

Investment Decisions of Private versus Public Firms: Clues from the Movie Industry

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Using detailed project-level data on hundreds of projects, this paper investigates risk and returns of projects by public and private firms in the movie industry. If the investments of private firms are adversely affected by their limited access to external equity markets, the returns of projects by public firms would be more favorable than those for similar projects by private firms. Alternatively, the converse would hold if public firms are plagued by inefficiencies that arise due to agency problems. The findings of the current study are consistent with theories in which public firms beset with agency problems engage in distorted investment behavior.

Field of Research: Agency Problems, Public versus Private Firms, Movie Industry

1. Introduction

An enduring discussion in financial economics concerns whether a firm's listing status impacts corporate policy decisions made by the firm. Most of this conversation has been positioned within the context of two key views of public versus private firms. One view is that the enhanced access of public firms to external equity influences their decisions favorably as compared to private firms. An alternative view is that decisions by public firms are adversely affected by agency conflicts that plague these firms because of their diversified ownership. As information about private firms largely remains restricted, empirical evidence on these firms is understandably limited. Surveys of this relatively scanty evidence (see, for example, Drobetz, Janzen & Meir (2018)) reveal contradictory results suggesting the need for more research in this area.

In the last decade, a small body of work has emerged that has examined the choice between public and private organization forms by specifically looking at real investment projects made by these two types of firms. As described in greater detail in the next section of this paper, this research has been inconclusive. Whereas some studies find that public firms invest more efficiently, others find the reverse to be true. Particularly relevant to the current study is the speculation by Asker, Farre-Mensa & Ljungqvist (2015) that the conflicting results maybe because of the extent to which agency conflicts are different across industries. To explore that possibility, the current study investigates investments made by public versus private firms in the movie industry.

The movie industry is used as a laboratory for investigating the above research question by the current study for three reasons. First, and probably most important, rich data on the investment projects of both public and private firms is available for this industry.

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Second, unlike previous research where investments data is understandably restricted to the firm level, the movie industry has project-by-project data for a large number of projects by public and private firms. Finally, this paper's use of the movie industry as a useful laboratory for testing various theories in financial economics trails the growing attention of the movie industry by scholars in financial economics. Fee (2002), for example, examines the trade-off between preserving project control by using independent funds versus forsaking control by getting funds from a large outside investor. Fee examines this choice in the context of the motion picture industry because "the institutional features of the motion picture industry closely resemble those modelled in the theoretical literature" (p. 682). Additionally, Palia, Ravid & Reisel (2008) use the movie industry as their laboratory for investigating strategic alliances because, among other motives, "a movie project has a short-term horizon with a clear starting and ending point" (p. 484).

Using a sample of 1807 movie projects by public firms and 1314 projects by private firms over an 18-year period, the current study finds that the risk accompanying movie projects by public firms is significantly smaller than that for projects by private firms. Furthermore, the returns for movie projects by public firms are significantly lesser than those for projects by private firms. Taken together, these findings are inconsistent with recent studies (see, for example, Gilge & Taillard (2016)) that show that public firms invest more efficiently than private firms. The results of the current study are, however, consistent with studies by Sheen (2009) and Asker, Farre-Mensa & Ljungqvist (2015) that public firms make distorted investment decisions because of being plagued by agency conflicts. The findings of the current study, when considered in concert with the above studies, emphasize the importance for more research into explanations for the resilience of public firms, despite evidence, although mixed, indicating that their listing status can destroy a significant amount of firm value.

The rest of the paper is structured as follows: Section 2 reviews related literature and suggests two testable hypotheses. Section 3 describes the methods used for the analysis in the paper. Section 4 reports the results including a discussion of the private benefits associated with movie projects and a multivariate analysis of the performance of these projects. Section 5 presents this paper's conclusions.

2. Related Literature and Hypothesis Development

As a majority of firms in the US are privately held, understanding the effect of being privately vs. publicly held on the corporate policy decisions made by the firm is important. Yet, empirical research on private firms is restricted simply because of the lack of data on private firms. What limited evidence there is on private firms comes from an examination of specialized situations and new datasets that provide opportunities to compare decisions made by private and public firms. For example, Brav (2009) examines financial decisions made by private and public firms in the U.K. and finds that the extent of leverage undertaken by private firms is much higher than that for public firms. Similarly, Michaely & Roberts (2012), also using samples of firms in the U.K., show that private firms smooth dividend significantly less than their public counterparts. Using more recently available data on public versus private firms, Gao,

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Harford & Li(2013) examine differences in cash holdings, Gao& Li(2015) differences in CEO pay, and Bernstein (2015) differences in innovation. Unlike all of the above studies, the current study compares the investment decisions made by private and public firms in the movie industry because of the rich data available on these decisions for this industry.

