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Corporate Headquarters Relocations Announcements: Their Incidence Ratios, Industry Distribution, and Shareholder Wealth Effects

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"Earlier this year, the Hertz Corporation—a Fortune 300 company and the world's largest airport rental car business—announced that it would move its corporate headquarters from its 25-year home in Bergen County, New Jersey to the Southwest Florida city of Estero. On the Tuesday before Thanksgiving, Florida Governor Rick Scott, Hertz CEO Mark Frissora, and other government officials officially broke ground at the site; providing residents of Lee and Collier counties with even more reasons to be thankful given the projected economic impact of this important occasion. While critics will say this is just another run of the mill business migration, it actually holds greater significance than reported."[2]

Key words: corporate headquarters relocation, relocation announcements, event study, shareholder wealth effects

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[2] Brown, Travis H. (2013, December 5). Will More Corporations Follow Hertz To Florida's Low Taxes And Sunshine? *Forbes.com*. Retrieved from: http://www.forbes.com/sites/travisbrown/2013/12/05/will-more-corporations-follow-hertz-to-floridas-low-taxes-and-sunshine/

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I. Introduction

Many different factors go into an investor's perception of a company's stock worth and the price they are willing to pay for it. Such factors include the company's current performance, as well as the perceived outlook of the company. Going more in depth, the outlook can be affected by many different variables. From the amount of employees added or laid off within a year, the changing of top-level management, the expenses on expanding business activities and the philanthropic efforts of the company, just to name a few. With all of these, one would expect trends to emerge across a wide range of businesses that show how the market responds to each of these activities.

I have recently learned about event studies through a course on investments. Jones "Investments: Analysis and Management" (12th edition) states that an event study is an empirical analysis of stock price behavior surrounding a particular event, and such studies allow me to control aggregate market returns while firm unique events are examined. Examples that I studied included how earning announcements affected stock prices and how dividend announcements affected a company's stock prices. I have taken interest into discovering if certain trends actually do exist for specific decisions that multiple businesses can make over a stretch of time, from a less obvious choice. I wanted to see if certain company decisions related to business activity.

I am originally from the greater Nashville area, and prior to college I noticed a significant increase in corporations relocating to the area. Because of this phenomena, the metric I have decided to test on is *Corporate Headquarters Relocations*. I want to examine if a company relocating its corporate headquarters to a different city has a statistically significant effect on that company's stock price, and if so, what time window that effect falls into. This event study takes a random sample of publically traded businesses that have relocated their corporate headquarters and looks at the effect on the company's stock price

from such a move. My prediction is that the announcement of a major headquarter relocation of a company has an effect on the stock price of that company in a window following the announcement. This effect is positive when the company has new corporate level management or is expanding. This effect is negative if the company is downsizing. My alternative hypothesis is that the announcement of a major headquarter relocation of a company does not have an effect on the stock price of that company in the period following the announcement. This lack of effect is because the announcement of a headquarter relocation is not directly tied to the overall stock price or valuation of the company, and is rather viewed as a convenience decision.

While the topic of corporate headquarter relocations has been studied in the finance, management, and economics literature, my thesis will update prior studies and see if the conclusions reached in prior literature still hold for firms that relocated after 2000. Previous literature coverage ended, in general, in the early 1990s.

The rest of this thesis is laid out as follows; Section II reviews the current literature on the subject and the previous findings, Section III describes the sample construction and data collection methodology, Section IV details descriptive statistics, Section V presents event studies and empirical results, and Section VI concludes the paper and presents ideas for future research.

II. Literature Review

Multiple articles have tested on this subject through the years. Of the articles I reviewed most tested on various time periods ranging from the 1960s to the early 2000s. My study will essentially be a condensed continuation of these prior studies, testing an updated time period, such that I will be able to compare results and see if they still hold true for more recent economies.

The first paper I read on the subject was "Corporate Headquarters Relocation: Evidence from Capital Markets" by Alli, Ramirez and Yung (1991). They tested on a random sample of companies that relocated from 1980 to 1988 and found that the stock price for a company was positively affected through increases when the announcement for a corporate headquarter relocation was made. These positive returns were found to be most significant when the company was relocating to cities with a large amount of available labor, relocating to a city with a lower cost of living or that the company was reducing employment in connection with the move. Additionally, they found that firms that relocated were usually larger than yet less profitable than other companies in the same industry that did not relocate. They also added that companies that relocated experienced greatly reduced taxes the following year and that with foresight by investors this could also lead to a positive return. From their conclusions there is evidence that a correlation between the relocation and the stock price exists, and in this case was mainly positive.

One thing to take from Alli et al.'s (1991) study and incorporate into this thesis is the categorization of companies into the different industry types. They grouped theirs based on a very specific set due to their sample only being for certain types of companies. This study will expand to the standard categorization groups by Kenneth French, due that this sample covers all companies relocating and not a subset of specific industries. Also, this study will categorize based on the type of relocation. These will be moves within-state or intrastate moves (domestically), between states, out-of-state, or interstate moves (domestically), and international moves. These will be discussed further in the data section below. Additionally, after finding their cumulative abnormal returns (CARs), Alli et al. (1991) tested multiple internal financial metrics to help with explaining these results. They also tested for regional variables such as labor and rent rates. From these they were able to draw conclusions as to why they saw the reactions that they did.

"Stock Market Reaction to Capital Investment Decisions: Evidence from Business Relocations" is a study done by Chan, Gao, and Wang (1995). This study looked at headquarters relocations from 1978 to 1990. In this paper they found that the stock market reacts positively for headquarters relocation announcements. They concluded that the market has this positive reaction due to business expansion and cost savings associated with the relocation announcement. Their results indicate that the reason for the relocation is more important for the stock market reaction then simply the announcement itself, citing that the market interprets moves as future prospects of the firm and reacts either positively or negatively depending on the information. When this decision is tied to expansion or increases in efficiency these reactions were positive. Their findings show that a correlation does exists and that it is positive and dependent on the information for the relocation.

Again, this study groups the relocations by industry. The categorization methods they use are much more similar to what I will be doing. Furthermore, they categorize all the relocations into stated reasons by the company. From there they test the CARs in a two-day window (0,+1) for each of these stated reason categories and look for the statistical significance. My thesis deviates from Chan et al.'s (1995) methodology by not testing by stated reason, but instead examines the sample as a whole first, and follows with geographic sub-samples. Additionally, I will be testing for multiple time period windows to get a more accurate understanding if the stock price reaction is truly focused around the announcement date versus a longer time period reaction, if the reaction does not ultimately change the long-term stock effect, and if certain trends exist. [Note: The Chan et al. (1995) paper included a much wider range of relocations than I plan to study; it had plant relocations, branch relocations and multiple office consolidation factored into its results along with the headquarters.]

Next, I examined "Gains from Corporate Headquarters Relocations: Evidence from the Stock Market" by Ghosh, Rodriguez and Sirmans (1995). They conducted their study on corporate headquarters relocations that happened from 1966 to 1992. Ghosh et al. (1995) found evidence that the stock price reaction to a headquarters relocation announcement was significantly positive, due to cost savings. Their study sample covered a very large window. They attribute the bulk of their results upon the conclusion that technological advances have created advantages of agglomeration economies to companies located at less centralized locations. Since the benefit of having a headquarters can be possible when no longer in a large city, to an extent, they see more companies moving out of cities with their relocations. They add that company relocations that are due to top managers self-interests are received with a negative stock price reaction. Again, for this thesis I will look to their conclusions that a stock price correlation with a corporate headquarters relocation announcement is present.

