CHOOSING TO CO- FINANCE - AN ANALYSIS OF PROJECT SPECIFIC ALLIANCES IN THE FILM INDUSTRY

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Abstract

We use a movie industry data set that includes project-by-project information to address the question of the choice of internal project financing versus financing via alliances that span the legal boundaries of several business entities. We find that project risk matters for the choice of financing. Firms develop the safest projects internally, which is consistent with several theories, in particular Robinson (2003). Additionally, we find that riskier firms tend to consider alliance formation. We find some support for the resource pooling and market structure hypotheses, consistent with a few of the notions developed by Lerner. We also consider different contractual features.

Finally, we find that the ex-post performance of projects developed internally does not differ significantly from those developed via alliances.

1. INTRODUCTION

The study of the boundaries of the firm has a long history, starting with Coase (1932) and Alchian and Demsetz (1972) and nicely summarized and further developed by Zingales (2000)). Our paper examines the choice of organizational structure for project development. We use movie industry data that includes project-by-project information, and address the question of the choice of internal project financing versus financing via alliances that span the legal boundaries of several business entities.

The existing literature offers several insights into the motives and manifestations of alliance formation. Lerner and Merges (1998), Lerner, Shane and Tsai (2003), and Elfenbein and Lerner (2003) analyze the structure of technology alliance contracts. Lerner and Merges (1998) and Lerner, Shane and Tsai (2003) find that in contracts between small biotechnology firms and large pharmaceutical corporations, more control rights are assigned to the biotechnology firm the greater is its access to financial resources. Elfenbein and Lerner (2003) show that allocation of the ownership on the assets in Internet portal alliance contracts is highly sensitive to the relative effort contribution by the parties. The party whose effort contribution is more important is more likely to obtain ownership of the assets.

Chan, Kensinger, Keown, and Martin (1997) document stock price increase associated with the announcement of non-equity alliances in which partners contribute technology, products and/or skills[1]. They focus on benefits such as specialization and optimal production between partners. The highest excess returns of 3.5 % are associated with horizontal technological alliances. However, the authors find no evidence of

[1] McConnel and Nantel (1985) find significant wealth gains in joint ventures. These are different organizational structures, but share some common characteristics with alliances.

improvement in firm performance in the years following the formation of an alliance. Allen and Phillips (2000) show that the performance of firms that form alliances or joint ventures improves following block equity purchases by the partnering firms. The improvement in performance is especially pronounced for firms operating in R&D intensive industries. The authors conclude that corporate equity ownership is useful in aligning incentives for partners in alliances or joint ventures. Filson and Morales (2003) consider the issue of alliances between clients and R&D firms. They find that equity links are more or less likely depending on the nature of the bio-technology project and on prior alliance activity. This is related to information issues.

Our empirical work is unique because we can follow alliance formation and we have precise project-by-project data. This allows us to investigate whether project characteristics determine the choice of organizational structure. Our study is probably closest to Robinson (2003) who also addresses the question of the motivation for alliance formation. We augment his research, which uses industry data, by looking at project specific information. The methodologies we use are closely related to some of the work by DeVany and Walls (see DeVany (2004)).

The rest of the paper is organized as follows. In the next section, we define strategic alliances and provide an overview of alliances in the motion picture industry. We also analyze different motive for alliance formation and derive hypotheses. Section 3 describes the data and variable proxies. Section 4 presents the results. Section 5 offers conclusions.

2. ALLIANCE DEFINITION AND THEORIES

The literature does not provide a clear single definition of a strategic alliance. Some authors even avoid defining it altogether (See for example Stuart (2000), Rothaeremel (2001)). Others define strategic alliances rather broadly and do not distinguish between cooperation based on a long-term contract and cooperation in which partners establish a new entity, namely joint ventures (Chen and Ross (1994), Gulati (1998)). In defining strategic alliances, we will follow Chan, Kensinger, Keown, Martin (1997), Filson and Morales (2003) and Robinson (2003), who distinguish strategic alliances from joint ventures. The following features are important in identifying strategic alliances between two or more firms 1) firm independence (in a legal sense); 2) A relationship that is based on a contract without establishing a new entity, thus resources are not pooled indefinitely as in joint ventures and mergers; 3) Resources are combined outside the market (exchange, co-development, sharing). Robinson (2003) suggests that an alliance "lies in the middle of the organizational spectrum" and it is "an agreement between legally distinct entities that provides the sharing of costs and benefits of a (significantly costly) mutually beneficial activity" (ibid. p. 2)[2].

2.1. Project Development in the Movie Industry and Financing Alliances.

Movies are expensive projects. The average cost of a movie project in 2002 was 58.8 million dollars plus over 30 million dollars in marketing costs (see MPAA.org). In some cases, companies choose to develop projects on their own whereas in other cases, they seek a partner and form a co-financing alliance. The partner may be another studio, a

production company, or a dedicated financing partner. The agreements may be for one project or for several movies. They take different forms. An important distinction can be drawn between "one pot deals" and two pot deals. In one-pot deals (also referred to as central pot deals or 50-50 deals) the partners pool their resources and share the revenues equally. Distribution is allocated by prior agreement. For example, Warner Bros. and Universal Studios agreed to split the production costs and the revenues of the movie "Twister". Based on a coin toss Warner Bros. got the North American distribution rights and Universal Studios received the foreign distribution rights (Los Angeles Times, 04/08/1996). DreamWorks SKG and Paramount Pictures entered into similar financing agreement for the movie "Saving Private Ryan". A coin toss granted DreamWorks SKG the U.S. release and Paramount Pictures the foreign release. The studios reversed their roles on the film "Deep Impact", with Paramount Pictures handling the U.S. release and DreamWorks SKG the foreign release (Los Angeles Times, 07/24/1998).

The second form of movie co-financing is two-pot deals. Under two-pot deals, typically the co-financing partners simply split the rights: one receives domestic rights and keeps all revenues from that source, whereas another gets the foreign rights and all foreign revenues. An example of a two pot or property sharing deal is the financing of the movie "True Lies". 20th Century Fox invested about $80 million in "True Lies" in return for the domestic rights; Universal Studios invested about $30 million for the foreign rights. The movie grossed $146.3 million in the U.S. , and another $230 million internationally.[3] Other types of deals may include more complicated slices of the revenue stream, and they are common between financing companies and studios. For example,

[2] There are quite a few similarities between the choice of alliance and the choice of project finance vs. corporate finance. For a nice summary of these issues see Esty (2003) and Esty (2004).

one partner may acquire rights for certain territories only (say, Italy or France or Hong Kong), TV rights, or just sequel rights.