Going back to Berle & Means (1932), an extensive literature has documented the presence of agency conflicts in public firms arising from the separation of ownership and control. Concentrated ownership in private firms can mitigate agency conflicts whereas agency conflicts are exacerbated in public firms (Jensen (1986, 1989)). Managers of public firms may make distorted investment decisions because they may select movie projects for a range of private benefits arising from career and other concerns.

For instance, managers may be enticed by the creative complexity related to some types of movie projects and decide to invest in such projects because of the prestige offered by these projects. In addition to prestige, another private benefit may arise from movie projects that are regarded by managers to be associated with less risk. Given the extreme uncertainty in the movie industry (De Vany & Walls 2002) and the absence of job security (Weinstein 1998), Ravid & Basuroy (2004) argue that many decisions regarding project choice in the movie industry are primarily motivated by risk minimization to enhance job security. If that is the case, another private benefit that managers may try to pursue from their project choice decisions is job security from risk minimization.

If project choices by managers are inspired by desires to obtain private benefits such as prestige or job security, movie projects by public firms would be accompanied with smaller returns than those by private firms. This hypothesis is labeled the *Agency Conflicts Hypothesis*. If prestige is the main private benefit that motivates project choice, movie projects by public firms would be connected with greater prestige than those by private firms. Similarly, if risk minimization to improve job security is the key private benefit that motivates project choice, movie projects by public firms would be associated with lesser risk than those by private firms.

Consistent with the *Agency Conflicts Hypothesis*, Sheen (2009), using a hand-collected dataset for private and public firms in the chemical industry, finds that private firms invest more efficiently than public firms. Specifically, he finds that private firms are more likely to enhance capacity preceding a positive demand shock and less likely to escalate capacity prior to a negative demand shock. These findings are interpreted as being consistent with public firms making distorted investment decisions because of being plagued by agency conflicts. Similarly, Asker, Farre-Mensa & Ljungqvist (2015) in their examination of investment decisions by private and public firms in a multi-industry environment find results consistent with Sheen (2009).

In the absence of agency conflicts, managers making project choices could be motivated by the goal of value or profit maximization. If so, managers may choose the organization form that is associated with a lower cost of external capital. It is well-

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known that the cost of external equity capital is higher for private firms than public firms. Brav (2009) finds that private firms use external equity less often than public firms because of the high cost of equity for private firms. Pagano, Panetta & Zingales (1998), document that after firms go public, their costs of borrowing declines. Saunders & Steffen (2011) find that information asymmetries lead to higher costs of external equity financing for private firms. Michaely & Roberts (2012) find that the dividend policies of private firms are consistent with costs of external financing being higher for private firms. Most recently, Phillips & Sertsios (2017) find that stock characteristics, such as liquidity and price informativeness, are important factors explaining the financing advantage of public firms in the medical device industry.

In a review of much of the above evidence, Gilje & Taillard (2016), among others, assert that public firms are associated with lower costs of external equity capital than private firms. If that is the case, public firms would raise external equity capital more efficiently than private firms. So, if value or profit maximization is the ultimate goal for the manager choosing movie projects, movie projects by public firms would be associated with lower returns than movie projects by private firms. This hypothesis is called the *External Equity Capital Markets Hypothesis*.

Consistent with the *External Equity Capital Markets Hypothesis*, Mortal & Reisel (2013), using data on European firms, find that for countries with highly developed capital markets, access to these markets allows public firms to invest more efficiently and better exploit growth opportunities. Similarly, Gilje & Taillard (2016), using data from natural gas producers, find that public firms invest more efficiently than private firms. In particular, they find that public firms are more responsive to changes in natural gas price environments than private firms, consistent with the explanation that public firms face lower financial constraints than private firms. Asker, Farre-Mensa & Ljungqvist (2015) speculate that the conflicting results in the above papers maybe because of the extent to which agency conflicts are different across industries. Given their insights and the contradictory results in earlier research, the current study examines investment decisions by private and public firms in the movie industry.

