



TU-E1090 Research Assignment in Strategy and Venturing (5 cr)

The Effect of Dedicated Institutional Shareholders on Acquisition Likelihood

Research report

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Abstract

This paper presents a longitudinal study of large U.S. public firms to investigate the relationship between dedicated institutional shareholders and acquisition likelihood. Institutional shareholder classifications are used to distinguish dedicated from non-dedicated shareholders and evaluate the impact of dedicated shareholders specifically. An inverse relationship is discovered between dedicated institutional shareholder ownership and acquisition likelihood among the firms in the sample. The results are inline with the literature on M&A and dedicated institutional investors in that dedicated institutional investors aim to maximize the long-term financial performance of their firms and M&A have been found to erode firm value on average. This empirical work, while limited, contributes to the body of research and provides several avenues for future research.

Introduction

For the past few decades mergers and acquisitions (M&A) has aroused interest among researchers in the strategic management field. The year 2015 set a new record for the estimated total value of M&A deals globally, roughly 5 871 billion U.S. dollars (Martin, 2016). Research around the topic has progressed a great deal over the years: firstly, focused on the relationship between M&A activity and firm performance; secondly, concentrated on the factors which lead M&As to failure or success; finally, research has examined the antecedents of M&A activity (Haleblian et al., 2009). According to Haleblian et al., a large amount of antecedents proposed by researchers, can primarily be combined into four categories: value creation, managerial self-interest, environmental factors and firm characteristics. Even though the previous literature has improved our understanding of the drivers of M&A, the linkage between corporate governance and M&A is not yet examined.

This report aims to identify the linkage between corporate governance, in particular, dedicated institutional shareholders and M&A. Institutional shareholders can be represented as pension funds, mutual funds and various financial managers (Porter, 1992). Furthermore, dedicated institutional shareholders can be defined by vast average investments and exceptionally low turnover (Bushee 2001). Institutional shareholders are able to interact directly with the decision makers of a firm to influence strategic decisions to the specific ends (Connelly et. al., 2010). Dedicated institutional ownership typically leads managers to pursue towards long-term benefits for the company. The influence of institutional ownership towards strategic decisions is made through various types of interactions (Bushee, 1998). Still, majority of shareholders do not actively engage in corporate governance and are mostly focused on short-term

goals. There are several reasons for shareholders to avoid involvement in corporate governance including cost of engagement, uncertainty of the engagement outcome, conflict of interest and uncertainty on the return value of engagement (EU Green Paper, 2011).

Motivated by the significance of institutional ownership (see Porter, 1992), the previously identified influences of institutional ownership (see f. ex. Connelly et al., 2010; Bushee, 1998), and the clear lack in the literature with respect to the influence of institutional shareholders on M&A activity (see f. ex. Halebian et al., 2009), we formulate the following research question to address the research gap: How do dedicated institutional shareholders affect acquisition likelihood? The theory section will describe the relevant literature on the topic in more detail and provides our hypothesis.

Theory and hypothesis development

The literature review below first examines the power of long-term institutional ownership on corporate decision in general and then focuses on the literature related to the hypothesis, the effect on acquisition likelihood. Our definition for the term institutional shareholder is the one used by Porter (1992) and mentioned in the previous section.

Extant literature suggests that the most important activity for institutional investors is monitoring management (Shleifer & Vishny, 1986). Through equity ownership, “institutional investors can effectively acquire information, perform monitoring functions, and thereby improve corporate investment policies” (Fung & Tsai, 2012). This activity of institutional investors is different and has different outcomes relative to the activities of other types of shareholders: Connelly et al. (2010) highlight the

difference between dedicated institutional shareholders and transient owners. They claim that transient owners are more likely to pressure decision makers of a firm to support actions leading to short-term earnings while dedicated institutional shareholders will support major decisions which are more long-term oriented, such as M&A. Zhang and Gimeno (2016) also emphasise the performance focus horizon as the main difference between the two categories of institutional investors.

Furthermore, especially dedicated institutional investors are keenly involved with corporate governance and monitoring management activities (Koh, 2007). Controlling is often related to discrepancies which arise from conflicts of interest i.e. agency problem. When corporate decisions involve several parties (many stakeholders), with different goals and preferences, often people set their own preferences before others (Gillain & Starks 2003). These conflicts can also be observed in cases of M&A, where executives make harmful decisions and act in their own self-interest rather than in the interest of shareholders.