Co-financing agreements in the movie industry satisfy the definition of alliances suggested in the previous section. They are contracts between two legally distinct organizations, that require sharing the costs of expensive projects and establish equity stakes outside the market mechanism. Also, co-financing agreements are temporary contracts without establishing a new entity. Often, as noted above, the length of the contract is limited to one or several projects. Always, the number of the movies and/or the time period for which the contract is signed is limited. However, terms vary widely. Some alliances cover one movie, whereas in 1997 Warner Bros. and Village Roadshow agreed to co-finance 20 pictures by 2002 (Australian Financial Review, 02/05/2000). [4] This is the largest number of projects in one agreement in our sample.

2.2. Motives for Alliance Formation and Hypotheses.

A number of different motives have been offered to explain alliance formation. We will survey these ideas and draw implications and testable hypotheses for our study.

An often-mentioned motive for alliance formation is risk reduction. The idea is that firms are reluctant to finance high-risk projects internally. Two explanations are consistent with this motive. The strategic management literature[5] advocates the real option approach to alliance formation. Companies may be interested in acquiring an activity but may not want to commit fully until additional information becomes available

[3] Source: Los Angeles Times, 04/08/1996. Revenue data is from Baseline/FilmTracker.
[4] The information about this agreement was also published by Wall Street Journal, 02/04/2000 and Daily Variety, 02/04/2000.
[5] See for example Mody (1993), Bleeke and Ernest (1995), Nanda and Williamson (1995), Folta (1998).

(see Filson and Morales (2003) for another discussion of the information issue). This option becomes more valuable as the risk of the environment increases. Furthermore, Ravid and Basuroy (2004) provide evidence of risk-minimizing behavior by corporate executives and survey an extensive literature, which supports this view. [6] In that context, an alliance can be viewed as the reduction of exposure in the event a project fails. [7]

We thus formulate:

Hypothesis1. Risk reduction

The likelihood that an alliance is formed is positively related to the project's absolute risk.

Another, somewhat related, possible motive for alliances is based on internal capital markets. An alliance may be formed to overcome the incentive problem arising as a result of the ex-post winner picking (Robinson (2003)). The problem arises only under certain conditions, and in particular, when the firm has multiple projects with different levels of risk. The firm allocates resources only to the successful project, and as a result the manager of the project with a low probability of success is unwilling to supply effort. To increase the incentives of the manager of the riskier project, the firm may structure a riskier project as a distinct legal entity and form a strategic alliance. The contract between two distinct entities is legally enforceable and guarantees a baseline level of financing. However, alliance formation reduces the incentives of the manager of the internal project. Hence, the optimal organizational structure is a function of relative efficiency of managerial effort and of the risk differential between projects. Similar to the risk

[6] For some notable examples and discussions of these issues see Smith and Stulz (1985), Froot et al. (1993) DeMarzo and Duffie (1995)Tufano (1996), Chevalier and Ellison (1997).

[7] Under this explanation, alliance formation is positively related to the likelihood of the project failure, so, the emphasis is on downside rather than upside.

reduction motive, risk is an important factor in explaining alliance formation under the internal capital markets model. However, unlike the risk reduction motive, only project relative risk matters but not project absolute risk or firm risk. The difference between hypotheses 1 and 2 can be illustrated as follows: suppose a firm has two projects of equal and significant risk. Hypothesis 1 suggests that the firm will try to form an alliance, whereas according to hypothesis 2, which is formulated below, it will not.

Hypothesis 2. Internal capital markets.

Riskier projects (for firms in which the managerial contribution is relatively less efficient) are developed via alliances.

We test Hypotheses 1 and 2 by considering several ex-ante characteristics of movies that have different risk profiles.

A common explanation of alliance formation centers on the managerial incentives argument. It is based on theoretical models of organizational structure by Grossman and Hart (1986) and Aghion and Tirole (1994) . Within this framework, the project manager gains more per unit of contribution (either as monetary compensation or in control benefits), when an activity is performed via an alliance rather than inside the firm and, hence, will invest greater effort in a project developed via an alliance. The likelihood that an alliance be formed and control rights assigned to the manager of the project, is positively related to the efficiency of managerial contribution and to the bargaining power of each party. Lerner and Merges (1998) and Lerner, Shane, and Tsai (2003) find partial support for this claim: when the party managing the project (R&D firm in their case) has greater bargaining power (proxied by greater financial resources available to the

firm), it receives more control over the project. This idea is also somewhat related to Filson and Morales (2003). Thus we will consider the following:

Hypothesis 3. Managerial incentives

The likelihood that an alliance should form is positively related to the efficiency of managerial contribution and to the bargaining power of the parties in this alliance.

We test this by considering the characteristics of the "managers" of the projects in question, i.e. film directors (see John, Ravid and Sunder (2004) for an extensive discussion of this issue).

Some theoretical articles investigate the possible anticompetitive effects of strategic alliances. For example, Chen and Ross (2000) argue that strategic alliances – common in the airline industry-that involve the sharing of production capacity may be used as a form of collusion. On the other hand, Yong (2001) shows that anticompetitive alliances may not always be stable. The anticompetitive motive for alliance formation predicts that alliance formation should be associated with an increase in industry concentration.

Hypothesis 4. Market Structure.

Firms tend to form alliances in order to reduce competition.

We test this hypothesis using an industry structure parameter, such as a concentration ratio, and time dummies, which take a more agnostic view of industry paramterization.[8]

Another motive for alliance formation is resource pooling (See for example Robinson (2003)). Firms elect to combine resources because no single firm can undertake an investment activity alone. This motive is often mentioned by industry insiders as well.

The resource-pooling motive implies that a firm may wish to develop a project internally but lacks sufficient resources. Hence, expensive projects should be developed via alliances. Thus, we obtain the following:

Hypothesis 5. Resource constraints

Resource intensive projects are more likely to be developed via alliances.

We test this hypothesis by comparing the budgets allocated to co-financed vs. solely financed films.

In order to complete the potential hypotheses, we suggest below a simple framework that derives our last hypothesis, namely, that riskier firms may want to form alliances.

The framework we have in mind is as follows:

There are two projects, a and b. Each project costs C and in return we receive a distribution of F(a) and F(b) respectively. Each project is owned by a separate firm, which we label k and j respectively. Assume for simplicity that each firm is a one-project firm, and it is owned by a large number of atomistic shareholders. Merger between the two is too costly (the projects are not large enough so that the costs of merger can be justified), so there are two choices – either each firm finances each project separately or they combine resources and finance the two projects together.

When would the latter course be best? As it turns out, in general alliances are not a good idea.

We can easily see the following:

[8] DeVany (2004)) points out correctly that the meaning of concentration ratios in the movie industry is even fuzzier than in other industries. Therefore, we should treat any conclusion based on concentration ratios with caution.