To find their conclusions they took their large sample of firms and tested on various time windows around the announcement date. They tested for the cumulative abnormal returns (CARs), the average daily abnormal returns, the associated z-statistics, and the number of companies with negative and positive abnormal returns. From here they compared their results with the stated reasons from the company for the relocation of the headquarters. They then tested each group of stated reasons to the market to find the abnormal returns based on stated reasons. This led them to their conclusions. For this thesis, I will likewise take the CARs of various time windows to find the abnormal returns. To explain this study's results, I will be testing various metrics (discussed following), not simply the stated reasons by the company. This is due to some of the stated reasons being misleading, some companies not stating a motive and that a better explanation of the seen

results coming from the firm and corporate governance metrics with regards to investors' perceptions.

Finally, I read "Does Corporate Headquarters Location Matter for Stock Returns" by Pirinsky and Wang (2006). This paper looked at the stock returns for companies located in the same region, so not quite the same material I will be working with. However, they had statistics with companies whose headquarters had relocated in the time period they were studying. They found that companies who had headquarters relocation had a positive co-movement in stock price for where they moved to and a negative co-movement in stock price for where they had moved from. This supports that previous information gathered that states that headquarters relocations are positive due to positive future outlooks. The stock price co-movements are for the actual relocations though, not the announcements of the relocations and therefore the exact stock price reaction upon the announcement of the relocation is not able to be drawn from this paper.

Additionally, they tested co-movements based on various economic, firm and region specifics and looked for trends. These included size of the company, dividend yield, ROA, number of shareholders and advertising to name a few for the firm variables and the number of firms, personal income and investment income for the regional variables. From there they did a regression analysis that tested for a cross-sectional variation in stock price returns based on these variables. Examining these variables within Pirinsky and Wang's (2006) study helped to categorize the stock price movement that was seen as either positive or negative. These led Pirinsky and Wang (2006) to the above mentioned conclusions.

This information is important for this paper because I want to likewise be able to explain why the stock movement in either direction, or lack thereof, exists.

III. Data and Summary Statistics

III.A. Sample construction

I had two objectives in selecting my sample for this thesis. First, I want to identify firms who moved corporate headquarters after the year 2000. Second, I want to classify these relocations by geographical scenario: intrastate, interstate, or international moves.

To collect my data I had to set some basic parameters that will define what I was hoping to study. First I had to define relocation specifically. For the purpose of this thesis, I tested on relocations where the headquarters changed to either a different city, a different state, or even a different country. Companies that had relocation announcements within the same city were not included in this sampling process.

Next I had to state what relocations I was going to study. Largely incorporated companies tend to have branches, offices, and depending on the type of business plants in multiple locations. For the purpose of this thesis I only wanted to study the relocation of a company's Corporate Headquarters. Any announcement made for a plant or branch relocation or a consolidation of offices was not considered for this study. However, an announcement of branch consolidation to form the new location of a corporate headquarters was included. This is defined as a company having offices in multiple cities, one of which may or may not be the current headquarters, and that these branches are coming together in a third or different city and becoming the headquarters.

To go along with my first parameter of the relocation having to be to a different city, I did not put a minimum distance on the relocation as vastly different cities within the same state vary in distance. For example, a movement amongst major cities in a state such as Tennessee would be a much greater distance than a movement between cities in a state such as California has the potential to be. I feel that the stock price reaction would be present when the announcement is made to relocate to a new city, no matter the distance,

because the move is being made for underlying reasons that the new city has to offer which will correlate back to abnormal returns better. Additionally, cities extremely close but between states will be considered as investors will be more likely to react to the relocation to a "new" city, even if it is essentially a new city.

Following the distance thought, this thesis will also not be limited to a maximum distance. This means that moves out of the country will be included within this study. With that, if a company both incorporates and relocates abroad, either to the United States, to a different country, or to a different city within their current country, they will also be included in this study. The main parameter that these companies will have to fall into is being traded on a United States exchange.

Another requirement adhered to in this thesis is that each company for this study must be publically traded. Any company announcement of a headquarters relocation that is a privately held company will not be included in my sample. I recognize that these announcements will have an overall effect on the industry sector and market as a whole and that very large private companies could create a significant abnormal return to these areas but I will not be studying them here.

In addition, the market that the company is traded is will play a significant role. Since a majority of stockholders who live in the United States do so on United States exchanges I will keep my sample to companies traded on these exchanges. As I move outside of the United States I run into new dimensions with regards to currency exchange rates that could mislead to the true stock price movement for a company since the data is taken from multiple different periods. Additionally, the differing cultural context and corporate governance standards of the international exchanges and investors would potentially arise in misleading, incorrect or false conclusions. Therefore the companies ultimately included in this thesis are traded on an exchange in the United States. As

mentioned above, if a company is headquartered abroad but traded on a U.S. exchange, they do qualify for this study.

Finally, I note that certain variables such as size of the company as defined by any metric (employees, reach, net income, EPS) will not be a factor for the sampling procedure. If was to omit certain companies based on this, either excluding large or small, I would expect to see just as wide a range of results. Therefore, for consistency, I will include all companies that fall within the other parameters for the study. These variables and metrics that could have underlying trends to explain why I see such a stock price reaction can be an area for future research.

To gather the companies in my sample, I used the Bloomberg database news search function. Conducting an advanced search I included the key words "HEADQUARTERS" and "RELOCATION." Since I wanted to conduct my study on the most recent data I separated searches by year starting with 2012 and working backwards with complete years until I had a large enough sample of around 50 positive results. These initial searches led to many financial statements such as 8-K reports that I felt were not reflective of the research that an average investor would conduct. Therefore I utilized a search function on the database that narrowed down the results to the keywords being included in the headlines of news articles. This would include all press conferences as well as press releases. If the relocation was large enough to affect the company, it would be the main topic, even if amongst others, in these news releases and would be mentioned in the headlines. Thus, I had to go back to the year 2000 to get a large enough sample that fell within all of my parameters. These parameters described above led me to excluding multiple announcements for companies that had a headquarter relocation that were privately held or that were moving to a new office within the same city, many times on the same street. When I came across a company who had a relocation announcement in a

previous year, was a publically traded company at the time, and has since either privatized or been acquired by a company that was or has become private, I did initially include it in this sample. Upon stock data collection, the next step in the data gathering, if I was unable to find the publically traded stock price data from the time of the relocation announcement for these companies then I would exclude this data point at that time. From this sample collection method I was able to gain a large sample and continued to the stock price data collection for these companies.

Bloomberg News Database Search

As aforementioned, in order to collect a sample of corporate headquarter locations, I used the Bloomberg news database and searched on the keywords of "HEADQUARTERS" and "RELOCATION" for the years of 2000 through 2012.

I collected an initial sample of 50 corporate headquarter relocations spanning the years 2000 through 2012. Although this is arguably a small sample size (percent not magnitude) relative to the number of United States publicly listed firms as a whole, similar incidence ratios to those used in the fraud literature. For example, Agrawal, Jaffe, and Karpoff (1999) identify 103 fraud firms between 1978 and 1992. Furthermore, within the board composition governance literature there are studies which use comparably small sample sizes as well. For example Rosenstein and Wyatt (1997) examine 170 inside director announcements between 1981 and 1985.

The data was further classified into three geographic sub-samples: (1) **intrastate moves** where firms relocated within the same state, (2) **interstate moves** where firms relocated to other states, and (3) **international** relocations where firms moved outside of the United States.

The original sample consisted of 16 intrastate relocations (32%), 19 interstate relocations (38%), and 5 international relocations (10%). Of the international relocations, only two of the firms moved from the U.S. to other countries.[3]

III.B. Database collection

EVENTUS

To analyze the market reaction to the corporate headquarter relocations, I utilized the Eventus database via Wharton Research Data Services (WRDS) website. Eventus performs event studies using data read directly from the Center for Research in Security Prices (CRSP) stock databases. The Center for Research in Security Prices (**CRSP**) data contains the security price, return, and volume data for NYSE, AMEX, and NASDAQ listed firms. The Eventus system converts calendar dates from Excel to CRSP trading day numbers, converts CUSIP identifiers to CRSP permanent identification numbers (PERMNOs), and extracts event study cumulative and compounded abnormal returns for cross-sectional analysis. After collecting my sample, I utilized the company look-up tool in WRDS, finding the PERMNO identification variable for each firm in my sample. The PERMNO is a unique identifier for the CRSP database, which is the basis for analysis in the Eventus system.