Institutional shareholders, with large shares ownership, are an increasingly important external control mechanism to affect management decision such as investing in a particular company (Gillain & Stark 2003). For example, lending institutions have better inside information for monitoring and controlling companies' financing decisions and thus, reducing potential agency cost of debt financing (Fama 1985). G. Erenburg et al. (2016) classify monitoring and corporate control mechanisms in two types of activities: influence and non-influence based actions. As direct influence, writers mention activism such as institutional campaigns which can bring changes in targeted firms' governance. Moreover, passively managed mutual funds which hold large ownership of firms shares, can exercise influence by voting alongside the activists (Appel et al. 2016). As second channel for influence, Erenburg et al. (2016) suggest

“voting with their feet” i.e. institutional selling, which could affect board decision if the concerned shareholders are important for the directors. By non-influence based actions, writers refer to changes in ownership such as institutional practise of selling underperforming firms.

Considering the preferences of institutional investors, especially long-term institutional investors can mitigate aggressive earnings management among companies (Koh, 2007). For example, Bushee (1998) points out that in the absence of long-term oriented investors, investments in R&D were much more likely to be cut to maintain earnings growth than when a significant portion of the shares was owned by dedicated institutional investors. With this in mind, Haleblan et al. (2009, p. 470) note that strong evidence indicates that acquisitions on average do not produce positive returns for the shareholders of the acquiring company in the short- or long-term. All things considered, this would indicate that dedicated institutional shareholders would not most likely be willing to support companies’ uncertain acquisition decisions.

Summarizing briefly our findings, the research on institutional ownership (Lang & McNichols, 1997; Connelly et al., 2010; Zhang & Gimeno, 2016) shows that there are two types of institutional investors both of which are dedicated and have a long-term investment horizon. Dedicated institutional investors are active shareholders that positively affect corporate governance practices (Shleifer & Vishny, 1986; Fung & Tsai, 2012; Koh, 2007; Gillan & Starks, 1998). Large dedicated investors and good corporate governance practices are important in that they serve as a control mechanism in protecting shareholders’ interests in strategic decision-making for example in M&As which may sometimes be executed against the interest of some stakeholder groups (Gillain & Starks, 2003; Derrien et al., 2013). Furthermore, dedicated institutional investors’ preferences alleviate the negative effects of short-term earnings pressures

and, moreover, encourage the kind of strategic decision-making that maximizes long-term competitiveness. This was highlighted by the finding of Bushee (1998) that demonstrated how dedicated institutional ownership was found to reduce myopic behavior in management. Finally, a large body of literature on M&A indicates that on average M&As decreases rather than increases the overall financial performance of the acquiring firm on the long-term (Haleblian et al., 2009, p. 470).

Thus based on this review of current research we formulate the following hypothesis on the link between institutional investors and acquisition likelihood:

H1: *Ceteris paribus*, if a firm's proportion of dedicated institutional shareholders increases, then its M&A activity decreases.

Methods

To evaluate a potential relationship between dedicated institutional shareholders and acquisition likelihood, we decided to undertake a longitudinal study of large US firms for which data in the often tricky areas of M&A deals and ownership would be most easily accessible. The time frame selected was a ten year period from 2005 to 2015, allowing the use of information which is consistent and long-term but fairly recent and applicable to the modern large-cap US market.

Sample selection

In this study, samples were derived from existing data sets that originated with three different sources - Compustat's Capital IQ data for North America including Index Constituents and Quarterly Fundamentals, Thomson Reuters' M&A and 13F institutional shareholder data, and Professor Brian Bushee's Institutional Investor Classification data. The data from these disparate sets were merged and aggregated into

a single table containing quarterly measurements of all variables for each of the selected firms.

The decision to use quarterly rather than annual data was based on several factors. First and foremost, we have theorized that dedicated institutional shareholders exert influence over managers on a continuous basis that is not limited to annual shareholder meetings and is likely to happen considerably faster on average than one year. Furthermore, quarterly data has nearly equivalent availability to annual data for the variables under study so there is little downside to starting with the most granular observations available.