3. Methods

Data collection for the current study began with a sample of movie projects that include narrative English-language feature films that were released in theatres in North America from 1990 to 2007. Documentaries and foreign-language movies are eliminated to make the characteristics of the movies in the sample more alike. Also, movies that were not released on at least 100 screens during their theatrical run were excluded because such movies tend to be regarded as art-house movies that are best modelled separately.

To differentiate between projects by private and public firms, business descriptions of the companies in the sample were examined. These descriptions are obtained from a variety of sources, including company websites, annual issues of *The Business of Movie Production & Distribution*, and *Baseline/Filmtracker*, a leading supplier of data for professionals as well as academics doing research on the movie industry. For each

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movie project in both the private and the public subsamples, data items that provide proxies for estimating the performance, private benefits and control variables used in the multivariate analysis were obtained.

Performance of each movie project was calculated using the project's global return, which is calculated by dividing revenues by costs in both domestic and foreign markets. Revenue streams for each movie project include those from theatrical box-office rentals, video revenues and revenues from other ancillaries, all in both domestic and foreign markets. Costs for each movie projects include the production budget, prints & advertising costs in both domestic & foreign markets, and video advertising & replication costs. Data for the above revenues and costs were purchased from *Baseline/FilmTracker*; for data items not available with them estimates were generated based on data purchased from *Kagan Research LLC*, a company affiliated with *Baseline/FilmTracker*.

Two variables related to private benefits are used, one for job security from risk minimization and the other for prestige. To create a variable for job security from risk minimization a close examination of the returns for all movies in the sample was conducted. First, the variance of the returns for the movie projects in the subsample of private firms was examined and compared to the variance for the movie projects in the subsample of public firms. Next, to gain insights into whether these are any meaningful differences between the upside and downside risks of the movies in the sample, variances of returns were decomposed into mean squared deviations (MSDs) of returns when returns are greater than or equal to one and also when returns are less than one. Finally, the distribution of the returns were examined to obtain an understanding of which movie projects break-even as well as which ones are more likely to be flops because, as others have noted, it is only with major flops that managers lose their jobs.

As a measure for prestige, awards given to the movies in both the subsamples are used. Following empirical research by Gemser, Leenders & Wijnberg (2008) that suggests that the prestige gained by an award can vary depending on the types of persons (peers versus experts) that give the award, two categories of awards are used: one where the selection system only contains peers and the other where the selection is done only by experts. The awards from peer groups in the sample include the Academy Awards, the Directors Guild Awards, the Golden Laurel Awards (PGA Awards), and the Independent Spirit Awards. The awards from expert groups in the sample include the Critics Choice Awards, the Golden Globe Awards, the Los Angeles Film Critics Association Awards, and the New York Film Critics Circle Awards. Data on all of the above awards are obtained from the websites of the awards. For all the awards, data are collected on nominees, when available, and winners. Also, data are collected on all awards as well on major awards (Best Picture, Best Actor, Best Actress, and Best Director). Finally, data are collected for every year in the sample except for the years when no award was given.

Hume (1998) suggests that the artistic worth of a product should be assessed over time. Accordingly, an additional variable used for the prestige achieved from a movie is the critical acclaim of each movie that is received markedly after the theatrical release of the

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movie. Generally such assessments are made in annual issues of movie guides. To ascertain prestige from critical acclaim, a critical acclaim variable is constructed using the average score of three widely-known movie guides: *Leonard Maltin's Movie and Video Guide*, *TV Guide*, and *Videohound's Golden Movie Retriever*.

A wide-ranging list of the determinants of commercial success in the movie industry is provided by Hadida (2009); many of these determinants are used as control variables in regressions discussed in the next section. Specifically, variables are used for a sequel dummy, a star power dummy, a R-rated dummy, a season dummy and a genre dummy. To identify powerful stars in the movies in the sample, the main source is *James Ulmer's* list of A and A+ stars. The star power dummy undertakes a value of unity when the star is identified as being powerful (an A or A+ star) and zero otherwise. The dummy variable sequel takes on a value of unity if a movie in the sample is a sequel and zero otherwise. The season dummy takes on a value of unity if a movie project was released in theatres in North America during the Christmas/Summer season and zero otherwise. The R-rated dummy takes on a value of unity if a movie project is rated R by the Motion Picture Association of America to assist parents in making decisions about the appropriateness of a given movie for children. The genre dummy takes on a value of one for genres more likely to have a larger audience when *Baseline/Filmtracker*, the source used for genres, classifies the genre as action, sci-fi, horror, thriller, animation, or family and zero if the genre is a comedy, drama, or romance.