Firm-level Industry Data Collection

To obtain the standard industrial classification (SIC) codes, I utilized S&P Capital IQ's **Compustat** North America, which is a database of U.S. and Canadian fundamental and market information on active and inactive publicly held companies. It provides more than 300 annual and 100 quarterly Income Statement, Balance Sheet, Statement of Cash Flows,

[3] In 2005 Golden Dragon Holding Inc. moved from Miami, FL, to Beijing, China, and in 2009 Foster Wheeler AG moved from NJ to Geneva.

and supplemental data items. The GVKEY is the unique identifier for the Compustat database. I obtained the GVKEY for each firm in my sample using the WRDS company look-up tool via the WRDS website.

The Compustat database contains firm-level industry identifiers (SIC codes) for my sample. Using SAS, I utilized PCSASConnect to download the SIC codes for the firms in my sample from WRDS via the Compustat databases, matching on the firms' GVKEY for the Compustat database.

IV. Corporate Headquarter Relocations by Industry and Year

Table 1 reports the total sample of corporate headquarter relocations by year, and then by the sub-samples intrastate, interstate, and international. The data ranges from 2000 to 2012 for a total of 63 firms. As seen in the table, corporate headquarters relocations are fairly evenly distributed amongst the years in the study with two exceptions being 2007 and 2012. In 2007 I see a very small sample of relocations of public traded companies and in 2012 I see a major increase in moves with over 20 percent of this sample coming from this year. One possible explanation to this jump could be how the Bloomberg database collects their data on relocations and how they may have adjusted this in between years and are pulling in more news stories due to this. The year 2012 had overall more positive search results than other years, including the private company relocations that were excluded in this study.

Additionally, when looking at the subsets of Table 1, one sees the same even distribution for the interstate moves with either one or three relocations in all the years listed with data. As expected, this subset is a smaller amount of companies, only 16, as most companies that will move a corporate headquarters will do so to somewhere with an advantage that is not currently being met and this may require a substantial distance

move. It is important to note here, that with the small number of moves, not every year had an intrastate relocation. This again shows that more moves will be a greater distance away. When I look at the other subset of data being the out-of-state (interstate) moves, I see that the majority of my sample falls into this category. Again, this has the same distribution pattern as the entire sample of data with some years being on the upper end, some on the lower end, and many in between. The smaller ends are 2002, 2007 and 2009 with only one out-of-state (interstate) move in each of those years. In 2003 and 2012 there were eight and ten moves respectively, on the higher end of the scale. The final subset of data being international moves is sparse by year. The number of international moves in total is five, the smallest of all the subsamples. This is to be expected, as the number of companies traded on a United States stock exchange expected to relocate their corporate headquarters out of this country or into this country would be very small. From Table 1 I see that no particular year really shows more favorability for relocations and that of the relocations that take place in each year, there is a heavier distribution of out-of-state (interstate) moves, but not a particular year that favors in-state (intrastate) or out-of-state (interstate) moves. Overall, the data shows that this sample has relocations every year and some of those are in-state and others out-of-state and that the reason for the moves at the times do not favor any individual year.

Table 2 reports the number of corporate headquarter relocation by industry by year, and then within the sub-samples intrastate, interstate, and international. The industry analysis was done utilizing the Fama and French (1997) 12-industry classification from Professor Kenneth French's website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

The distribution of firms across industries varies between all firms. The first thing that I see is that three of the twelve categories do not have any results from the sample.

These are consumer non-durables, utilities, and financials. This is not unusual based on what I am studying since all of these industries are fairly stable and not overall dependent on relocation to do business. For example, financial institutions can do business most places without a location advantage that would cause them to relocate, especially larger banks. Once established, the incentive to relocate must be great since the time and money investment would be vast and they are conducting business all over the country anyway. The opposite is true for utilities. Many of the utilities companies are located in a specific area and cater their services to that area. A headquarters relocation out of the area would be non-beneficial because they would be eliminating their services from the area they currently operate in. Both of these industries would not greatly benefit from a relocation of a corporate headquarters and so not seeing any from the sample is expected.

For the industries that are in this sample, I see a great majority fall into the three industries of manufacturing, retailing, and other which includes all the areas not specifically stated within the other categories. These make up 34 of the 49 companies that I was able to gain data from for this sample. This shows that the relocations are happening for the companies that either make goods to sell or are selling goods. This can be supported through the cycle of business. When companies tend to relocate is when they are either going through an expansion, downsizing or to make use of a cost benefit they cannot achieve in their current location. This would be most significant for companies and industries that work with tangible items. The nature of these industries makes where they conduct business very important compared to other industries where operations may not have to be area specific. Therefore, the moves for the sample being from tangible good industries is expected as the growth or decline of these companies has a much larger fixed costs component than the other industries.

The other categories that have low numbers are chemical and telecommunications with only one apiece. Again, these fall into a very similar explanation as the industries with no results. Telecommunications covers a very large area such as financial institutions and having a relocation would require major advantages that were not currently being met which for the industry does not really happen. Chemical companies as well tend to not relocate as the major reasons why corporations do move their headquarters do not have as large of an effect on them.

When I break down into the subsets, I see that the intrastate moves exclude additionally heath and telecommunications industries. From the data I see a pretty even distribution for the remaining categories with only 14 of the 49 results falling into the subset. For the out-of-state (interstate) moves I see that the majority here is in shops and manufacturing. The above explanations shed light as to why shops would relocate in the first place. To take that a step further, I would expect this industry to relocate to a different state falls largely into what the company is trying to do and what the specific state laws or norms have to offer. If a company is expanding and needs more space, labor or technology advances I see moves out-of-state because many times these cannot be achieved simply in a different city in the same state. The same is also true for companies that are getting smaller. If they need to cut costs of labor, taxes and other various metrics, they do so by relocating to states with different standards of living, taxes on different items and so forth. The advantages cannot be achieved by moving into a new city but under the same jurisdiction. Overall the data shows that the industries in the sample most effected by the relocations are manufacturing, shops and other with a majority of these being moves out of the current state.

V. Corporate Headquarter Relocations Event Study

V.A. Event study methodology and test statistics

Measuring the stock price reaction to the earliest announcement of a firm's decision to relocate will capture the market's ex-ante assessment of the net impact of the relocation. A standard event study using the announcement date as event date 0 is estimated using varying market model or market adjusted models with differing estimation windows prior to the announcement (i.e. relocation date).[4] Karpoff and Malatesta (1995) note that if all of the firms in the sample are small, an event study using the market model may produce biased estimates of the sample firms' abnormal returns. **Tables 3 through Tables 10** record the mean and median cumulative abnormal returns (CARs) over varying announcement periods, as well as the percentage of positive CARs.

Evidence in the finance literature suggests that stock returns in the announcement period are typically more volatile than those in the estimation period (Kothari and Warner 1997, Barber and Lyon 1997, and Lyon, Barber, and Tsai 1999). Brown and Warner (1985) have suggested the use of cross-sectional test statistics when there is an increase in return variance during the announcement period. The standard error of the announcement period returns for the sample firms is used as an estimate of the standard error of the mean cumulative abnormal return (CARs).

Boehmer, Musumeci, and Poulsen (1991) propose that the variance of mean abnormal returns is estimated from the cross-section of the *event date* (instead of the estimation period) prediction errors. This requires the assumption that the event date variance is proportional to the estimated period variance and is similar across securities.