One of the challenges in sample selection is that subject firms must be chosen which have both M&A data available, sufficient M&A activity in the target period, and a high enough portion of classifiable institutional shareholders. The solution chosen in this study was to select from an especially well established and discussed subset of public US firms, the S&P100 index. While the S&P100 is relatively stable, it is a dynamic index which can add or remove constituents at any time. To deal with the changes in the index over the target time range, we elected to include only firms which were part of the index throughout the entire period (2005-2015), leaving us with a total of 49 firms to analyze. Finally, we ignored all observations with missing data for any of the variables (see below) which led to losing 12 more firms and thus leaving us with a total of 37 firms and 1502 firm quarters. Otherwise no data points (incl. outliers) were removed.

Variables

Independent Variable

In pursuit of the goal of identifying any relationship between long-term institutional shareholders and acquisition likelihood, the independent variable was selected as the percentage of dedicated institutional holdings in the firm (PIH). Specifically, we define PIH as the total number of shares reported on 13F statements as owned by dedicated institutional shareholders divided by the number of shares outstanding at the end of the given quarter as listed on the 13F.

Dedicated institutional shareholders were identified using Bushee's classification data, and while the PIH was calculated quarterly on the basis of 13F statements it was decided to lag the value as well as the controls by one period (quarter) to both assist in establishing direction of effect and to account for the theoretical expectation that it takes time for a shift in ownership to both influence management and then for that change in influence to translate into an observable change in acquisition behavior. A lag of two periods was calculated as an additional robustness check.

Dependent Variable

The dependent variable was selected as the number of acquisitions announced by each of the target firms quarterly over the selected time period. While simplistic, we believe that the influence of long-term shareholders on management behavior regarding M&A activity must be represented in the acquisition count and that this measurement is sufficient for establishing an initial correlation.

Control Variables

With our control variables, we sought to rule out several foreseeable alternative explanations for differences in acquisition behavior. First, each firm's size was controlled for in the form of its total market value at the end of each quarter under study, using the previously mentioned fundamentals data from Compustat. This control

variable is essential because larger firms tend to engage in several activities in larger scale and/or higher frequency relative to smaller firms, and this tendency has been shown to impact also M&A. Management structures and decision making processes are also often affected by firm size which is why it is logical to suppose that size may have an effect on acquisition behavior.

Similarly, to account for the effects of the evolution of management practices, corporate culture and interfirm networks that may develop over time, firm age was included as a control variable as well. Since the dataset extends over a period of 10 years longitudinally, age was calculated relative to each quarterly observation: year of the quarter of each observation minus the founding year of each subject firm.

Next, we included a measure of each firm's relative performance in the form of its ROA relative to its industry group. Specifically, this was calculated by dividing net income by total assets based on Compustat data and then dividing that value by the average for the firm's entire industry group (3 digit SIC) within the sample data set. Relative performance has plausible impacts on acquisition behavior through driving managers towards problemistic search activities in times of poor performance relative to peers. One obvious way for managers to "do something" in a performance slump is to explore acquisition opportunities that might improve the company's competitive standing.

Additionally, available resources were modeled using unabsorbed slack - quarterly current assets divided by quarterly current liabilities (Iyer & Miller, 2008). While it was previously mentioned that problemistic search is one plausible driver of acquisitions, a surplus of resources could also reasonably affect acquisition behavior. Managers of firms with high slack are theorized to engage in slack search behavior, seeking out investment opportunities, including acquisitions, for their excess resources. This

variable was also made relative across each industry group. This is important because industries are very different in their capital and risk structures, and thus similar absolute slack ratios may not affect M&A behaviour similarly across industries but firms with similar slack relative to their industry peers should be more likely to behave similarly in terms of M&A, irrespective of industry.

Finally, fixed effect dummy variables were introduced to control for the year and each firm's industry group. The goal of these two dummies was to model and account for effects from the overall macroeconomic environment and industry level trends and characteristics, respectively. As in the relative ROA and slack calculation, industry group was defined as the first 3 digits of the SIC.

Models and regression methodology

Basic descriptive statistics, a Pearson correlation coefficient matrix with statistical significances of each bivariate correlation and a set of scatter and barplots and histograms were generated for all variables as part of initial data analysis.

Then, from the proposed variables, three models were created. Model 1 contains only the control variables and the dependent variable, while Model 2 contains our suggested independent variable (PIH) as well. In both of these models the control and independent variable are lagged with one period. The third model was created to examine the robustness of the model relative to the chosen lag and thus is like the second model but with a two period lag. With each of these models, a negative binomial regression was conducted to test the proposed hypothesis. Negative binomial was chosen because the dependent variable acquisition count is a count variable, its

variance is significantly greater than its mean, and it has a significantly long tail to the right.