In addition to the above dummy variables, the following three control variables are used: the maximum number of screens on which a movie is released, the movie project's budget, and a numerical variable for the composite critical reviews of the movie. The composite critical review variable is created using the average score of two widely-known internet resources: *rottentomatoes.com* and *metacritic.com*. Both of these resources consider critical evaluations of movie projects received from valued critics around the time a movie gets its theatrical release and distill these evaluations into a readily usable single number.

4. Results and Discussion

Descriptive statistics for the movie projects in the public as well as private firms subsamples are presented in Table 1. As indicated in Panel A, the sample contains 1,807 (57.9%) movie projects made by public firms and 1,314 (42.1%) made by private firms. Thus the number of movie projects by public firms is only slightly larger than the number by private firms. To preserve comparability, the numbers for budget and total revenues shown in Panel B were adjusted for inflation. The means and medians of the movie revenues and budget variables indicate that movie projects by public firms are associated with larger revenues as well as larger budgets than those by private firms. These results provide univariate evidence showing that movie projects by public firms are related with more commercial success but are also associated with larger capital outlays than those by private firms. The result that budgets are higher for movie projects by public firms, as indicated in Panel B of Table 1 is supportive of the *External Equity Capital Markets Hypothesis*.

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Supplementary project characteristics described in Panel C of Table 1 provide insights into the risk characteristics of the movie projects in the sample. In general, movies that are sequels are regarded to be less risky than other movies. Similarly, R-rated movies are regarded as being more risky than other movie projects, as documented by De Vany & Walls (2004). The results indicate that 11.95 percent of the movie projects in the public firms subsample are sequels as compared to 6.62 percent of the movie projects in the private firms subsample. The difference between these percentages is statistically significant. Furthermore, 39.01 percent of the movie projects in the public firms subsample are R-rated as compared to 54.41 percent of the movie projects in the private firms subsample. The difference between these percentages is also statistically significant. These results support the possibility that managers in the public firms subsample choose movie projects for risk minimization for job security, as predicted by the *Agency Conflicts Hypothesis*.

Table 1: Sample Description

Panel A: Sample Composition				
Project type		Number (% of sample)		
Public firm movies		1,807 (57.9)		
Private firm movies		1,314 (42.1)		

Panel B: Performance-Based Characteristics for Movie Projects Made by Public vs. Private Firms				
		Public firm movies (1)	Private firm movies (1)	p-value for the difference between (1) and (2)
Total revenue	Mean	199.61	100.97	0.000
	Median	118.97	49.57	0.000
Budget	Mean	48.07	26.87	0.000
	Median	35.38	19.59	0.000

Panel C: Other Project Characteristics of Movies Made by Public vs. Private Firms				
		Public firm movies (1)	Private firm movies (2)	p-value for the difference between (1) and (2)
Percentage of movies that are sequels		11.95	6.62	0.000
Percentage of movies that are R-rated		39.01	54.41	0.000

We use t-tests to compare differences in means, the Kruskal-Wallis test to test the difference in medians and the Pearson's chi-squared test to compare differences in percentages. All reported p-values are for two-tailed tests.

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To further investigate whether there are any meaningful differences between the risks of the movies in the sample, the variance of returns are calculated. As shown in Table 2, the results indicate that the variance of the movie projects by public firms is significantly smaller than that for movie projects by private firms. Also investigated is whether movie projects by public firms are more likely to break even than those for private firms. The tests indicate that 67.18 percent of movie projects by public firms in the sample break even as compared to only 58.37 percent of movie projects by private firms. The difference between these percentages is statistically significant. These results indicate that movie projects by public firms are more likely to break even than movie projects by private firms. Next, to determine whether there are any meaningful differences between the upside and downside risks of the movies in the sample, variances of returns are decomposed into mean squared deviations (MSDs) of returns when returns are greater than or equal to one and also when returns are less than one. As with variances, the MSDs of the movie projects by public firms is significantly smaller than that for movie projects by private firms.