[4]Both the CRSP value weighted and CRSP equally weighted indices are used as benchmarks. Chan, Gau, and Want (1995) suggest a market model with a 150-trading day estimation window [-170,-21], and CRSP equally weighted index as the market index, with a two-day trading interval of [-1,0]. Ghosh, Rodriguez, and Sirmans (1995) suggest a market model with a 120-trading day estimation window [-180,-61], and CRSP equally weighted index as the market index, with varying two-day trading intervals.

This statistic is well specified even when there are no changes in variance; if that is the case the test is less powerful. The Boehmer et al. (1991) standardized cross-sectional test is properly specified for upper tailed tests. For lower tailed alternative hypotheses, the parametric test rejects too often; a non-parametric test, like the generalized sign test described below, is more powerful in that circumstance.

Previous studies have shown that abnormal returns distributions show fat tails and are right-skewed (Kothari and Warner 1997, Barber and Lyon 1997, and Lyon, Barber, and Tsai 1999). Parametric tests reject too often when testing for positive abnormal performance, and too seldom when testing for negative abnormal performance. When the assumption of normality of abnormal returns is violated, parametric tests are not well specified. This is when non-parametric tests are well-specified and more powerful at detecting a false null hypothesis of no abnormal returns.

Non-parametric tests, such as the generalized sign test and Wilcoxon signed-rank test, are also conducted on the announcement period returns; the usual null hypothesis is that the median announcement period return is zero. The generalized sign test is a simple binomial test of whether the frequency of positive abnormal residuals is different from 50 percent. The advantage is that it takes into account the skewness in security returns. The Wilcoxon signed-rank test considers that both the sign and the magnitude of abnormal returns are important.

Thus, in all of the Tables 3 through 10, the generalized sign test employed by Cowan (1992) is used to test the percentage of positive CARs, while the Wilcoxon signed-rank test is used to test for differences in the median CARs, in addition to Boehmer et al. (1991) cross-sectional and Patell (1976) statistics to test for differences in the mean CARs. All statistical tests significances are noted in the tables at the one percent, five percent, and

ten percent levels (see descriptive table headings for significance notation for the various tests).

Brown and Warner (1985) and MacKinlay (1997) show that the power of the event study technique improves as the number of firms in the sample increase, as the number of days in the announcement window decreases, and as the alternative of a larger abnormal return is considered against the null hypothesis of zero abnormal return. In all of the Tables 3 through 10, the 2-day announcement periods [0,+1] is tested across many sub-samples as the event window.

V.B. Shareholder Response to Relocations

Hypothesis 1: "The announcement of a major headquarters relocation of a company has an effect on the stock price of that company in the period following the announcement. This effect is positive when the company has new corporate level management or is expanding. This effect is negative if the company is downsizing."

Hypothesis 2: "The announcement of a major headquarters relocation of a company does not have an effect on the stock price of that company in the period following the announcement. This no effect is due to the announcement of a headquarters relocation is not directly tied to the overall stock price or valuation of the company and is instead viewed as a convenience decision."

	Market Model		Market Adjusted	
CHAN et al.	**TABLE 3, 7** **EWRETD Estimation Window [170,-21]**	**Table 4, 8** **VWRETD Estimation Window [170,-21]**	**Table 5, 9** **EWRTD Estimation Window [170,-21]**	**Table 6, 10** **VWRTD Estimation Window [170,-21]**
GHOSH et al.	**Table 3, 7** **EWRETD Estimation Window [-180, -61]**	**Table 4, 8** **VWRETD Estimation Window [-180, -61]**	**Table 5, 9** **EWRTD Estimation Window [-180, -61]**	**Table 6, 10** **VWRTD Estimation Window [-180, -61]**

I ran 8 types of models to find abnormal returns using Eventus. Within each of these models, I tested 8 different event windows, both pre-event, and post-event.
VWRETD = Value weighted returns, EWRETD = Equally weighted returns

Tables 3 through 10 presents mean and median cumulative abnormal returns (CARs). For these eight tables I look at various event windows and see if there is a significant return within these time windows for the stock prices in this study. Each table consists of three panels. The first panel shows the data of stock price return on individual days for the day before the event, the day of the event and the day after the event. This event study was done with two different overall event windows that were gathered from my research. The first of these is by Chan et al. (1995) and is an event window of [-170, -20] and the other is by Ghosh et al. (1995) and is from [-180, -61]. This is important because the difference in starting and ending dates will affect both the average returns I get from the market as a whole and for my sample. The first panel of these tables shows data for both of these event studies. The following two panels take a look at eight different event windows both before and after the relocation announcement. The second panel is for the Chan time period results and the third is for the Ghosh results.

Tables 3 through 6 studies the full sample of relocating firms. **Table 3** starts with being for all firms with a market model that is equally weighted. I see that in the first panel with the single day returns around the event date that there is no statistically significant returns from either study for the mean, median, or positive return compared to the market. Additionally, I see that in the following two panels over the course of the eight different event windows there is also no significant abnormal returns for the relocating firms vs. the entire market in those time frames. In **Table 4** I change one variable which is that it becomes a market model that is value weighted. However, even with this change in variable one sees the same story being told in the results. This is that there are no statistically significant returns for any of the time windows across the studies for my sample versus the market.

For **Table 5**, a change was made to test under a market adjusted equally weighted scenario. Here again I do not find any significant abnormal returns on the single days around the event. However, in the event window of [0, +1] I see a weakly significant abnormal return for the Positive CARs using both the Chan and Ghosh approaches. This shows that compared to the market, in the day following the announcement the companies in the study showed weakly significant abnormal positive returns, hinting that the market is interpreting the announcement as a positive for the company. This does not extend past the first day under these conditions.

Finally, in **Table 6** I set it up to be a market adjusted value weighted model. I did not see any single day data of significance. In the [0, +1] event window for both Chan and Ghosh I did have Positive CARs returns of semi-strong significance for abnormal stock returns. Again, within this set of specific data I see that the market is reacting favorably to the relocation announcement of a company.

Tables 7 through 10 studies the returns of the sample of just the out-of-state moves. As one has seen in the previous four tables, some significant abnormal returns do occur when I look at my entire data set. However, this begs the question of what would the data look like if I exclude the moves that happened within the same state. As discussed above, the majority of this sample is out-of-state moves and I want to test this data on its own. I believe that stockholders perceptions for a relocating headquarters would be different for an out-of-state move. This could be simply because of the announcement listing by state instead of by city. For someone who is not familiar with the area a company is from, an in-state move that just lists the different city may have no effect on their perception of the company performance or future aspects. Generalizations of city benefits within the state can exist. With out-of-state moves, one tends to perceive it as much more significant and may look further into the reason to the relocation based on this fact. To give me an idea of what statistically significant returns would look like for these out-of-states moves only, I created a subset of data for just that. Tables 7 through 10 are set up identical to the previous four and only differ on the set of data the tests were run on.

Table 7 tests the market model equally weighted return on the out-of-state moves. Both the announcement event days returns and all of the event window days do not show any significant abnormal return from the market. This shows that even within the subset of data, no matter which of the time windows they use (Chan vs. Ghosh) the significance of a relocation relative to the market does not change, as it is nonexistent in both.

Table 8 is for the out-of-state moves with the market model value weighted returns. Here I see that again no significance is present for the event day or the single day returns before or after the announcement. When I look at the specific time windows I see that under the Chan tests within the [-5, +5] time span there is a weakly significant abnormal

return in the Positive CARs. Aside from this result the rest of the Chan results and all of the Ghosh results do not show any more significance.

Table 9 is for the market adjusted with equally weighted returns for out-of-state moves. I do not see any significance with the individual days but when I look at the different event windows I see that the mean CARs is weakly significant for both the Chan and Ghosh scenarios for the [+1. +30] event window. This could be due to possible investors looking more into the underlying reasons for the relocation that is taking place. After doing research, which could take a number of days, they could make up their mind and react post announcement. Also, this returns that increases over the course of the month could be benefitted by the actions the company takes to follow up their announcement. If they make company decisions that enhance the announcement decision, they build trust and the investors may be willing to go with the company. Essentially, it could be seen as a testing period. As the company moves into the first stages post announcement, investors discover if what the company released was honest or if they were misleading in their reasons for relocation and possible position financially of the company. When a company is held in good light with the stockholders, the significance in this time range could take place.