ANOVA tests were performed to check whether Models 2 and 3 statistically significantly improve upon Model 1. Variance inflation factors (VIFs) were also computed for each of the three models to detect issues with multicollinearity (this was done using the vif function of the car package in R).

Results

Table 1 contains the descriptive statistics and bivariate correlations between the numeric variables used in the analysis. Table 2 summarizes the results of the OLS regression for both models.

Table 1: The descriptive statistics and bivariate correlations between the numeric variables used in the analysis.

	Variable	Min	Max	Mean	S. D.	1	2	3	4	5	6
1	Firm age	5	213	78.26	51.62	1.00	0.07 **	0.01	-0.23 ***	0.01	-0.07 *
2	Market value, \$B	7805	439679	90481	65131	0.07 **	1.00	0.00	-0.09 ***	-0.03	0.25 ***
3	Return on assets, relative	-7.32	8.12	1.00	0.66	0.01	0.00	1.00	0.10 ***	0.05 .	0.00
4	Slack, relative	0.35	2.18	1.00	0.24	-0.23 ***	-0.09 ***	0.10 ***	1.00	-0.05 *	-0.07 **
5	Percentage of institutional shareholders	0	46	4.73	4.84	0.01	-0.03	0.05 .	-0.05 *	1.00	0.08 **
6	Acquisition count	0	26	1.21	1.73	-0.07 *	0.25 ***	0.00	-0.07 **	0.08 **	1.00

N = 1502; *** p<0.001; ** p<0.01; * p<0.05; . p<0.1.

As can be noted from the descriptive statistics (table 1) on average the firms in the sample were old (around 80 years on average) and large (the smallest had a market value of around 8 billion dollars) and they announced an average of 1.21 acquisitions

per quarter. However, the standard deviation is larger than the mean indicating a lot of variance across firms. The relative ROA and slack varied quite significantly across firm-quarters in the sample. The percentage of dedicated institutional holdings was at most around 46% while on average it was around 5%. The standard deviation was roughly 4.84 thus also indicating a lot of variance across firms.

From the bivariate correlation coefficients (table 1) it must be noted that acquisition count seems to correlate most clearly and positively with the market value of the acquirer (0.25 with p-value less than 0.001). However, the correlation with PIH is positive and very low. While the positive correlation with market value was expected but the slightly negative correlation with slack is unexpected.

Table 2: The results of the negative binomial regression for models 1 and 2. The third model with two period lag used for robustness checking is also shown for comparison.

Variable	Model 1	Model 2	Model 3
(Intercept)	0.25	0.38	0.42
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm age	0.00	0.00	0.00
Market value	0.00 ***	0.00 ***	0.00 ***
Return on assets, relative	-0.05	-0.04	-0.15 **
Slack, relative	-0.37 **	-0.40 **	-0.35 *
Percentage of institutional shareholders		-0.01 .	-0.01 .
Observations	1502	1502	1502
Firms	37	37	37
Log-likelihood	-3960	-3957	-3951
Log-likelihood ratio		3.26 .	5.58 ***

*** p<0.001; ** p<0.01; * p<0.05; . p<0.1.

The results of the regression reported in table 2 show that, in the second model in which the independent PIH variable is present, the beta-coefficient for it is -0.01 but it is only almost significant as the p-value is approximately 0.079 > 0.05.

The generalized variance inflation factors for all variables of the three models are significantly less than 10 except those for industry (SIC3) and firm age. The one for industry is around 10 in each model and the one for age is roughly 4. The one for PIH is approximately 1.6 for model 2 and 1.3 for model 3, which indicates that there are no significant issues with multicollinearity.

Model 3 was added as a robustness check. It resulted in a slightly more statistically significant coefficient for PIH (its p-value is approx. 0.050). Also, the relative returns on assets showed a stronger and statistically significant effect with this longer lag. However, otherwise the model does not seem to be very sensitive to the choice of lag.

Discussion

This quantitative study contributes to the body of M&A research that aims to understand the antecedents of M&A activity as well as to the research on the effects of dedicated institutional investors. Prior to this work the relationship between the proportion of dedicated institutional ownership in firms and their respective acquisition likelihood has been unclear. However, this work marks the start of examining this relationship further. Because the results are statistically insignificant our hypothesis that increased dedicated institutional ownership decreases M&A activity is yet to be confirmed.