Even if an alliance is not costly, and portfolio rebalancing at the investor level is not costly either, then, in the absence of other frictions, financing alliances will be weakly shunned by investors.

Proof:

Under no co-financing, firm k has an expected value E(a) with a standard deviation SD(a). Firm j has an expected value of E(b) with a standard deviation of SD(b). Under co-financing , without loss of generality and with equal shares, k has an expected value of ½ (E(a) + E(b)) and a SD of SD[1/2 (a+b)] the latter depends of course on the correlation between the projects.

There are several possible cases: If investors would like to hold the two firms (projects) in the proportion provided by the co-financing agreement, then they are indifferent to the arrangement. In the second case, if they can reach their preferred proportions (recall that portfolio re-balancing is costless) whether co-financing is taken or not, they are indifferent to the arrangement. In the third case, co-financing which forces fixed proportions between the projects may be an inferior arrangement. If there is no co-financing, investors can hold the projects (firms) in any proportion they desire. However, co-financing does not allow some of these combinations. Therefore, they would weakly prefer no- co-financing.

Corollary 1

If there is any cost to alliance formation, and if the aggregate re-balancing cost of portfolios is lower, investors will always prefer that firms do not co-finance.

Proof: This is obvious from the proposition above.

Clearly, frictions can change matters. It is always true that the "right' frictions can create make any contract design optimal. In particular we can show the following:

A Result (frictions):

Bankruptcy costs (on a firm or personal level) can make co-financing a viable form of organization.

Proof:

Assume for simplicity now that a and b are two identical zero NPV projects, that can either return H with a probability α or 0 with a probability of $(1- \alpha)$. Assume further that if the project pays 0, a bankruptcy cost of B must be paid. If the projects are independent, it is immediate to see that the bankruptcy cost will be paid with a probability of $(1- \alpha)$ in each case if each project is financed separately, with an expected bankruptcy cost of $2(1- \alpha)$ x B. The probability goes down to $(1- \alpha)^2$ with an expected cost of B $x(1- \alpha)^2$ if the two projects are financed together.

This naturally leads to the following:

Hypothesis 6: Bankruptcy constraints

Firms in financial distress will tend to co-finance more often than firms that are financially more secure.

Empirically, we consider whether the probability of default, proxied by company ratings (either S&P or Moody's) affects firms' decision to co-finance. The difference between this risk motive and hypotheses 1 and 2, which are also concerned with risks, can be illustrated as follows: a firm facing imminent bankruptcy is considering a project which is risky, but much less risky than the rest of its operations. According to both hypotheses

1 and 2, which focus on the nature of the projects in question, it will not seek alliances, whereas hypothesis 6 suggests that an alliance may be a good idea. [9]

The final issue we look at is concerned with the nature of the contracts among alliance partners. Along the lines suggested by Aghion and Tirole (1994) proposition 2, it can be argued that if one studio is better at marketing in the U.S. and another abroad, an alliance that will split rights that way will create value. However, in this case we should expect most alliances to split the rights for both projects in the same way. In other words, we should not expect many 50/50 splits.

We can test the following:

Hypothesis 7 (specialization)

Everything else equal, projects that allocate marketing and distribution to different firms by prior agreement (rather than by a toss of a coin) should have higher revenues or returns.

To test this hypothesis we will look at the performance of the two pot deals.

The next hypothesis is again concerned with comparisons of sub-sets of co-financed projects.

Hypothesis 8 (Titanic)[10]

As you learn the quality of your project, you will try to co-finance lower quality projects. Since this is well known, the price you will receive is lower[11].

[9] This interpretation naturally generalizes the simple model we have presented. It should be clear that we can extend the model to include this view as well, at a cost of much greater complexity.

[10] We call this hypothesis Titanic, because the movie Titanic, released in late 1997 was financed that way. Fox called on Paramount to co-finance the project in a late stage of the game, and ended up selling very expensive (ex-post) rights for a very low price.

[11] Filson and Morales (2003) consider the various stages in which alliances are formed in bio-technology firms, but they do not have data on project quality.

We cannot test the latter part of the hypothesis directly, because this will require a detailed description of the contracts in question. We only have a few of those. However, we know that 50-50 deals are generally signed prior to the start of the project. If this hypothesis is correct, they should be better. Thus, hypothesis 8 has an opposite prediction to hypothesis 7.

The next section describes the data and suggests which variables will be used to test the various hypotheses.

3. DATA AND VARIABLES

Alliances data

The data on films developed via a financing alliance was collected using the Dow Jones Interactive (DJI) Publications Library, Academic Universe (Lexis-Nexis) and industry sources. The main stumbling block, which is of course, very important for the study, is correctly identifying the financing sources of films. Production credits in the industry may mean very different things. Thus we focused on some of the more well known studios and production companies. We considered the following studios and production companies: Universal Studios; Paramount Pictures; Warner Bros.; 20th Century Fox; Walt Disney (including Walt Disney Pictures and Touchstone Pictures); Miramax, Sony (including Columbia Pictures and TriStar Pictures[12]), Metro-Goldwyn-Mayer (MGM), DreamWorks SKG, New Line Cinema, PolyGram Pictures[13], and Savoy

[12] TriStar Pictures and Columbia Pictures were merged by Sony, which owned both studios, in 1998.
[13] PolyGram Pictures was acquired by Seagram Co., owner of Universal Studios, in 1998.

Pictures. [14] The total market share of the selected studios was more than 90% from 1994 to 2000.

The search in DJI Publications Library was performed using the "All publications" option. The Library contains the full text of 6,000 leading business newspapers, magazines, trade journals and newsletters, as well as television and radio transcripts. At the time of the search, the library included such titles specializing in entertainment news as Variety, Daily Variety, Hollywood Reporter, Screen Finance, Los Angeles Times. Some publications were removed from the list between the end of 2001 and the beginning 2002. DJI provided a list of removed publications. For example, Variety and Daily Variety were removed at the end of December 2001. So, we used the Entertainment News section of Academic Universe (Lexus-Nexus) for the search purpose as well. This section contains more than 100 major publications and includes both Variety and Daily Variety. For each year, from 1994 to 2000, and for each studio the search was conducted using the key words "co-finance", "co-fund" (or some variations of these words, for example, co-financing or co-financed) and "film" or "movie" or "picture".

Industry insiders provided us with an additional set of co-financed films. We discussed our final list with several industry executives familiar with the financing arrangements within their company. We crosschecked as many of the films as we could identify, and we are generally confident that the final list is correct. For example, the list of all movies co-financed and internally developed by Paramount Pictures in 1999 and 2000 was provided by industry sources. In 1999, Paramount co-financed 9 movies. Information about co-financing for 8 of the movies was also available through the press.