Table 2: Comparison of Risk Characteristics of Movies Made by Public vs. Private

	Public firm movies (1)	Private firm movies (2)	p-value for the difference between (1) and (2)
N	1,807	1,314	
Variance of rate of return	0.76	1.05	0.000
Percentage with rate of return ≥ 1	67.18	58.37	0.000
N	1,214	767	
Mean squared deviation (MSD) of rate of return when rate of return ≥ 1	0.57	0.87	0.000
N	593.00	547.00	
Mean squared deviation (MSD) of rate of return when rate of return < 1	0.05	0.06	0.000
N	1,807	1,314	
Percentages with various rate of return values			
3.00 and higher	6.14	7.76	0.076
1.70 to 2.99	29.11	23.29	0.000
1.00 to 1.69	31.93	27.32	0.006
0.50 to 0.99	23.80	24.96	0.453
0.01 to 0.49	9.02	16.67	0.000

We use analysis of variance to compare differences in variances, the Pearson's chi-squared test to compare differences in percentages, and an F-test to compare differences in mean squared deviations (MSDs). All reported p-values are for two-tailed tests.

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Lastly, to investigate differences in the risks of the movies in the sample, the distribution of returns for movie projects by public firms and those for private firms are examined using industry heuristics such as a return less than 0.5 represents a “flop.” Ferrari & Rudd (2008) note that “with studios able to only take a few bets per year, and executives justifiably worried that one wrong decision will end a career, the opportunities for learning are restricted and the incentives to sacrifice return for comfort are strong” (p. 38). The tests indicate that 9.02 percent of the movie projects by public firms in the sample flop as compared to 16.67 percent of the movie projects by private firms in the sample. The difference between these percentages is statistically significant. These results show that the probability of failure for movie projects by public firms is almost half of that for movie projects by private firms. Taken together the results from Table 2 provide evidence that the risk for movie projects by public firms is smaller than that for movie projects by private firms. Once again, to the extent that managers in public firms choose projects for risk minimization, the lesser risk documented for movie projects by private firms in Table 2 is supportive of the *Agency Conflicts Hypothesis*.

Table 3: Comparison of Awards and Critical Acclaim for Movies Made by Public vs. Private Firms

	Public firm movies (1)	Private firm movies (2)	p-value for the difference between (1) and (2)
N	1,807	1,314	
<i>Panel A: Peer or Expert Awards</i>			
Percentage with at least one Peer or Expert Award nomination	25.24	23.97	0.419
Mean number of Peer or Expert Award nominations	1.19	1.11	0.475
Percentage with at least one Peer or Expert Award win	11.40	12.63	0.294
Mean number of Peer or Expert Award wins	0.41	0.42	0.897
Percentage with at least one major Peer or Expert Award nomination	13.50	14.08	0.645
Mean number of major Peer or Expert Award nominations	0.42	0.46	0.395
Percentage with at least one major Peer or Expert Award win	4.21	5.78	0.043
Mean number of major Peer or Expert Award wins	0.14	0.17	0.330
<i>Panel B: Critical Acclaim</i>			
Mean composite critical rating	58.64	58.08	0.303

We use the Pearson's chi-squared test to compare differences in percentages and t-tests to compare differences in means. All reported p-values are for two-tailed tests.

In order to measure prestige from making a movie project, the awards given by peer as well as expert groups for the movies in the sample are examined. Panel A of Table 3

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presents comparisons for the awards received by movie projects in the public firms subsample with those received by movie projects in the private firms subsample. In the first two rows, award nominations are examined by investigating the percentage of movies that received at least one nomination and also by checking the mean number of award nominations received. In both cases there is no significant difference between award nominations, conditional on whether the movie project is the public versus private firms subsample. The absence of a significant difference is sustained when this examination is repeated in the next two rows by now looking at movie projects that won awards.

Next, the above investigation is replicated by looking only at major awards (Best Picture, Best Actor, Best Actress, and Best Director) received by movie projects in the public and private firms subsamples. With regard to award nominations, there is no significant difference between major award nominations, conditional on whether the movie project is the public firms versus private firms subsample. With regard to award wins, there is a significant difference between major award wins, conditional on whether the movie project is the public firms versus private firms subsample when examining the percentage of movies that received at least one win. However this difference disappears when using the mean number of award wins. Finally, in Panel B of Table 3, the prestige from critical acclaim for the movie projects in the sample is examined. As shown in Panel B, the prestige from critical acclaim for movies projects in the public firms subsample is not significantly different from that for movie projects in the private firms subsample.

