The Long Run Performance of Mega Mergers

Atreya Dey

Abstract

This research seeks to analyze the long run performance of mergers that are in the 90th percentile of all U.S. mergers announced between 2001 and 2013. Mergers historically have been found to create negative abnormal returns for acquiring firms. Furthermore, there exists evidence from previous literature that there are short term negative abnormal returns for very large merger transactions. In order to find evidence of long term negative cumulative abnormal returns for large mergers, I use data from CRSP/COMPSTAT as well as Thompson One to quantify the abnormal monthly returns of mega mergers that occurred between 2001 and 2013. From these databases, I obtain 1,156 mega mergers along with their respective monthly value weighted returns. I use these monthly returns to calculate excess returns from the risk free interest rate as well as to obtain a predicted value for each asset. I use the Fama-French 5 factor pricing model to control for various company variables that could impact the firm’s abnormal returns. My results show that on average, mega mergers have significantly negative cumulative abnormal returns. Furthermore, I find evidence that during a merger wave, mega mergers will typically be overvalued until a future market correction.
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Special Thanks to Professor Vladimir Kontorovich

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Finally, I would like to thank my friends Zachary Kaden, Richard Tuhrim, Sloan Millman, David Galaz and Tina Chang
I. Introduction

This research seeks to answer the research question: how do shareholders for typically large companies react to very large acquisitions over time? The previous literature has conflicting results in whether mergers increase or decrease value of the acquiring company. Literature published in the 1990’s and early 2000’s characteristically suggest that almost all mergers actually reduce value for the shareholder which impacts the stock’s return negatively. However, more recent literature proposes that on average most mergers do indeed create value with a few exceptions. These exceptions include mega-mergers that have more or less “failed”.  

The aim of this research is to study the long term stock market reaction of these mega mergers that have occurred since 2001. In order to examine large acquisitions, the main variable of this empirical study will be the transaction value that acquiring firms pay for an acquired firm. Using the transaction value, I will empirically show that very large transactions or mergers cause a significant decrease in performance of the acquiring firm.

Managers faced with decisions that impact the scope of a firm look to mergers and acquisitions (M&A’s from now on) as a method to increase growth for their firm. Due to gains in popularity since the 1990’s, M&A’s have become an extremely popular research topic in financial economics. Additionally, the subject has become engaging due to the significant financial crises that have occurred during this period that have the need to be assessed. Due to the importance of mergers, there is a vast academic literature on the topic.

Generally, mergers have been thought to typically occur due to the changing economic environment such as deregulation as well as technological innovations (Mitchell and Muhlerin

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1 Typically mergers will fail due to CEO overconfidence, overvaluation, or a decrease in efficiency.
2 See figure 1.
Recently, M&A activity in the U.S. has grown at a rapid rate and the total value of transactions has reached an all-time peak. Additionally, the number of M&A transactions have also been steadily growing since the 1990’s.

Furthermore, one of the interesting aspects of M&A transactions is that they occur in waves with crests and troughs. There are periods when activity is extremely high while other periods where M&A activity is quite low. The 1990s saw the greatest U.S. merger wave ever. Every year from 1995 to 2000 generated a new record for U.S. merger volume, starting from $800 billion in 1995 to $1.8 trillion in 2000. Several industries have since then experienced merger waves, including commercial banking, telecommunications, investment banking, hotels and casinos, and oil and gas. These waves usually occur in a range of continuous years that have ended in economic crisis.

These merger waves are no stranger to the U.S. market. Since the late 1990’s, at least in the US Market, there has been a sharp escalation in the number of transactions as well as the

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3 Graph obtained from the IMAA institute.
value of the transactions. As a qualitative statement, the number of transactions as well as their value continue to increase in a wave like form until a major market collapse. This recent “merger wave” formed in 2013 as well as 2014 has similarities to the M&A waves before the last two major crashes (i.e. Technology bubble of 2000, Financial Crisis of 2007). There is a growing concern among economists as well as financial analysts that mergers that have large price tags attached may be destructive for shareholders as well as the profitability of the firm. These mega transactions may have a significant influence upon the merged company’s future performance. Furthermore, many are concerned that during large waves of mergers, corporations may indulge in mergers that have little to no impact upon the company itself.

My research seeks to focus upon the probable discrepancy of long-term abnormal returns between high value M&A transactions for acquiring firms in the U.S. and stock market. I will be performing a long-term event study. A long-term event study usually seeks to identify certain events (i.e. mergers, IPO’s) and study the effect of such an event on the firm’s asset price over a significant period of time (i.e. months to years). Many different types of event studies exist and if large acquisitions are indeed wealth destroying for the acquiring firms, the result of such a study will express negative abnormal returns of the firm.