[14] Savoy Pictures was bought by Silver King Communications in 1996.

In 2000, the press provided information on 7 of the 11 films co-financed by Paramount Pictures.

Based on the approach selected, we identified 148 co-financed movies. It is not a comprehensive list, but there are no obvious sources of bias we can identify.

We used Internet Movie Database (imdb.com) to identify solely developed movies. The Internet Movie Database contains detailed information, including release dates and company credits, for a wide range of movies. For each year and each major studio, we selected all movies satisfying the following criteria: 1) only the selected studio receives production credits; [15] 2) no information pertaining to co-financing is provided by the press.[16] Similarly to co-financed movies, we verified data using industry sources. Our final sample consists of 127 solely developed movies.

Ex ante project risk measures

To test the theoretical predictions cited above, one should employ an ex ante measure of the risk level of the projects, in our case, movies. It is reasonable to suppose that executives classify films into broad categories and make decisions accordingly. Movies differ with respect to various characteristics such as type, rating, and whether stars participate in a movie or not. Movie characteristics are typically known by the time financing decisions are made. Sequels are less risky by historical standards. [17] MPAA Ratings are of course conferred after a movie is released. However, they reflect broad

[15] Studios often partner with companies specializing in movie production though these companies don't finance the movies and don't usually share revenues.
[16] Each movie title was searched in DJI using the "All publications" option and in Entertainment news section in Lexis-Nexis .
[17] See also Ravid and Basuroy (2004), De Vany and Walls (2002))

project characteristics, which may be chosen for risk management reasons as well. [18] Previous literature has established the importance of ratings in movie success or failure (See Ravid (1999), DeVany and Walls (2002) and Fee (2002)). The role of stars is ambiguous. Ravid (1999) finds no support for the hypothesis that stars signal quality. However, Basuroy et al. (2003) suggest that a star may be hired simply because of the extreme uncertainty surrounding the project as executives wish to be "covered " in case the project fails. Hence, stars may indicate ex ante risky projects. We are going to consider all these measures empirically.

Movie ratings were collected using the Motion Picture Association of America (MPAA) database. We used the movie connection section of Internet Movie Database (IMDB) and Leonard Maltin's movies and video guide to identify sequels.[19] IMDB also lists cast members, movie directors, writers, and producers. We defined a cast member as a "star" if she/he had won an Academy Award (Oscar) for Best Actor or Best Actress in prior years. The Academy Award web page lists of all winners for each category for each year. [20]

Managerial efficiency, bargaining power, and market structure

The movie director is essentially the manager of a project in the movie industry (see John et al.(2004) for an extensive discussion of this issue). It is reasonable to believe that the importance of the managerial contribution also increases with the assumption of

[18] Goettler and Leslie (2003) use a sophisticated measure of risk, namely , standard deviation of an ex-ante returns as a predictor of individual movie success. They only use U.S. revenues, and their definition of co-financing is different than ours, however, they conclude that this measure has no predictive power. For prediction issues see also DeVany and Walls (2002).

[19] Baseline/FilmTracer also provided us with information on movie genre, which includes sequels. However, we noticed that on many occasions the fact that the movie is a sequel was not reflected in the database. For example, the genre for the movie Home Alone 3 was defined as a comedy rather than a sequel. So, we collected that data manually.

additional responsibilities such as writer, producer or actor. To capture the importance of the effort contribution by the movie director and his/her bargaining power, we defined two variables. A movie director who had won an Academy Award for Best Director was characterized as a "star-director". We also identified those directors who were also writers and/or producers and/or actors for the films in question.

In order to establish the relationship between alliance formation and the level of industry concentration we calculate the Herfindahl Index based on domestic box office receipts, and we follow a time-trend.

Financial data

Financial data for each movie was provided by Baseline/FilmTracker. The data from Baseline/FilmTracker includes budget as well as distribution costs, international, domestic and video revenues, and the number of theaters where the film was playing. We adjusted the numbers to account for inflation using the Bureau of Labor Statistics annual Consumer Price Index for all urban consumers. We use movie budgets to test the resource-pooling motive of alliance formation. For the purpose of performance comparison of co-financed and solely financed movies, we determine the profitability ratio by dividing total revenue generated by the movie by the total costs. Total revenues are the sum of the following: domestic box office revenues, domestic video revenues, and international box office revenues. Total costs are the costs of physical production (budget) plus distribution costs that include the cost of film prints supplied to exhibitors and advertising/marketing costs. [21]

[20] See Ravid (1999) and Ravid and Basuroy (2004) for a discussion of these measures, and DeVany (2004) for a discussion of alternative star measures.
[21] See Ravid (1999) for a discussion of profitability proxies for movie projects.

To capture the probability of default for each studio we use quarterly company ratings from COMPUSTAT. The highest rating is used when two studios developed the movie. Finally, we add two control variables: total number of reviews and the ratio of positive reviews to negative reviews. The first variable serves as a proxy for the attention that the movie received and the second one for the movie's quality. *Variety* publishes the total number of positive, negative and mixed reviews that the movie received in New York.[22] All variables are described in Table 1.

4. RESULTS

Table 2 presents summary statistics. All the relative frequencies are within the range of MPAA statistics and as found in other studies (see Ravid (1999), Ravid and Basuroy (2004)). In particular, we find few G rated films and most of the sample is R rated.

We first compare movies developed internally to those developed via alliances. Regardless of the motivation for alliance, it might be that co-financing is just better. Table 3 shows that co-financed movies have higher budgets and higher distribution costs (P_A), and, of course, higher total costs (TCOSTS), which is consistent with the resource-pooling motive. Domestic revenues (DOMGROSS) and the number of theaters where the film was playing (SITES) are higher too, but results are only marginally statistically significant. The two types of movies differ neither with respect to quality, measured by the ratio of positive reviews to negative reviews (REW1), nor with respect

[22] For a discussion of the value of reviews in NY vs. in other parts of the country see Ravid (1999) but also Basuroy, Chateerjee and Ravid (2003)).

to attention received, measured by the total number of reviews (REWT). The rates of return (RATE1) do not appear to differ significantly either.