Collectively, the results on awards and critical acclaim documented in Table 3 suggest an absence of a significant difference in prestige to be gained from making movie projects by public versus private firms. This absence of a significant difference between public and private firms with virtually all variables used in Table 3 to measure prestige indicates that prestige is not an issue for project choice as predicted by the *Agency Conflicts Hypothesis*.

In sum, the univariate analysis discussed so far suggests that there are systematic differences in risk but not in prestige between public firm movie projects and those of private firms. As always, the results from the univariate analysis should be regarded with caution, because other potentially pertinent project features are assumed to be fixed. To address this issue, project choices by public and private firms are examined in a multivariate framework.

In Table 4, results using a LOGIT model are presented to conduct the analysis in a multivariate setting. The left-hand-side variable is a dummy variable equal to one for movie projects by public firms and zero otherwise. The right-hand side variables include a budget variable and dummy variables for the proxy for risk and prestige discussed in the previous section of the paper. Results in Table 4 are reported for two separate regressions: one where prestige is measured with peer or expert award nominations and the other where prestige is measured with peer or expert award wins. Overall the results of the LOGIT model presented in Table 4 are consistent with there being systematic differences in risk but not in prestige between public firm movie

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projects and those of private firms. The coefficients of the sequels and R-rated dummy variables, the proxies for risk, are statistically significant in both regressions. The significance of the coefficients of the sequels and R-rated dummy variables in Table 4 is supportive of the *Agency Conflicts Hypothesis*.

Table 4: Logit Analysis of Making Movies Projects by Public vs. Private Firms

Variable	Model 1	Model 2
Budget	0.024 (0.000)	0.023 (0.000)
Director is also a writer and producer	-0.092 (0.486)	-0.094 (0.476)
Sequels	0.419 (0.006)	0.420 (0.006)
R-Rated	-0.371 (0.000)	-0.376 (0.000)
Genre	-0.179 (0.046)	-0.168 (0.060)
Composite critical rating	0.003 (0.307)	0.020 (0.491)
Peer or expert award nominations	-0.022 (0.125)	
Peer or expert award wins		-0.024 (0.349)
Year fixed effects	Yes	Yes
N	3,121	3,121
Pseudo-R ²	15.3%	15.3%

P-values for parameter estimates from the logit analysis are reported in parenthesis. The dependent variable is a dummy variable set equal to unity for public firm movies and zero for private firm movie projects. All analyses control for year fixed effects whose coefficient estimates are suppressed. The coefficient on the intercept is also suppressed.

The next set of tests conducted relate to the commercial performance of the movies in the sample. The *Agency Conflicts Hypothesis* predicts that performance of movie projects in the public firms subsample should be worse than those projects in the private firms subsample, whereas the *External Equity Capital Markets Hypothesis* makes the opposite prediction. The dependent variable is the logarithmic transformation of returns. The key test variable is the public dummy variable set equal to unity if the movie is in the public firms subsample and zero otherwise. The control variables used were discussed in the previous section. Table 5 presents the results. Whereas the signs of the control variables are similar to those in previous studies, the public dummy is negative and statistically significant.

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On the whole, the results from Table 5 indicate that the performance of movie projects in the public firms subsample is worse than movie projects in the private firms subsample. This result is consistent with the *Agency Conflicts Hypothesis*, according to which the returns from movie projects by public firms are beset by inefficiencies that arise due to agency conflicts. Taken together with the results from Table 2, indicating that movie projects by public firms are less riskier than those by private firms, the results are also supportive of the possibility that risk minimization to improve job security is an important private benefit from project choice.

Table 5: OLS Regression Analysis of the Rates of Return

Variable	Log of Rate of Return
Public	-0.022 (0.024)
Sequel	0.078 (0.000)
Star Power	0.017 (0.147)
Composite Critical Reviews	0.006 (0.000)
Maximum Screens	0.000 (0.000)
Season	0.068 (0.000)
R-Rated	0.008 (0.389)
Budget	-0.003 (0.000)
Genre	-0.011 (0.270)
Year fixed effects	Yes
N	3,019
Adjusted R ²	42.8%

P-values of regression coefficients obtained from the OLS regression analysis are reported in parenthesis. All regressions control for year fixed effects whose coefficient estimates are suppressed. The coefficient on the intercept is also suppressed.

