.480	5.655**
Major Distributor (1 if yes, 0 otherwise)	7.210	1.944	13.761**
Christmas Release (1 if November or December, 0 otherwise)	10.006	2.704	13.694**
Academy Award Nominee (1 if yes, 0 otherwise)	7.338	3.459	4.501*
Academy Award Winner (1 if yes, 0 otherwise)	16.296	6.684	5.943**
Constant Term	-8.982	3.326	7.295**

R^2 .485
Sample Size 125

*Significant at the 5% level for a one-tail test
**Significant at the 1% level for a one-tail test

The fourth significant variable is a binary for whether the film was distributed by a major. The strong positive effect of this variable clearly demonstrates the wisdom of such a decision. Films distributed by the majors earn rentals $7.21 million higher than those distributed by independents (after holding all other variables constant).

The next significant variable is a binary for a Christmas season release. The model shows that films released during this season earn rentals that are $10 million dollars higher than comparable films released during other months of the year. Evidently, the large crowds and higher prices during this holiday season more than compensate for the additional competiton from all the distributors. Because of this large financial impact it is no wonder that film distributors must negotiate and reserve theaters for these choice dates well in advance of the normal lead time.

The last two significant variables attempt to measure the impact of being nominated for and the actual winning of Academy awards. As expected, each of these variables is positively correlated to film rentals and capable of generating significant additional business. According to the model, being nominated for one or more of the top three categories is worth $7.34 million dollars of additional rentals. Being nominated for and actually winning one or more of these awards is worth $16.3 million of additional rentals. Hence, the winning of a major award generates some $9 million in extra revenues for the distributor over and above what he would earn if his picture was nominated but lost. It is not surprising that each of the major distributors spends such a large amount on pre-ceremony advertising in an attempt to court the favor of the members of the Academy.

The statistical fit $(R)^2$ of .485 indicates that nearly half of the variance of the dependent variable is explained by the independent variables included in the model.[46] This is generally considered to be a good statistical fit for cross-sectional analysis. This writer believes that the inclusion of some of the missing variables such as pattern of release, source of story, and especially pre-release advertising expenditures could significantly tighten the statistical fit of this model.

Conclusions

The purpose of this study was to determine if the ingredients of a successful motion picture are as mysterious and unpredictable as claimed by industry spokesmen. Using a multiple regression statistical model, many variables commonly believed to influence the success of such movies were tested. The results are revealing in several instances. First, it was discovered that MPAA ratings and subject matter are largely irrelevant as predictors of success for theatrical movies. A high "quality" movie can become successful at the box office regardless of its subject matter or restrictions placed on who can attend. Furthermore, the inclusion of high paid superstars in the cast adds no additional revenues over and above their contribution to the quality of the picture itself. It was also discovered that the size of the production budget and the critics' ratings are important determinants of theatrical rentals. Confirmation was also given to the conventional wisdom concerning the use of major distributors, the value of a Christmas release and the importance of the awards game. In sum, while

industry spokesman may not publicly admit the secrets of their trade, these secrets appear less bewildering or mysterious than first thought.

Notes

[1] Jack Valenti, "Motion Pictures and Their Impact on Society in the Year 2001," speech given at the Midwest Research Institute (Kansas City: April 25, 1978), p.7.

[2] Chris Musson, *The Marketing of Motion Pictures: Both Sides of the Coin, Art-Business* (Los Angeles: Chris Musson Co., 1969).

[3] Michael F. Mayer, *The Film Industries: Practical Business/Legal Problems in Production, Distribution and Exhibition* (New York: Hastings House, 1973), chapter 4.

[4] Musson, op. cit., chapter 19.

[5] Ibid., p. 293.

[6] Ibid.

[7] Mayer, op. cit., chapter 5.

[8] Musson, op. cit., p. 294.

[9] Ibid., pp. 295-6.

[10] Ibid. Also see A.H. Howe, "Bankers and Movie-Makers," in A. William Bluem and Jason E. Squire, eds., *The Movie Business: American Film Industry Practice* (New York: Hastings House, 1972), p. 58.

[11] Mayer, op. cit., pp. 121-4.

[12] For example, see *Variety*, May 16, 1979, p. 7 and *Variety*, July 11, 1972, p. 42.

[13] Howe, op. cit., pp. 59-60, Musson, op. cit., chapters 5 and 13; also *Variety*, January 3, 1979, p. 12.