Before proceeding to the direct test of the motives of alliance formation, we classify different types of movies according to their risk characteristics. The classifications will enable us to relate our tests to the various hypotheses regarding project risk. Table 4 presents statistics pertaining to the risk issue. PG rated movies have the lowest variance among all rating categories. G-rated movies have the highest standard deviation of 4.8001. The standard deviation of PG rated movies is 0.9598 versus 2.2839 for all other movies and the difference is highly statistically significant. When we consider skewness and kurtosis, we see again, that PG rated films are the least risky in that respect. Similarly, sequels have a marginally significant lower variance, as well as low skewness and negative kurtosis. Very high skewness indicates that the success of the category is driven by a few very successful projects, whereas low skewness reflects a relatively predictable symmetric distribution. It is of course not clear how studio executives view risk, but the intuitive sense conveyed by variance and skewness can certainly be consistent with risk perceptions on the part of decision makers. The role of kurtosis is somewhat more ambiguous – high kurtosis indicates a peaked distribution as opposed to a flatter distribution, and one may argue that the peaked distribution may be riskier.

The role of stars (defined as Oscar winners or nominated for awards) is more ambiguous. It seems that nominations for an award (Stars) play an opposite role to actually winning an award (Starwon). Films that feature actors with academy award nominations have a significantly lower variance than other films, whereas the variance of

the rate of return for films with stars (which tend to be more expensive) is significantly higher than that of other films. [23] In summary, it seems that by various measures, PG rated films and sequels are the least risky ex-ante categories.

We proceed with testing our hypotheses using a series of probit models with the dependent variable indicating the choice between alliance and internal project development. Our main results are presented in Table 5.

In all specifications, PG-rating and sequel status lower the probability of co-financing, suggesting that indeed, films that can be classified as "less risky" tend to be developed internally. This supports hypotheses (1) and (2) and is consistent with the thinking by Robinson (2003) and even with industry's views of co-financing as a risk management tool.

We also note an increasing time trend in alliance formation. Significantly more movies were developed via financing alliances in the late 1990s and 2000 than at beginning of the 1990s. The trend is consistent with those reported in some other industries.[24] This result suggests that changes in the industry structure over time may trigger more alliances, supporting to some extent Hypothesis 4 – Market Structure. However, the Herfindahl index is negative and highly statistically significant (the last specification in Table 5). Hence, if we can trust this measure, it would mean that an increase in alliance formation is associated with an increase in competition that is opposite to what the anticompetitive motive predicts. In general the Herfindahl index is a

[23] As a robustness check, we looked at the moments of the distribution of these classifications for an earlier data set, used in Ravid's (1999) paper. There is broad agreements between the two classifications- for example, G-rated movies are riskier, sequels are less risky and PG rated movies are less risky by some measures in that data set as well.

[24] See Lerner and Merges (1998), Rothaermel (2001), Filson and Morales (2001) regarding pharmaceutical and biotechnological industries; Chan and Ross (2000) regarding airline industry, Stuart (2000) regarding

good measure of industry structure, but it may be much less meaningful in the context of the film industry (See DeVany (2004)).

The resource-pooling motive (hypothesis 5) predicts that more capital-intensive projects are likely to be developed via alliances. We do not find strong support for this explanation, although some evidence is consistent with this idea. Means comparisons suggest that more expensive movies tend to be co-financed. When we take other variables into account, the coefficient of the budget variable is positive in all specifications, however, it is not always significant. We may interpret all of this as some support for the resource-pooling hypothesis.

Our data is not very helpful in analyzing the managerial incentives hypothesis (proxies for managerial effort and bargaining power are hard to find in any setting) . However, we do have two proxies for the director's prestige and involvement that were found significant in other work (see John et al. (2004)). In our setting, however, proxies for the bargaining power and efficiency of managerial contribution are statistically insignificant in all specifications.

Finally, we can support hypothesis 6 (bankruptcy) – although we select the highest rating when two companies are engaged in co-financing, this variable (CRTNG) is significant and is in the right direction, that is, riskier firms tend to co-finance. [25]

So far we conclude that project risk is an important factor in explaining alliance formation. Low risk projects tend to be developed internally. To determine whether these

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semiconductor industry, and Lerner and Merges (1998) and Robinson (2001) regarding research intensive industries. The results can also be interpreted as broadly consistent with the thinking of Lerner et al.(2000).

[25] We have tried several other ways of addressing the company risk issue. In particular, we ran several other specifications, where our variable was the lowest (rather than highest) rating, the average rating and we also considered all of these specifications for the sub-sample for which we have full information. All results are substantially same.

results hold within a studio as in the internal capital market explanation, we performed additional tests on a sub-sample of our data. We selected studios with 30 or more observations that had both projects developed internally and via alliances and ran regressions on risk variables controlling for studios' effects, and using only the variables that have been found significant in previous specifications. Results are presented in Table 6.[26] The findings are similar- except that the rating variable (correlated of course with the studio selection) is insignificant, although the sign is correct. However, we did lose of course some the less solid companies. We also find that one of the studios is much more likely to co-finance than others even when risk factors are taken into account.[27]

So far, the evidence supports both the risk reduction and the internal capital market explanations of alliance formation, as well as the company risk prediction.

We find guarded support for the resource pooling theory and cannot confirm the market structure hypothesis.

Tables 7 and 8 re-visit the question of whether it is just that one type of financing results in some way in a better project, or that firms select better projects for co-financing or sole financing. The results confirm the findings of our univariate comparisons. Neither revenues, nor the rates of return of projects are affected by a co-financing dummy. This seems to indicate that the projects developed via alliances are not superior relative to the projects developed internally. These findings are broadly consistent with a study by Goettler and Leslie (2004).

[26] Given our relatively small sample size, we restrict our specification to variables found significant in other tests.

[27] That studio is Paramount. Variety has already suggested several years ago that the studio was pursuing a particularly aggressive co-financing policy.

Interestingly, on average the movies were more profitable at the beginning of the analyzed time period. It seems that as the industry became less lucrative, firms chose to develop more projects via alliances. This result seems to provide further support for the risk reduction motive, in particular, risk minimizing behavior by corporate executives, which emphasizes the likelihood of failure.

Finally, in order to test Hypotheses 8 (the specialization) and 9 (Titanic) we compare, in table 9, two pot deals (that is to say, deals in which studios choose to divide up the rights) versus all others. There is no significant difference between the two sets, except that two pot deals seem to be for films with higher budgets. [28] When we ran profitability regressions (not reported here), a two-pot dummy was not significant. We also compare the two subsets of films for which we know the deal type. 50-50 deals are for films with higher budget and revenues, and a higher rate of return, providing weak support for hypothesis 8 (projects contracted on ex-ante will be better on average). However, the rate of return difference is not significant. [29]

5. CONCLUSIONS

This paper investigates the firm's choice of organizational structure. We test a number of hypotheses for alliance formation: managerial incentives, risk reduction, internal capital market, resource constraints, and anticompetitive motives. We construct a unique movie industry data set of 275 projects that includes both solely financed and

[28] One has to be careful in interpreting the results – for many films we do not know the type of deal signed. If we found a significant difference this would indeed indicate that two pot deals are different. However, if we can find no difference, we cannot rule out a preponderance of two pot deals in the set where information was not available.