Table 10 is for the market adjusted value weighted returns for the out-of-state moves. I did not see any single day significance for the days tested in this study under these conditions. With the time windows, I see that in the [+1, +30] range there is weakly significant abnormal returns under the median CARs for both Chan and Ghosh. Additionally, under the same event window I see a semi-strong statistically significant abnormal return in the mean CARs for both the Chan and Ghosh estimation windows. Clearly, this final scenario is the one with the more statistically significant results in this entire study. These continue to confirm stockholders perceptions in this final window due to the above mention reasons. When I narrow down the data to just out-of-state, use a

market adjusted model and focus on value weighted returns, I see that abnormal returns happen in the month following a company's announcement to relocate its corporate headquarters.

VI. Conclusion

In this study, I wanted to continue previous tested studies on corporate headquarter relocations of publically traded companies and their correlating stock price effects to see if statistically significant abnormal returns were present due to stockholder perceptions of the announcement. I first saw that a majority of the companies in my sample from the years 2000 to 2012 had relocations out of the current state that their headquarters was operating in. It was also apparent that when I break down this sample into industries using the Fama and French method that over half of this sample falls into the categories of manufacturing, wholesale/retailing or other. When I ran the tests CARs for mean, median and positive returns on the data, I did so both for the entire sample vs. the market and a subset of just the out-of-state relocations vs. the market. Each of these was broken into two different estimation windows based on previous studies by Chan et al. (1995) and Ghosh et al. (1995). From there I broke down the categories into either market or market adjusted and either equally weighted or value weighted. These results show that the announcement day itself under any scenario for this sample and the day before and after the announcement in and of themselves do not hold any statistically significant abnormal stock returns. When I look at the market adjusted models for both equally and value weighted returns I see significant results under both grouping options. For all firms I see weak and semi-strong statistical significance for the equally and value weighted respectively for the Positive CARs in the [0, +1] event window following the announcement. For the out-of-state move subset category I see both weak and semi-strong statistically significant returns

for the equally weighted and value weighted models respectively in the market adjusted models at the mean CARs for the [+1, +30] event window as well as a weak significance at the median CARs for the value weighted return for the same event window. These results show me that all the firms' relocations taken together lead to a stock price reaction that is positive in the day following the move announcement when I look at the adjusted market model from an equal weighted and value weighted position. Additionally, when I look at the out-of-state moves from a market adjusted model I see the stock price react favorably over the one month period following the announcement across multiple tests. With this, I conclude that headquarter relocations to a different state have a longer period to have the market react to the announcement of the relocation versus all the firms in the sample where the market responds positively in the first 48 hours. The market tends to react favorably to relocation announcements when they do become statistically significant and do so over the above mentioned event windows. Stockholder perceptions' as to a company's future performance when making a decision to relocate depend on a number of factors such as the industry of the moving company, its size, where it is moving to and its stated reasons for relocation. Overall, I see that the market does tend to respond favorably to corporate headquarter relocations under a market adjusted model, and this response is seen either in the day following when looking at all firms, or in the month following when narrowed down to only out-of-state relocations, regardless of whether one is looking at an equally weighted return or a value weighted return.

Table 1: Corporate Headquarter Relocations by Year
The table depicts the full sample of corporate headquarter relocation firms for the years 2000 – 2012. Data is obtained through keyword searches of variants of "Headquarters" and "Relocation" using Bloomberg database software to find the earliest announcement date of the relocation. Three geographic sub-samples are shown in the table. The sub-samples for intrastate, interstate, and international relocations are shown for total number of firms within that sub-sample by year, as well as the incidence ratio, or percent, of all firms by year.

Year	All Firms		Geographic Sub-Samples					
			Intrastate		Interstate		International	
	N	%	N	%	N	%	N	%
2000	5	7.94%	1	6.25%	4	9.52%	0	0%
2001	6	9.52%	3	18.75%	3	7.14%	0	0%
2002	4	6.35%	3	18.75%	1	2.38%	0	0%
2003	8	12.70%	0	0.00%	8	19.05%	0	0%
2004	7	11.11%	3	18.75%	3	7.14%	1	20%
2005	4	6.35%	1	6.25%	2	4.76%	1	20%
2006	4	6.35%	1	6.25%	3	7.14%	0	0%
2007	1	1.59%	0	0.00%	1	2.38%	0	0%
2008	2	3.17%	1	6.25%	0	0.00%	1	20%
2009	3	4.76%	0	0.00%	1	2.38%	2	40%
2010	2	3.17%	0	0.00%	2	4.76%	0	0%
2011	4	6.35%	0	0.00%	4	9.52%	0	0%
2012	13	20.63%	3	18.75%	10	23.81%	0	0%
Total	**63**	**100.00%**	**16**	**100.00%**	**42**	**100.00%**	**5**	**100%**

Table 2: Relocation Firms by Industry

The table depicts the full sample of corporate headquarter relocation firms for the years 2004 – 2012. Three geographic sub-samples for intrastate, interstate, and international are shown for total number of firms within that sub-sample by year, as well as the incidence ratio, or percent, of all firms by year. Standard industrial classification (SIC) codes are obtained from Compustat, and industry classification is categorized at the two digit level. As in Agrawal and Nasser (2010), Fama-French 12 industry classifications from Kenneth French's website are used: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Industry	All Firms		Geographic Sub-Samples					
			Intrastate		Interstate		International	
	N	%	N	%	N	%	N	%
Consumer Non Durables	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Consumer Durables	2	4.08%	1	7.14%	1	3.03%	0	0.00%
Manufacturing	12	24.49%	3	21.43%	9	27.27%	0	0.00%
Energy	3	6.12%	1	7.14%	2	6.06%	0	0.00%
Chemicals and Allied Products	1	2.04%	1	7.14%	0	0.00%	0	0.00%
Business Equipment	5	10.20%	3	21.43%	2	6.06%	0	0.00%
Telecommunications	1	2.04%	0	0.00%	1	3.03%	0	0.00%
Utilities	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Wholesale, Retail, and Some Services	12	24.49%	2	14.29%	10	30.30%	0	0.00%
Healthcare	3	6.12%	0	0.00%	3	9.09%	0	0.00%
Financials	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Other	10	20.41%	3	21.43%	5	15.15%	2	100.00%
Total	**49**	**100.00%**	**14**	**100.00%**	**33**	**100.00%**	**2**	**100.00%**

Table 3: Shareholder Response to Relocations: Market Model, Equal Weighted Returns, for All Relocations
The table reports the average cumulative abnormal returns (CARs) for the announcement of relocations for the **market model** using **equally weighted** returns for all 34 firms in the sample that have data. The announcement is identified from Bloomberg. This is the full sample which is all corporate headquarter relocations for 2004-2012. Market model parameters vary prior to the announcement, and are noted in the table subheading. Average cumulative abnormal returns (CARs) are reported over the various announcement periods in the table. Median CARs are listed immediately below, followed by the percentage of CARs that are positive are in square brackets. ***, **, and * indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the cross-sectional two-sided *t*-statistic of Boehmer, Musumeci, and Poulsen (1991). ^{a}, ^{b}, and ^{c} indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual two-sided test in Patell (1976). $^{)))}$, $^{))}$, and $^{)}$ indicate the results of a Wilcoxon rank sum test for differences in the medians, significantly different at the 1%, 5%, and 10% level, respectively. $^{>>>}$, $^{>>}$, and $^{>}$ indicate the percentage of positive CARs is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the generalized sign test in Cowan (1992), which controls for the normal asymmetry of positive and negative abnormal returns in the estimation period. $^{+++}$, $^{++}$, and $^{+}$ indicate the mean of two independent samples is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual test in Patell (1976).