Extending the time range of the dataset and/or firm count might allow for more statistically significant proof of the relationship. If found to exist, it would be inline with earlier research on M&A and institutional investors. As noted in the theory section, evidence from earlier studies on the effects of M&A activity on the financial performance of firms has concluded that on average M&As tend to erode firm value

more often than improve it (Haleblian et al., 2009). The research on institutional investors has highlighted the positive effects of institutional investors on corporate governance and the long-term performance of firms. (Shleifer & Vishny, 1986; Fung & Tsai, 2012; Koh, 2007; Gillan & Starks, 1998). Dedicated investors tend to reduce myopia and protect shareholders' interests in strategic decision-making (Gillain & Starks, 2003; Derrien et al., 2013; Bushee, 1998). Dedicated investors tend to have a long investment horizon according to which they seek to maximize the long-term competitiveness of the firms they invest in (Lang & McNichols, 1997; Connelly et al., 2010; Zhang & Gimeno, 2016). Thus our hypothesis indeed concurs with earlier research.

Limitations

Limitations in this study come mostly from the challenges of finding complete data on all of the information needed to establish both institutional holdings and M&A activities. One limitation derived directly from this challenge is that we only addressed the behavior of the largest public US firms over the time range, and it is entirely possible that the results are not applicable to non-US firms, smaller firms, or privately held firms. Further, we found that despite using the most comprehensive M&A data set available, many deals do not include basic information such as the transaction amount because this information was never disclosed publicly.

Additionally, the use of institutional investor classifications leads to potential limitations in the broad applicability of the results. While Brian Bushee's classification data is excellent, it cannot possibly classify every investor. In cases where no classification was available, we ignored the investor's ownership. Institutional investors who are not required to file 13F documents are also naturally absent from our analysis.

Data was not available for computing all the variables for all of the firms which resulted in a significant loss of data. Especially the addition of the slack variable resulted in a 23% reduction in sample size. Other control variables could have been added to account for alternative explanations more effectively. For example employee count could have been used to complement market cap as an other type of proxy for firm size. R&D intensity might have been used to capture differences between firms's strategy of internal vs external R&D (through M&A). Likewise, acquisition deal size could have been added to complement the dependent variable to provide more depth to the models. However, these additions would have made the models more complex while reducing the sample size due to differences in reporting and limitations in data accessibility.

Future research

Opportunities abound for future research expanding upon these results. The obvious already mentioned avenue is to attempt to collect a larger dataset to establish a clear answer to whether the relationship exists and what is its magnitude and direction. The addition of already mentioned acquisition value and additional control variables would permit deeper understanding of the relationships and stronger elimination of alternative explanations.

Another avenue for future research could be to investigate whether the impact of institutional shareholders varies significantly across industries. We did use simplified industry values but only as dummy variables and did not investigate any effect magnitudes in detail. These details could help to build upon the theory of how shareholders influence management decisions.

Furthermore, a more detailed look could be taken at the specific types of dedicated institutional shareholders and whether different types of institutions influence managers differently. For example, traditional banks, asset management firms, and pension funds might all be categorized as dedicated shareholders but probably have some differences in how they exert influence. Some dedicated shareholders may well be much more active in enforcing improvements in corporate governance and a lot more demanding when it comes to M&A related decision-making.

Finally, there is a large opportunity to study these types of effects in markets outside of the US. It has been suggested in past literature that institutional investors in other countries such as Germany and Japan have a significantly greater long-term orientation than their US counterparts (Porter, 1992). It is thus an open question whether these differences would be visible in an analysis of acquisition likelihood and, if so, whether the differences are attributable to managerial culture, regulatory environment, or other factors.

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Appendices

Additional tables and figures

The results of an otherwise identical negative binomial regression but without the Slack variable is presented in table A1. The p-value of the PIH coefficient for model 3 is approximately 0.0016.

Table A1: Results of negative binomial regression without the Slack variable.

Variable	Model 1	Model 2	Model 3
(Intercept)	-0.47 **	-0.35 .	-0.32 .
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm age	0.00 ***	0.00 ***	0.00 ***
Market value	0.00 ***	0.00 ***	0.00 ***
Return on assets, relative	0.00	0.01	-0.01
Percentage of institutional shareholders		-0.02 **	-0.02 **
Observations	1939	1939	1939
Firms	48	48	48
Log-likelihood	-5628	-5620	-5625
Log-likelihood ratio		8.40 **	-5.10