[29] These ideas are similar to Lerner et al. (2000) who tests for the success of projects with different control structures. Their contract data is more specific and detailed, but naturally, there is no project specific financial data for biotechnology alliances.

co-financed movies. The latter alliances can be with other studios or with independent production companies.

We find that risk is an important issue. Firms develop the safest projects internally. We also find that riskier firms tend to form alliances. Within traditional theory, which views the firm as owned by well-diversified shareholders, risk reduction behavior seems puzzling. However, as noted by Zingales (2000), in practice most companies do have a large shareholder, who is not well diversified. Moreover, "even when the financial capital is held by well-diversified investors, the human capital in the firm is not well diversified."(p.1629). Further, as documented in Ravid and Basuroy (2004) the movie industry as well as other industries are characterized by overly conservative managerial behavior.

The results also support the internal capital market explanation, which predicts a positive risk differential between projects developed via alliances and those developed internally. We find some support for the resource-pooling motive, and we can document some industry wide trends, but they are not necessarily consistent with anti-competitive motives. We cannot support managerial explanations or other theories relying on the nature of the alliances formed. Finally, we find that the performance of projects developed internally does not differ significantly from those developed via alliances. This seems to suggest that neither organizational structure dominates, and in fact, may suggest that we are in equilibrium.

Table 1. Variables description

Variable	Description
BUDGET	The cost of physical production
P_A	The cost of film prints supplied to exhibitors and the advertising/marketing costs
DOMGROSS	Total amount of revenue generated by a film at the box office during its theatrical run in the United States and Canada
DOMVIDREV	Gross revenue generated from US video sales (wholesale)
INTGROSS	Total amount of revenue generated by a film at the box office during its theatrical run in foreign territories
REW1	Positive reviews/(positive + negative), if positive + negative = 0 then rew1=0
REWT	Total number of reviews
SITES	Maximum number of theaters, at any given time, film was playing in
TOTREVN	Total revenue from all sources
TCOSTS	Total costs
RATE1	Total revenue/total costs
G	Dummy variable that equals 1 if the movie is rated G and 0 otherwise
PG	Dummy variable that equals 1 if the movie is rated PG and 0 otherwise
PG13	Dummy variable that equals 1 if the movie is rated PG13 and 0 otherwise
R	Dummy variable that equals 1 if the movie is rated R and 0 otherwise
SEQUEL	Dummy variable that equals 1 if the movie is a sequel and 0 otherwise
STARS	Dummy variable that equals 1 if an actor who had previously won an Academy award or had been nominated for it participated in the movie and 0 otherwise
STRWON	Dummy variable that equals 1 if an actor who had previously won an Academy award participated in the movie and 0 otherwise
DRWON	Dummy variable that equals 1 if a director who had previously won an Academy award for the best director participated in the movie production and 0 otherwise
ADDRSP	Dummy variable that equals 1 if movie director is also the producer, and/or the script writer, and/or the actor and 0 otherwise
HRF	Herfindahl Index calculated based on the U.S.-Canadian box-office receipts
CRTNG	Standard and Poor's quarterly company rating
CF	Dummy variable that equals 1 if the movie is co-financed and 0 otherwise

Table 2. Summary statistics

Panel A. Continuous variables

Variable	Mean	Median	Standard deviation	Number of observations
BUDGET	47,474,464.67	40,991,500.00	35,889,787.67	274
P_A	25,466,172.34	26,553,000.00	14,451,984.75	274
DOMGROSS	59,356,650.76	37,753,000.00	71,631,468.90	275
DOMVIDREV	37,077,730.63	21,542,360.00	65,924,859.01	272
INTGROSS	58,517,387.70	22,950,000.00	82,069,823.15	274
REW1	0.5283	0.5455	0.3324	275
REWT	18.3636	19.0000	6.7130	275
SITES	1954.9418	2050.0000	1009.0938	275
TOTREVN	152,191,141.00	87,996,000.00	188,493,488.00	271
TCOSTS	72,940,637.01	67,582,000.00	47,377,081.34	274
RATE1	2.0646	1.4080	2.1711	271

Panel B. Dummy variables

Variable	Frequency (%)
G	4.36
PG	12.36
PG13	32
R	51.27
SEQUEL	7.27
STARS	51.27
STRWON	24.36
DRWON	5.45
ADDRSP	42.55
CF	53.82

Table 3. Differences in Medians/Means for continuous variables between movies developed via alliance and internally developed movies

Panel A. Differences in medians

Variable	Medians		Z-value	p-value
	Alliance	Internally-developed		
BUDGET	47,050,000.00	33,900,000.00	-3.15	0.0017
P_A	29,532,000.00	23,684,000.00	-2.66	0.0078
DOMGROSS	42,709,495.00	28,748,330.00	-1.76	0.0792
DOMVIDREV	24,556,500.00	17,712,450.00	-1.94	0.0521
INTGROSS	26,215,000.00	21,023,840.00	-1.09	0.2764
REW1	0.5359	0.5455	0.30	0.7655
REWT	19	19	0.91	0.3622
SITES	2131	1955	-1.76	0.0792
TOTREVN	97,523,000.00	73,910,480.00	-1.65	0.0999
TCOSTS	74,468,000.00	57,029,000.00	-3.15	0.0017
RATE1	1.3353	1.4991	0.54	0.5873

Panel B. Differences in means

Variable	Means		t-value	p-value
	Alliance	Internally-developed		
BUDGET	51,393,237.43	42,871,461.75	1.97	0.0500
P_A	27,172,346.35	23,462,094.92	2.13	0.0339
DOMGROSS	64,699,250.95	53,130,628.50	1.36	0.1760
DOMVIDREV	35,324,726.78	39,108,989.05	-0.46	0.6436
INTGROSS	59,569,944.56	57,299,073.86	0.23	0.8198
REW1	0.5412	0.5094	0.69	0.4889
REWT	18.1824	18.6693	-0.48	0.6298
SITES	2029.0608	1868.5669	1.32	0.1891
TOTREVN	154,121,485.00	149,969,714.00	0.18	0.8595
TCOSTS	78,565,583.78	66,333,556.67	2.14	0.0329
RATE1	1.9526	2.1934	-0.90	0.3717

Table 4. Moments of distribution of different types of movies

Panel A. Variance of the rate of return.

The variance of the rate of return (Rate1) for movie type under question is compared to all other movies. Rate1=total revenue/total costs.