Table 5 Panel A: One Day Event Windows						
	Chan, Gau, Want (1995) Estimation Window [-170, -21]			Ghosh, Rodriguez, Sirmans (1995) Estimation Window [-180,-61]		
	Event Window [-1]	Event Window [0]	Event Window [+1]	Event Window [-1]	Event Window [0]	Event Window [+1]
N	34	34	34	34	34	34
Mean CAR	-0.20%	0.59%	-0.24%	-0.2%	0.55%	-0.29%
Median CAR	-0.06%	0.10%	-0.35%	0.07%	0.25%	-0.29%
Positive CARs	50.00%	50.00%	47.06%	52.94%	52.94%	47.06%

Table 5 Panel B: Chan, Gau, Want (1995) using Estimation Window [-170, -21]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	34	34	34	34	34	34	34	34
Mean CAR	0.39%	0.35%	0.15%	-1.56%	0.17%	0.22%	-0.94%	1.35%
Median CAR	0.09%	0.35%	-0.25%	-0.46%	0.05%	-1.62%	-3.60%	-0.76%
Positive CARs	55.88%	55.88%	44.12%	44.12%	50.00%	44.12%	35.29%	50.00%

Table 5 Panel C: Ghosh, Rodriguez, Sirmans (1995) using Estimation Window [-180,-61]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	34	34	34	34	34	34	34	34
Mean CAR	0.35%	0.26%	0.06%	-1.59%	0.06%	0.50%	-0.73%	2.05%
Median CAR	0.00%	0.36%	-0.08%	-0.57%	0.45%	0.57%	-4.49%	-2.25%
Positive CARs	50.00%	55.88%	50.00%	47.06%	50.00%	55.88%	35.29%	47.06%

Table 4: Shareholder Response to Relocations: Market Model, Value Weighted Returns, for All Relocations
The table reports the average cumulative abnormal returns (CARs) for the announcement of relocations for the **market model** using **value weighted** returns for all 34 firms in the sample that have data. The announcement is identified from Bloomberg. This is the full sample which is all corporate headquarter relocations for 2004-2012. Market model parameters vary prior to the announcement, and are noted in the table subheading. Average cumulative abnormal returns (CARs) are reported over the various announcement periods in the table. Median CARs are listed immediately below, followed by the percentage of CARs that are positive are in square brackets. ***, **, and * indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the cross-sectional two-sided *t*-statistic of Boehmer, Musumeci, and Poulsen (1991). ^{a}, ^{b}, and ^{c} indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual two-sided test in Patell (1976). $^{)))}$, $^{))}$, and $^{)}$ indicate the results of a Wilcoxon rank sum test for differences in the medians, significantly different at the 1%, 5%, and 10% level, respectively. $^{>>>}$, $^{>>}$, and $^{>}$ indicate the percentage of positive CARs is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the generalized sign test in Cowan (1992), which controls for the normal asymmetry of positive and negative abnormal returns in the estimation period. $^{+++}$, $^{++}$, and $^{+}$ indicate the mean of two independent samples is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual test in Patell (1976).

Table 5 Panel A: One Day Event Windows						
	Chan, Gau, Want (1995) Estimation Window [-170, -21]			Ghosh, Rodriguez, Sirmans (1995) Estimation Window [-180,-61]		
	Event Window [-1]	Event Window [0]	Event Window [+1]	Event Window [-1]	Event Window [0]	Event Window [+1]
N	34	34	34	34	34	34
Mean CAR	-0.01%	0.68%	-0.12%	0.02%	0.63%	-0.14%
Median CAR	0.11%	0.19%	-0.22%	0.13%	0.36%	-0.07%
Positive CARs	55.88%	52.94%	44.12%	52.94%	55.88%	50.00%

Table 5 Panel B: Chan, Gau, Want (1995) using Estimation Window [-170, -21]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	34	34	34	34	34	34	34	34
Mean CAR	0.67%	0.56%	0.55%	-1.06%	0.96%	1.02%	0.44%	1.37%
Median CAR	0.03%	0.48%	-0.43%	-0.41%	0.84%	-1.62%	-5.01%	-1.85%
Positive CARs	55.88%	52.94%	55.88%	41.18%	52.94%	44.12%	38.24%	44.12%

Table 5 Panel C: Ghosh, Rodriguez, Sirmans (1995) using Estimation Window [-180,-61]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	34	34	34	34	34	34	34	34
Mean CAR	0.65%	0.50%	0.51%	-0.99%	0.97%	1.23%	0.59%	1.74%
Median CAR	0.14%	0.58%	0.60%	-0.34%	-0.12%	-1.03%	-3.73%	-0.22%
Positive CARs	52.94%	55.88%	55.88%	44.12%	50.00%	47.06%	35.29%	50.00%

Table 5: Shareholder Response to Relocations: Market Adjusted Model, Equal Weighted Returns, for All Relocations
The table reports the average cumulative abnormal returns (CARs) for the announcement of relocations for the **market adjusted model** using **equal weighted** returns for all 34 firms in the sample that have data. The announcement is identified from Bloomberg. This is the full sample which is all corporate headquarter relocations for 2004-2012. Market adjusted model parameters vary prior to the announcement, and are noted in the table subheading. Average cumulative abnormal returns (CARs) are reported over the various announcement periods in the table. Median CARs are listed immediately below, followed by the percentage of CARs that are positive are in square brackets. ***, **, and * indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the cross-sectional two-sided *t*-statistic of Boehmer, Musumeci, and Poulsen (1991). ^{a}, ^{b}, and ^{c} indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual two-sided test in Patell (1976). $^{)))}$, $^{))}$, and $^{)}$ indicate the results of a Wilcoxon rank sum test for differences in the medians, significantly different at the 1%, 5%, and 10% level, respectively. $^{>>>}$, $^{>>}$, and $^{>}$ indicate the percentage of positive CARs is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the generalized sign test in Cowan (1992), which controls for the normal asymmetry of positive and negative abnormal returns in the estimation period. $^{+++}$, $^{++}$, and $^{+}$ indicate the mean of two independent samples is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual test in Patell (1976).

Table 5 Panel A: One Day Event Windows						
	Chan, Gau, Want (1995) Estimation Window [-170, -21]			Ghosh, Rodriguez, Sirmans (1995) Estimation Window [-180,-61]		
	Event Window [-1]	Event Window [0]	Event Window [+1]	Event Window [-1]	Event Window [0]	Event Window [+1]
N	34	34	34	34	34	34
Mean CAR	-0.31%	0.59%	-0.18%	-0.31%	0.59%	-0.18%
Median CAR	-0.07%	-0.05%	-0.13%	-0.07%	-0.05%	-0.13%
Positive CARs	47.06%	50.00%	50.00%	47.06%	50.00%	50.00%

Table 5 Panel B: Chan, Gau, Want (1995) using Estimation Window [-170, -21]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	34	34	34	34	34	34	34	34
Mean CAR	0.28%	0.41%	0.10%	-1.22%	0.74%	0.88%	0.00%	2.62%
Median CAR	0.13%	0.65%	-0.20%	0.10%	0.30%	-0.10%	-2.08%	0.85%
Positive CARs	50.00%	**64.71%***	44.12%	50.00%	52.94%	50.00%	50.00%	55.88%

Table 5 Panel C: Ghosh, Rodriguez, Sirmans (1995) using Estimation Window [-180,-61]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	34	34	34	34	34	34	34	34
Mean CAR	0.28%	0.41%	0.10%	-1.22%	0.74%	0.88%	0.00%	2.62%
Median CAR	0.13%	0.65%	-0.20%	0.10%	0.30%	-0.10%	-2.08%	0.85%
Positive CARs	50.00%	**64.71%***	44.12%	50.00%	52.94%	50.00%	50.00%	55.88%