The findings of the current study are inconsistent with recent studies that show that public firms make more efficient investment decisions than private firms. As discussed earlier, Mortal & Reisel (2013), find that for countries with highly developed capital markets, access to these markets allows public firms to invest more efficiently and better exploit growth opportunities. Likewise, Gilje & Taillard (2016), using data from

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natural gas producers, find that public firms are more responsive to changes in natural gas price environments than private firms, consistent with the explanation that public firms face lower financial constraints than private firms.

The results are, however, consistent with studies, also discussed earlier, that document the inefficiency of public firms due to agency conflicts associated with such firms. For example, Sheen (2009), using a dataset for private and public firms in the chemical industry, finds that private firms are more likely to enhance capacity preceding a positive demand shock and less likely to escalate capacity prior to a negative demand shock. These findings are interpreted as being consistent with public firms making distorted investment decisions because of being plagued by agency conflicts. Similarly, Asker, Farre-Mensa & Ljungqvist (2015) in their examination of investment decisions by private and public firms in a multi-industry environment find results consistent with Sheen (2009). Collectively, the findings of the current study underscore the importance for more research into explanations for the staying power of public firms despite the evidence that the public listing of a firm's stock destroys a considerable amount of firm value.

5. Conclusions

This paper presents insights into alternative views about public versus private firms by comparing the investment behavior of public and private firms in the movie industry. Specifically, the paper investigates risk, return and other characteristics of investments by public firms and a comparison sample of those by private firms in the movie industry. Surveys of the relatively restricted extant evidence reveal contradictory results suggesting the need for more research in this area.

The examination of the movie projects in the paper was conducted within the context of two key motives for choosing a specific project. Project choice by managers may be motivated by managerial needs to obtain private benefits such as job security from risk minimization and/or prestige generated by the project. If public firms are beset with agency conflicts that arise because of the diffused ownership of public firms, the *Agency Conflicts Hypothesis* advocates that movie projects by public firms would be associated with lower returns than those by private firms. Alternatively, the *External Equity Capital Markets Hypothesis* postulates that the enhanced access of public firms to external equity influences their investments favorably as compared to private firms. Other things being equal, this hypothesis predicts that movie projects by public firms would be associated with more favorable returns than those for private firms. The results show that both the returns and the risk associated with movie projects by public firms is significantly lesser than that for projects by private firms. These results are consistent with the *Agency Conflicts Hypothesis*.

The results of this paper are supportive of the insight that the public organizational form is inefficient for firms where agency conflicts are severe. These findings have important implications for the ongoing debate about the choice between public versus private organization forms for a firm. In a seminal paper, Jensen (1989) predicted the demise of public firms due to agency problems that plague such firms. Consistent with

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Jenson's prediction Doidge, Kahle, Karolyi & Stulz (2018) find that the number of public firms in the U.S. has declined from 7509 in 1997 to only 3618 in 2016 at least in part because an important disadvantage of private firms has become more subdued. Specifically, access to capital markets has become more readily available to private firms in recent decades. The findings of the current study support the possibility that in addition to better access to capital markets by private firms, the inefficiency of public firms continues in industries with severe agency conflicts. An important limitation of the current study is that the investigation is restricted to projects in the movie industry. Whether or not these insights can be extended to other industries with severe agency conflicts exist, is an area ripe for future research.

Acknowledgements

I am grateful to Wayne McMullen, seminar participants at the University of Delaware, and an anonymous referee for helpful comments. Also, I am grateful to Greg Darone for excellent research assistance and to Ashita Gehlot, Bill Jones, Steve Kingsley and the staff at the Library of Congress for assistance with data collection.