Variable	Variable=1		Variable=0		Differences in variance	p-value
	Std. Dev.	N	Std. Dev.	N		
G	4.8001	12	1.8915	259	2.9086	<.0001
PG	0.9598	34	2.2839	237	-1.3241	<.0001
PG13	1.9618	87	2.2683	184	-0.3065	0.1295
R	2.0104	138	2.3263	133	-0.3159	0.0913
SEQUEL	1.6446	20	2.2052	251	-0.5606	0.1329
STARS	2.3345	139	1.9928	132	0.3417	0.0682
STRWON	1.6233	65	2.3174	206	-0.6941	0.0012

Panel B. Skewness and Kurtosis of the rate of return

Variable	Skewness	Kurtosis	N
G	1.8995	3.6372	12
PG	0.4345	-1.0681	34
PG13	2.4864	7.4219	87
R	2.6540	9.1421	138
SEQUEL	0.4680	-1.0560	20
STARS	3.6635	17.4661	139
STRWON	2.4496	9.4910	65

Table 5 Probability of alliance formation

The table presents results from probit regression for the 274 movies in our sample. Probability of alliance is estimated. BUDGET is the cost of physical production (in tens of millions of dollars); DRWON is a dummy variable that equals 1 if a director who had previously won an Academy award for the best director participated in the movie production; ADDRSP is a dummy variable that equals 1 if the movie director is also the producer, and/or the script writer, and/or the actor; SEQUEL is a dummy variable that equals 1 if the movie is a sequel; PG is a dummy variable that equals 1 if the movie is rated PG; PG-13 is a dummy variable that equals 1 if the movie is rated PG13; R is a dummy variable that equals 1 if the movie is rated R; STARS is a dummy variable that equals 1 if an actor who had previously won an Academy award or had been nominated for it participated in the movie; STRWON is a dummy variable that equals 1 if an actor who had previously won an Academy award participated in the movie; REW1 is a ratio of positive reviews to positive plus negative reviews; REWT is total number of reviews; SITES is the maximum number of theaters the film was plying in; CRTNG is a quarterly company ratings from COMPUSTAT(the highest rating is used for movies developed by two studios); HRF is Herfindahl Index calculated based on the U.S.-Canadian box-office receipts; Y94-Y00 is a year dummy variables(year 1996 is used as default). All dummy variables are 0 otherwise. G rated movies are used as default.

Variable	Parameter estimate	p-value	Parameter estimate	p-value	Parameter estimate	p-value	Parameter estimate	p-value	Parameter estimate	p-value
Intercept	-0.05199	0.9201	0.0506	0.9269	0.0932	0.8650	-0.9671	0.1642	4.2960	0.0009
BUDGET	0.10662	0.0532	0.0367	0.2735	0.0374	0.2716	0.0326	0.3559	0.0614	0.0581
$BUDGET^2$	-0.004556	0.1287								
DRWON	0.04211	0.9183	0.0793	0.8489	0.0530	0.8994	-0.0631	0.8884	0.0648	0.8689
ADDRSP	-0.10171	0.5676	-0.1657	0.3595	-0.2154	0.2419	-0.0848	0.6640	-0.2202	0.2028
SEQUEL	-0.90601	0.0118	-0.9438	0.0107	-1.0165	0.0072	-1.1423	0.0053	-0.9349	0.0087
PG	-1.03336	0.0312	-0.9594	0.0521	-0.9336	0.0583	-1.0810	0.0434	-0.8493	0.0696
PG13	-0.55882	0.1866	-0.4657	0.3063	-0.4863	0.2884	-0.6895	0.1565	-0.2771	0.5269
R	-0.08430	0.8413	-0.0160	0.9719	-0.0070	0.9877	-0.2420	0.6174	0.1776	0.6800
STARS	0.08027	0.6420	0.0969	0.5790			0.0824	0.6622	0.1068	0.5272
STRWON					0.4638	0.0274				
REW1			0.3210	0.2925	0.3189	0.3010	0.3326	0.3206	0.4875	0.0937
REWT			-0.0083	0.6243	-0.0114	0.4999	-0.0016	0.9278	-0.0259	0.0926
SITES			0.0000	0.9251	-0.0000	0.9606	0.0000	0.6362	0.0000	0.9190
CRTNG							0.0833	0.0456		
HRF									-0.0036	0.0004
Y94	-0.9764	0.0121	-0.9907	0.0114	-0.9630	0.0143	-0.7621	0.0688		
Y95	-0.3770	0.2813	-0.3839	0.2759	-0.3905	0.2707	-0.2814	0.4737		
Y97	0.60955	0.0605	0.5486	0.0997	0.5633	0.0935	0.8867	0.0171		
Y98	0.21076	0.5133	0.2057	0.5320	0.1867	0.5718	0.2941	0.4269		
Y99	0.28566	0.3343	0.2613	0.3964	0.2885	0.3482	0.4735	0.1694		
Y00	1.03148	0.0014	0.9842	0.0028	1.0413	0.0017	1.0565	0.0034		
LogLikelihood	-151.4412		-151.9945		-149.6623		-130.8465		-149.6623	
LR p-value	<.0001		<.0001		<.0001		<.0001		<.0001	

Table 6 Probability of alliance controlling for studio effects

The table presents results from probit regression. Probability of alliance is estimated. BUDGET is the cost of physical production (in tens of millions of dollars); SEQUEL is a dummy variable that equals 1 if the movie is a sequel; PG is a dummy variable that equals 1 if the movie is rated PG; PG13 is a dummy variable that equals 1 if the movie is rated PG13; R is a dummy variable that equals 1 if the movie is rated; ST1-ST4 are studio dummy variables. STARS is a dummy variable that equals 1 if an actor who had previously won an Academy award or had been nominated for it participated in the movie; CRTNG is a quarterly company ratings from COMPUSTAT(the highest rating is used for movies developed by two studios); All dummy variables are 0 otherwise. Only studios with more then 30 observations are included. G rated movies are used as default. Year dummies are included but not reported.