Table 6: Shareholder Response to Relocations: Market Adjusted Model, Value Weighted Returns, for All Relocations
The table reports the average cumulative abnormal returns (CARs) for the announcement of relocations for the **market adjusted model** using **value weighted** returns for all 34 firms in the sample that have data. The announcement is identified from Bloomberg. This is the full sample which is all corporate headquarter relocations for 2004-2012. Market adjusted model parameters vary prior to the announcement, and are noted in the table subheading. Average cumulative abnormal returns (CARs) are reported over the various announcement periods in the table. Median CARs are listed immediately below, followed by the percentage of CARs that are positive are in square brackets. ***, **, and * indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the cross-sectional two-sided *t*-statistic of Boehmer, Musumeci, and Poulsen (1991). ^{a}, ^{b}, and ^{c} indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual two-sided test in Patell (1976). $^{)))}$, $^{))}$, and $^{)}$ indicate the results of a Wilcoxon rank sum test for differences in the medians, significantly different at the 1%, 5%, and 10% level, respectively. $^{>>>}$, $^{>>}$, and $^{>}$ indicate the percentage of positive CARs is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the generalized sign test in Cowan (1992), which controls for the normal asymmetry of positive and negative abnormal returns in the estimation period. $^{+++}$, $^{++}$, and $^{+}$ indicate the mean of two independent samples is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual test in Patell (1976).

Table 5 Panel A: One Day Event Windows						
	Chan, Gau, Want (1995) Estimation Window [-170, -21]			Ghosh, Rodriguez, Sirmans (1995) Estimation Window [-180,-61]		
	Event Window [-1]	Event Window [0]	Event Window [+1]	Event Window [-1]	Event Window [0]	Event Window [+1]
N	34	34	34	34	34	34
Mean CAR	-0.22%	0.63%	-0.10%	-0.22%	0.63%	-0.10%
Median CAR	0.04%	0.11%	-0.11%	0.04%	0.11%	-0.11%
Positive CARs	50.00%	50.00%	47.06%	50.00%	50.00%	47.06%

Table 5 Panel B: Chan, Gau, Want (1995) using Estimation Window [-170, -21]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	34	34	34	34	34	34	34	34
Mean CAR	0.42%	0.53%	0.32%	-0.74%	1.44%	2.42%	1.91%	3.95%
Median CAR	0.13%	0.85%	0.68%	0.30%	0.35%	0.96%	-0.35%	0.90%
Positive CARs	55.88%	**67.65%****	61.76%	58.82%	52.94%	52.94%	47.06%	55.88%

Table 5 Panel C: Ghosh, Rodriguez, Sirmans (1995) using Estimation Window [-180,-61]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	34	34	34	34	34	34	34	34
Mean CAR	0.42%	0.53%	0.32%	-0.74%	1.44%	2.42%	1.91%	3.95%
Median CAR	0.13%	0.85%	0.68%	0.30%	0.35%	0.96%	-0.35%	0.90%
Positive CARs	55.88%	**67.65%****	61.76%	58.82%	52.94%	52.94%	47.06%	55.88%

Table 7: Shareholder Response to Relocations: Market Model, Equal Weighted Returns, for Interstate Relocations
The table reports the average cumulative abnormal returns (CARs) for the announcement of relocations for the **market model** using **equally weighted** returns for all 14 firms with interstate relocations. The announcement is identified from Bloomberg. This is the sub-sample which has all out-of-state relocations for 2004-2012. Market model parameters vary prior to the announcement, and are noted in the table subheading. Average cumulative abnormal returns (CARs) are reported over the various announcement periods in the table. Median CARs are listed immediately below, followed by the percentage of CARs that are positive are in square brackets. ***, **, and * indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the cross-sectional two-sided *t*-statistic of Boehmer, Musumeci, and Poulsen (1991). ^{a}, ^{b}, and ^{c} indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual two-sided test in Patell (1976). $^{)))}$, $^{))}$, and $^{)}$ indicate the results of a Wilcoxon rank sum test for differences in the medians, significantly different at the 1%, 5%, and 10% level, respectively. $^{>>>}$, $^{>>}$, and $^{>}$ indicate the percentage of positive CARs is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the generalized sign test in Cowan (1992), which controls for the normal asymmetry of positive and negative abnormal returns in the estimation period. $^{+++}$, $^{++}$, and $^{+}$ indicate the mean of two independent samples is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual test in Patell (1976).

Table 5 Panel A: One Day Event Windows						
	Chan, Gau, Want (1995) Estimation Window [-170, -21]			Ghosh, Rodriguez, Sirmans (1995) Estimation Window [-180,-61]		
	Event Window [-1]	Event Window [0]	Event Window [+1]	Event Window [-1]	Event Window [0]	Event Window [+1]
N	14	14	14	14	14	14
Mean CAR	0.08%	-0.28%	0.31%	0.05%	-0.31%	0.26%
Median CAR	1.12%	-0.25%	-0.13%	1.16%	-0.05%	-0.19%
Positive CARs	57.14%	42.86%	50.00%	64.29%	50.00%	50.00%

Table 5 Panel B: Chan, Gau, Want (1995) using Estimation Window [-170, -21]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	14	14	14	14	14	14	14	14
Mean CAR	-0.20%	0.03%	0.10%	-1.89%	1.32%	-0.02%	1.13%	7.33%
Median CAR	0.07%	0.10%	-0.33%	-1.50%	1.42%	-0.98%	-3.67%	3.32%
Positive CARs	58.14%	50.00%	42.86%	50.00%	64.29%	50.00%	42.86%	57.14%

Table 5 Panel C: Ghosh, Rodriguez, Sirmans (1995) using Estimation Window [-180,-61]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	14	14	14	14	14	14	14	14
Mean CAR	-0.26%	-0.05%	0.00%	-1.88%	1.44%	0.27%	1.32%	7.40%
Median CAR	-0.08%	-0.05%	-0.27%	-1.53%	1.36%	0.93%	-6.89%	9.94%
Positive CARs	42.86%	42.86%	50.00%	50.00%	57.14%	57.14%	42.86%	57.14%

Table 8: Shareholder Response to Relocations: Market Model, Value Weighted Returns, for Interstate Relocations
The table reports the average cumulative abnormal returns (CARs) for the announcement of relocations for the **market model** using **value weighted** returns for all 14 firms with interstate relocations. The announcement is identified from Bloomberg. This is the sub-sample which has all out-of-state relocations for 2004-2012. Market model parameters vary prior to the announcement, and are noted in the table subheading. Average cumulative abnormal returns (CARs) are reported over the various announcement periods in the table. Median CARs are listed immediately below, followed by the percentage of CARs that are positive are in square brackets. ***, **, and * indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the cross-sectional two-sided *t*-statistic of Boehmer, Musumeci, and Poulsen (1991). ^{a}, ^{b}, and ^{c} indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual two-sided test in Patell (1976). $^{)))}$, $^{))}$, and $^{)}$ indicate the results of a Wilcoxon rank sum test for differences in the medians, significantly different at the 1%, 5%, and 10% level, respectively. $^{>>>}$, $^{>>}$, and $^{>}$ indicate the percentage of positive CARs is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the generalized sign test in Cowan (1992), which controls for the normal asymmetry of positive and negative abnormal returns in the estimation period. $^{+++}$, $^{++}$, and $^{+}$ indicate the mean of two independent samples is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual test in Patell (1976).