References

- Asker, J, Farre-Mensa, J & Ljungqvist, A 2015, 'Corporate investment and stock market listing: A puzzle?', *Review of Financial Studies*, Vol.28, Pp. 342-390.
- Berle, A, & Means, G 1932, *The modern corporation and private property*, The Macmillan Company, NewYork.
- Bernstein, S 2015, 'Does going public affect innovation?', *Journal of Finance*, Vol. 70, No. 4, Pp.1365-1403.
- Brav, O 2009, 'Access to capital, capital structure and the funding of the firm', *Journal of Finance*, Vol. 64, No. 1, Pp. 263–308.
- De Vany, AS & Walls, WD 2002, 'Does Hollywood make too many R-rated movies? Risk, stochastic dominance, and the illusion of expectation', *Journal of Business*, Vol. 75, No. 3, Pp. 425–451.
- De Vany, AS & Walls, WD 2004, 'Big budgets, movie stars and wide releases: Analysis of the blockbuster strategy', *Hollywood Economics: How Extreme Uncertainty Shapes the Film Industry*, London: Routledge.
- Doidge, C, Kahle KM, Karolyi GA & Stulz, RM 2018, 'Eclipse of the public corporation or eclipse of the public markets?', *Journal of Applied Corporate Finance*, Vol. 30, No.1, Pp. 8-16.
- Drobtz, W, Janzen, M & Meier, I, 2018, 'Investment and financing decisions of private and public firms', *Working Paper*.
- Fee, C 2002, 'The costs of outside equity control: Evidence from motion picture financing decisions', *Journal of Business*, Vol. 75, No. 4, Pp. 681-711.
- Ferrari, M & Rudd, A 2008, 'Investing in movies', *Journal of Asset Management*, Vol. 9, No. 1, Pp. 22-40.
- Gao, H, Harford, J & Li, K 2013, 'Determinants of corporate cash policy. Insights from private firms', *Journal of Financial Economics*, Vol.109, No. 3, Pp. 623–639.

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- Gao, H & Li, K 2015, 'Large shareholders and CEO performance-based pay: New evidence from privately-held firms', *Journal of Corporate Finance*, Vol. 35, Pp. 370–639.
- Gemser, G, Leenders, M & Wijnberg, N 2008, 'Why some awards are more effective signals of quality than others: A study of movie awards', *Journal of Management*, Vol. 34, Pp. 25-54.
- Gilje, EP & Taillard, JP 2016, 'Do private firms invest differently than public firms? Taking cues from the natural gas industry', *Journal of Finance*, Vol. 71, No. 4, Pp. 1733–1778.
- Hadida, A 2009, 'Motion Picture Performance: A review and research agenda', *International Journal of Management*, Vol. 11, No. 3, Pp. 297-335.
- Hume, D 1998, *Of the Standard of Taste, Selected Essays*, Oxford Paperback Classics, London.
- Jensen, MC 1986, 'Agency costs of free cash flow, corporate finance, and takeovers', *American Economic Review*, vol.76, No. 2, Pp. 323–329.
- Jensen, MC 1989, 'Eclipse of the public corporation', *Harvard Business Review*, Pp. 61–75.
- Michaely, R & Roberts, MR 2012, 'Corporate dividend policies. Lessons from private firms', *Review of Financial Studies*, Vol. 25, Pp.711–746.
- Mortal, S & Reisel, N 2013, 'Capital allocation by public and private firms', *Journal of Financial and Quantitative Analysis*, Vol. 48, No. 1, Pp. 77–103.
- Pagano, M, Panetta, F & Zingales, L 1998, 'Why do companies go public? An empirical analysis', *Journal of Finance*, Vol.53, No. 1, Pp. 27–64.
- Palia, D, Ravid, SA & Reisel, N 2008, 'Choosing to co-finance: Analysis of project-specific alliances in the movie industry', *Review of Financial Studies*, vol. 21, no. 2, Pp. 483-511.
- Phillips, GM & Sertsios, S 2017, 'Financing new product decisions of private and publicly traded firms', *Review of Financial Studies*, Vol. 30, No. 5, Pp. 1744–1789.
- Ravid, SA & Basuroy, S 2004, 'Managerial objectives, the R-rating puzzle, and the Production of Violent Films', *Journal of Business*, Vol. 77, No. 2, Pp. 155-192.
- Saunders, A & Steffen, S2011, 'The Costs of being private: Evidence from the loan market', *Review of Financial Studies*, Vol. 24, Pp. 4091-4122.
- Sheen, A 2009, 'Do public and private firms behave differently? An examination of investment in the chemical industry', *Harvard Business School Working Paper*.
- Weinstein, M 1998, 'Profit sharing contracts in Hollywood: Evolution and analysis', *Journal Of Legal Studies*, Vol. 27, Pp. 67-112.