Variable	Parameter estimate	p-value	Parameter estimate	p-value
Intercept	-0.8748	0.1851	-1.1235	0.3957
BUDGET	0.0527	0.1455	0.0526	0.1455
SEQUEL	-1.1629	0.0068	-1.1551	0.0074
PG	-0.9650	0.0863	-0.9658	0.0861
PG13	-0.6495	0.2072	-0.6455	0.2106
R	-0.0670	0.8950	-0.0702	0.8901
STARS	0.2390	0.2711	0.2331	0.2866
CRTNG			0.0231	0.8280
ST1	0.5447	0.1057	0.6008	0.1580
ST2	0.9968	0.0018	0.9701	0.0045
ST3	0.3930	0.2780	0.4857	0.3858
ST4	-0.2599	0.4457	-0.1689	0.7546
LogLikelihood	-98.2817		-98.2581	
LR p-value	<.0001		<.0001	
N	200		200	

Table 7. The Revenue Regression

The table presents results from OLS regression. Dependent variable is total revenue from all sources (in tens of millions of dollars). BUDGET is the cost of physical production (in tens of millions of dollars); SITES is the maximum number of theaters film was plying in; STRARS is a dummy variable that equals 1 if an actor who had previously won an Academy award or had been nominated for it participated in the movie; SEQUEL is a dummy variable that equals 1 if the movie is a sequel; DRWON is a dummy variable that equals 1 if a director who had previously won an Academy award for the best director participated in the movie production; ADDRSP is a dummy variable that equals 1 if the movie director is also the producer, and/or the script writer, and/or the actor; G is a dummy variable that equals 1 if the movie is rated G; PG is a dummy variable that equals 1 if the movie is rated PG; PG-13 is a dummy variable that equals 1 if the movie is rated PG-13; REW1 is a ratio of positive reviews to positive plus negative reviews; REWT is total number of reviews; Y94-Y00 is a year dummy variables(year 1996 is used as default). CF is a dummy variable that equals 1 if the movie is developed via alliance. All dummy variables are 0 otherwise. G rated movies are used as default. P-values are calculated using White heteroskedasticity corrected standard errors

Variable	Parameter estimate	p-value
Intercept	2.1386	0.8411
BUDGET	1.1274	0.0008
SITES	0.0082	0.0000
STARS	0.9845	0.5331
SEQUEL	-4.4812	0.2552
DRWON	-2.0300	0.5868
ADDRSP	1.8985	0.2483
PG	-24.3198	0.0356
PG13	-21.1871	0.0634
R	-23.1450	0.0397
REW1	11.9672	0.0000
REWT	0.3209	0.0439
Y94	7.1869	0.0897
Y95	3.9858	0.1933
Y97	1.6370	0.5433
Y98	1.1354	0.6826
Y99	-2.5239	0.3368
Y00	-2.7070	0.4024
CF	-0.6722	0.6951
Adjusted $R^2 = 0.5083$ Number of observations = 271		

Table 8. The Profitability Regression

The table presents results from OLS regression. Dependent variable is the rate of return, which is a ratio of total revenue to total costs. BUDGET is the cost of physical production (in ten million dollars); SITES is the maximum number of theaters film was plying in; STARS is a dummy variable that equals 1 if an actor who had previously won an Academy award or had been nominated for it participated in the movie; SEQUEL is a dummy variable that equals 1 if the movie is a sequel; DRWON is a dummy variable that equals 1 if a director who had previously won an Academy award for the best director participated in the movie production; ADDRSP is a dummy variable that equals 1 if the movie director is also the producer, and/or the script writer, and/or the actor; G is a dummy variable that equals 1 if the movie is rated G; PG is a dummy variable that equals 1 if the movie is rated PG; PG-13 is a dummy variable that equals 1 if the movie is rated PG-13; REW1 is a ratio of positive reviews to positive plus negative reviews; REWT is total number of reviews; Y94-Y00 is a year dummy variables(year 1996 is used as default). CF is a dummy variable that equals 1 if movie is developed via alliance. All dummy variables are 0 otherwise. G rated movies are used as default. p-values are calculated using White heteroskedasticity corrected standard errors

Variable	Parameter estimate	p-value
Intercept	1.1044	0.3429
BUDGET	-0.1692	0.0002
SITES	0.0009	0.0000
STARS	-0.1730	0.4441
SEQUEL	-0.5725	0.2005
DRWON	-0.9068	0.0217
ADDRSP	0.1683	0.4663
PG	-2.4587	0.0508
PG13	-1.8672	0.1333
R	-2.0240	0.0999
REW1	1.8016	0.0000
REWT	0.0476	0.0463
Y94	1.2718	0.0164
Y95	0.8364	0.0760
Y97	0.1198	0.7069
Y98	0.0568	0.8625
Y99	-0.3132	0.3166
Y00	0.0623	0.8811
CF	-0.0794	0.7317
Adjusted R^2=0.3018 Number of observations = 271		

Table 9. Differences in Means/Medians: Two-pot (separate rights) deals vs. other types of movies.

Panel A. Differences in means

Variable	Two-pot		Others		t-value	p-value
	Mean	N	Mean	N		
BUDGET	67,396,605.77	26	45,385,853.00	248	-2.17	0.0392
DOMGROSS	81,564,505.77	26	57,037,758.27	249	-1.00	0.3281
INTGROSS	76,101,083.20	25	56,751,956.43	249	-1.12	0.2619
TOTREVN	162,878,690.00	25	151,105,008.00	246	-0.39	0.6957
RATE1	1.9508	25	2.0761	246	0.37	0.7154

Panel B. Differences in medians

Variable	Two-pot		Others		Z-value	p-value
	Median	N	Median	N		
BUDGET	57,475,000.00	26	38,071,000.00	248	2.8807	0.0040
DOMGROSS	58,155,570.00	26	36,327,570.00	249	1.2538	0.2099
INTGROSS	42,000,000.00	25	21,971,680.00	249	1.0471	0.2951
TOTREVN	145,686,000.00	25	85,041,535.00	246	1.0670	0.2860
RATE1	1.5352	25	1.4075	246	0.2289	0.8190

Panel C. Differences in means

Variable	Two-pot		Fifty-Fifty		p-value
	Mean	N	Mean	N	
BUDGET	67,396,605.77	26	76,227,134.62	26	0.4672
P_A	27,371,255.38	26	36,165,135.38	26	0.0252
DOMGROSS	81,564,505.77	26	114,524,943.00	26	0.2585
INTGROSS	76,101,083.20	25	123,662,801.00	26	0.0662
DOMVIDREV	45,734,924.23	26	56,702,559.23	26	0.5988
TOTREVN	162,878,690.00	25	294,890,303.00	26	0.0106
RATE1	1.9508	25	2.3881	26	0.2924

Panel D. Differences in medians

Variable	Two-pot		Fifty-Fifty		p-value
	Median	N	Median	N	
BUDGET	57,475,000.00	26	73,551,500.00	26	0.2719
P_A	27,120,000.00	26	35,316,000.00	26	0.0060
DOMGROSS	58,155,570.00	26	100,237,345.00	26	0.0280
INTGROSS	42,000,000.00	25	106,965,000.00	26	0.2109
DOMVIDREV	30,350,490.00	26	40,437,800.00	26	0.0993
TOTREVN	145,686,000.00	25	255,681,395.00	26	0.0709
RATE1	1.5352	25	2.1650	26	0.2109

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