Table 5 Panel A: One Day Event Windows						
	Chan, Gau, Want (1995) Estimation Window [-170, -21]			Ghosh, Rodriguez, Sirmans (1995) Estimation Window [-180,-61]		
	Event Window [-1]	Event Window [0]	Event Window [+1]	Event Window [-1]	Event Window [0]	Event Window [+1]
N	14	14	14	14	14	14
Mean CAR	0.14%	-0.32%	0.38%	0.12%	0.38%	0.29%
Median CAR	1.04%	-0.37%	0.11%	1.15%	-0.16%	0.07%
Positive CARs	64.29%	42.86%	50.00%	64.29%	50.00%	50.00%

Table 5 Panel B: Chan, Gau, Want (1995) using Estimation Window [-170, -21]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	14	14	14	14	14	14	14	14
Mean CAR	-0.18%	0.06%	0.20%	-1.66%	1.60%	-0.67%	0.85%	6.34%
Median CAR	-0.13%	-0.34%	0.17%	0.40%	2.97%	-3.69%	-2.08%	1.89%
Positive CARs	50.00%	42.86%	50.00%	50.00%	**71.43%***	50.00%	50.00%	50.00%

Table 5 Panel C: Ghosh, Rodriguez, Sirmans (1995) using Estimation Window [-180,-61]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	14	14	14	14	14	14	14	14
Mean CAR	-0.26%	-0.09%	0.03%	1.74%	1.56%	-0.38%	0.93%	6.53%
Median CAR	-0.11%	-0.28%	0.22%	0.04%	2.54%	-0.22%	-4.97%	7.28%
Positive CARs	42.86%	42.86%	50.00%	50.00%	64.86%	50.00%	42.86%	57.14%

Table 9: Shareholder Response to Relocations: Market Adjusted Model, Equal Weighted Returns, for Interstate Sample
The table reports the average cumulative abnormal returns (CARs) for the announcement of relocations for the **market adjusted model** using **equally weighted** returns for all 14 firms with interstate relocations. The announcement is identified from Bloomberg. This is the sub-sample which has all out-of-state relocations for 2004-2012. Market adjusted model parameters vary prior to the announcement, and are noted in the table subheading. Average cumulative abnormal returns (CARs) are reported over the various announcement periods in the table. Median CARs are listed immediately below, followed by the percentage of CARs that are positive are in square brackets. ***, **, and * indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the cross-sectional two-sided *t*-statistic of Boehmer, Musumeci, and Poulsen (1991). ^{a}, ^{b}, and ^{c} indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual two-sided test in Patell (1976). $^{)))}$, $^{))}$, and $^{)}$ indicate the results of a Wilcoxon rank sum test for differences in the medians, significantly different at the 1%, 5%, and 10% level, respectively. $^{>>>}$, $^{>>}$, and $^{>}$ indicate the percentage of positive CARs is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the generalized sign test in Cowan (1992), which controls for the normal asymmetry of positive and negative abnormal returns in the estimation period. $^{+++}$, $^{++}$, and $^{+}$ indicate the mean of two independent samples is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual test in Patell (1976).

Table 5 Panel A: One Day Event Windows						
	Chan, Gau, Want (1995) Estimation Window [-170, -21]			Ghosh, Rodriguez, Sirmans (1995) Estimation Window [-180,-61]		
	Event Window [-1]	Event Window [0]	Event Window [+1]	Event Window [-1]	Event Window [0]	Event Window [+1]
N	14	14	14	14	14	14
Mean CAR	-0.39%	-0.43%	0.30%	-0.39%	-0.43%	0.30%
Median CAR	1.02%	-0.62%	-0.02%	1.02%	-0.62%	-0.02%
Positive CARs	57.14%	35.71%	50.00%	57.14%	35.71%	50.00%

Table 5 Panel B: Chan, Gau, Want (1995) using Estimation Window [-170, -21]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	14	14	14	14	14	14	14	14
Mean CAR	-0.88%	-0.13%	-0.52%	-1.95%	0.65%	-0.40%	0.06%	**7.92%***
Median CAR	0.03%	0.95%	-0.74%	-0.32%	1.11%	1.06%	-1.51%	4.3%
Positive CARs	50.00%	64.29%	42.86%	50.00%	57.14%	57.14%	50.00%	64.29%

Table 5 Panel C: Ghosh, Rodriguez, Sirmans (1995) using Estimation Window [-180,-61]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	14	14	14	14	14	14	14	14
Mean CAR	-0.82%	-0.13%	-0.52%	-1.95%	0.65%	-0.40%	0.06%	**7.92%***
Median CAR	-0.03%	0.95%	-0.74%	-0.32%	1.11%	1.06%	-1.51%	4.3%
Positive CARs	50.00%	64.29%	42.86%	50.00%	57.14%	57.14%	50.00%	64.29%

Table 10: Shareholder Response to Relocations: Market Adjusted Model, Value Weighted Returns, for Interstate Sample
The table reports the average cumulative abnormal returns (CARs) for the announcement of relocations for the **market adjusted model** using **value weighted** returns for all 14 firms with interstate relocations. The announcement is identified from Bloomberg. This is the sub-sample which has all out-of-state relocations for 2004-2012. Market adjusted model parameters vary prior to the announcement, and are noted in the table subheading. Average cumulative abnormal returns (CARs) are reported over the various announcement periods in the table. Median CARs are listed immediately below, followed by the percentage of CARs that are positive are in square brackets. ***, **, and * indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the cross-sectional two-sided *t*-statistic of Boehmer, Musumeci, and Poulsen (1991). ^{a}, ^{b}, and ^{c} indicate the mean is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual two-sided test in Patell (1976). $^{)))}$, $^{))}$, and $^{)}$ indicate the results of a Wilcoxon rank sum test for differences in the medians, significantly different at the 1%, 5%, and 10% level, respectively. $^{>>>}$, $^{>>}$, and $^{>}$ indicate the percentage of positive CARs is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the generalized sign test in Cowan (1992), which controls for the normal asymmetry of positive and negative abnormal returns in the estimation period. $^{+++}$, $^{++}$, and $^{+}$ indicate the mean of two independent samples is significantly different from zero at the 1%, 5%, and 10% level, respectively, using the standardized residual test in Patell (1976).

Table 5 Panel A: One Day Event Windows						
	Chan, Gau, Want (1995) Estimation Window [-170, -21]			Ghosh, Rodriguez, Sirmans (1995) Estimation Window [-180,-61]		
	Event Window [-1]	Event Window [0]	Event Window [+1]	Event Window [-1]	Event Window [0]	Event Window [+1]
N	14	14	14	14	14	14
Mean CAR	-0.43%	-0.45%	0.28%	-0.43%	-0.45%	0.28%
Median CAR	0.94%	-0.84%	0.06%	0.94%	-0.84%	0.06%
Positive CARs	57.14%	35.71%	50.00%	57.14%	35.71%	50.00%

Table 5 Panel B: Chan, Gau, Want (1995) using Estimation Window [-170, -21]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	14	14	14	14	14	14	14	14
Mean CAR	-0.88%	-0.17%	-0.60%	-1.75%	1.44%	1.28%	2.01%	**9.40%****
Median CAR	-0.29%	0.83%	-0.26%	0.71%	2.26%	2.45%	1.12%	**7.75%***
Positive CARs	50.00%	64.29%	50.00%	50.00%	64.29%	64.29%	57.14%	57.14%

Table 5 Panel C: Ghosh, Rodriguez, Sirmans (1995) using Estimation Window [-180,-61]								
	Event Window [-1,0]	Event Window [0,+1]	Event Window [-1,+1]	Event Window [-2,+2]	Event Window [-5,+5]	Event Window [-20,-2]	Event Window [-20,-+5	Event Window [+1,+30]
N	14	14	14	14	14	14	14	14
Mean CAR	-0.88%	-0.17%	-0.60%	-1.75%	1.44%	1.28%	2.01%	**9.40%****
Median CAR	-0.29%	0.83%	-0.26%	0.71%	0.71%	2.45%	1.12%	**7.75%***
Positive CARs	50.00%	64.29%	50.00%	50.00%	50.00%	64.29%	57.14%	57.14%

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