[14] Robert W. Crandall, "The Postwar Performance of the Motion Picture Industry," *The Antitrust Bulletin* 20 (spring, 1975), pp. 49-88.

[15] Ibid. These are frequent stories in *Variety* of various theater exhibitors suing the major distributors over block-booking practices. A dozen states have also banned the restrictive practice of blind-bidding.

[16] David Gordon, "Why the Movie Majors are Major," in Tino Balio ed., *The American Film Industry* (Madison, Wisconsin: The University of Wisconsin Press, 1976), pp. 464-5.

[17] Mayer, op. cit., p. 113.

[18] *Variety*, December 27, 1978, p. 3.

[19] *Variety*, July 5, 1978, p. 5 and *Variety* July 11, 1979, p. 5.

[20] *International Motion Picture Almanac* (New York: Quigley Publishing Co., 1978), p. 32A.

[21] A good example of this occurred on Sunday, February 11, 1979 when ABC broadcast a three hour movie about Elvis Presley, NBC broadcast *One Flew Over the Cuckoo's Nest* and CBS broadcast *Gone With the Wind*.

[22] *Variety*, December 27, 1978, p. 3.

[23] Musson, op. cit., p. 306. Also, *Variety*, July 5, 1978, p. 5.

[24] Musson, op. cit., chapter 6.

[25] When an exclusive booking requires advance reservations for the single nightly performance, it is known as a roadshow. Roadshow engagements are very rare in today's economic environment.

[26] In releasing the film, the marketer must decide whether the demand for theater tickets is elastic or inelastic—that is if the film will earn higher revenues by having more available seats and low prices or a restricted number of seats and higher prices.

[27] Musson, op. cit., p. 313.

[28] Ibid., p. 310.

[29] *Variety*, June 13, 1979, p. 18.

[30] *Variety*, January 3, 1979, p. 12; also, Musson, op. cit., pp. 32-33.

[31] Musson, op. cit., p. 41.

[32] Ibid.

[33] Ibid., p. 244.

[34] *Variety*, May 30, 1972, p. 1.

[35] Barry R. Litman, "The Economics of the Network Market for Prime-Time Programming," *Journal of Communication* (Autumn, 1979).

[36] *Variety*, February 7, 1979, p.1 7.

[37] In mathematical terms the coefficients represent the partial derivatives for each independent variable.

[9]For example see *Variety*, January 3, 1979, p. 17.

[10]Suppose two movies (one released in 1960 and the other in 1967) both earned theatrical rentals of $1 million. If the ticket price for movies has increased over this time span, then the two pictures are not of identical "quality." After adjusting the rentals by the price index for indoor movies admissions (1967 = 100), it is seen that the 1960 release has adjusted rentals of $1.538 million while the 1967 release has adjusted rentals of $1 million.

[11]Despite this forced method of sampling, the films are fairly well distributed in terms of rentals, production costs, MPAA ratings, program type, and distribution organization.

[12]A binary variable is one whose values are either 1 or 0. Usually the 1 indicates yes in response to the implied question and 0 if no. For example, if a major distributor is handling a particular film, a 1 would be associated with this film while if it was not being handled by the major, it would receive a 0.

[13]Leonard Martin, *TV Movies*, 1979-80 edition (New York: New American Library, 1978); Steven H. Scheuer, *Movies on TV*, (New York: Bantam, 1977).

[14]*International Motion Picture Almanac, 1979 edition*. (New York: Quigley Publishing Co., 1978), p. 45A.

[15]In order to adjust for wage inflation, it was assumed that the production costs for each film were incurred in the year preceding the release. The production costs were then adjusted by the corresponding wage index number for this year.

[16]There were two reasons for choosing this particular rating service. First, the *New York Daily News* is the largest daily newspaper in the United States. Second, this rating service had data for all of the pictures in the sample and was thus superior in this respect.

[17]The average picture in the sample had adjusted production costs of $4.23 million and a critical rating of 2.56 stars. If it were a science fiction movie, distributed by a major distributor, released at Christmas time but not nominated for any Academy Awards, its expected rentals would be $24.123 million.

Expected Rentals = (.390•4.23)+(3.376•2.56)+5.897•1)+ (7.210•1)+(10.06•1)+(7.338•0)+(16.296•0)-8.892=24.423