To calculate whether mega mergers do have a significant impact upon long run performance, I first created a value weighted calendar time portfolio of all merger transaction values in the 90th percentile and above from the 2001 to 2013 period. Then, I created value weighted portfolios that was initially distinguished by M&A transaction value. Then, further portfolios of firms were

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4 A term used to describe the returns generated by a given security or portfolio over a period of time that is different from the expected rate of return. The expected rate of return is the estimated return based on an asset pricing model.
5 An event is a drastic change that can affect the value of a security.
6 A portfolio is a group of assets which has a return over a period of time.
created through other classifications acquirer net assets, acquirer book value, year, host current assets, as well as a sum of transaction value in the 2001 to 2013 period. For each firm in a certain portfolio, I calculate the expected rate of return for the event period using the Fama-French 5 factor realizations.\textsuperscript{7,8} Then, to calculate the abnormal return (AR), I subtract the value weighted returns from the expected rate of return. Furthermore, I calculated the cumulative abnormal returns (CAR’s) for each firm in the event period. These abnormal returns or a values were regressed using OLS to examine if the abnormal returns were significant. Furthermore, I created unique portfolios based upon the industrial sector, acquirer asset value as well as the acquirer book value of the firm. Moreover, I split the merger data into distinct time periods in order to understand if certain years with a large number of mergers could an impact upon abnormal returns for acquirers similar to that of a merger wave.

My results show that on average, mega mergers that occurred between 2001 and 2013 had poor long term performance in the stock market after an event for up to a year. Furthermore, I find substantial evidence that during stock market booms, acquirers that underwent large mergers were slightly overvalued which lead to positive cumulative abnormal returns until a market correction.

\textbf{II. Literature Review}

This research on the long run performance of mega mergers follows a lengthy history of event analysis. In order to analyze the performance of mergers, and merger waves, previous literature focuses upon short term effects of acquiring and acquired firms.\textsuperscript{9} Specifically, it has

\textsuperscript{7} The event period in this case is the 12 month period of the firm after a merger.
\textsuperscript{8} Fama-French 5 factor model, See Fama, E.F., French, K.R., (2014)
\textsuperscript{9} In this case, literature has studied announcement returns of potentially acquired firms.s
been acknowledged that target companies earn positive abnormal returns in M&A’s.\textsuperscript{10} However, there are conflicting results as to whether acquiring firms earn negative or positive returns after an event. First, in order to understand how researchers analyze firm returns, I expound upon the various methodologies used by previous literature.

Fama & French (1993) created a groundbreaking three factor model to describe stock returns that built upon the Capital Asset Pricing Model (CAPM) to add two additional factors. The CAPM model calculates the theoretically appropriate required rate of return of an asset or portfolio by taking into account the asset or portfolio’s sensitivity to systematic or non-diversifiable risk. It describes the relationship between risk and expected return of a security or portfolio to price the asset.

\[ r_a = r_f + \beta_a(r_m - r_f) \]

In the CAPM model, \( r_a \) represents the expected return on the capital asset. \( r_f \) is the risk free rate of interest that is typically the value of interest arising from government bonds. \( r_m \) is the return of the market which can be based upon an index such as the S&P 500 or the Nikkei index. \((r_m - r_f)\) is known as the market premium, or otherwise as the difference between the market return and the risk free rate of interest. Finally, \( \beta_a \) or the beta is calculated through regression analysis and is known as the measure of risk involved with investing in a particular asset relative to the risk of the entire market. This model since its inception, has been popularly used as a quick method to calculate expected returns on an asset.

\textsuperscript{10} Abnormal returns in stock market trading are the differences between a single stock or portfolio's performance and the expected return over a set period of time. Usually a broad index, such as the S&P 500 or a national index like the Nikkei 225, is used as a benchmark to determine the expected return.
Fama-French (1993) expand upon this model to include two additional variables, SMB and HML that account for a market capitalization as well as the book-to-market ratio respectively. The authors added these extra factors due to the phenomena that small market capitalization companies historically performed better than their large cap counterparts. Additionally, value stocks that are attributed to high book-to-market ratios also historically outperformed the market on consistent basis.\footnote{A value stock is a stock that tends to trade at a lower price relative to it's fundamentals (i.e. dividends, earnings, sales, etc.) and thus considered undervalued by a value investor.} Thus, through the addition of a size and value variables, Fama-French were able to adjust for the outperformance tendency that was initially occurring. Furthermore, their results suggest that the Fama–French three-factor model explains over 90% of the diversified portfolios returns, compared with the average 70% given by the CAPM. The model is as follows:

\[
R_{p,t} - R_{f,t} = a_p + B_p (R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + e_{p,t}
\]

This model has been used in numerous studies that have researched abnormal returns after a corporate event due to its high accuracy. However, Novy-Marx (2012) as well as other authors state that the three factor model is incomplete due to its 3 factors missing variation in average returns that are related to profitability and investment factors of the company. Thus, Fama-French (2014) incorporates two additional factors related to profitability and investment stated as \textit{RMW} and \textit{CMA} respectively.

\[
R_{p,t} - R_{f,t} = a_p + B_p (R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + rRMW_t + cCMA_t + e_{p,t}
\]

Fama & French estimate that the five factor model explicates between 71% and 94% of the cross-section variance of expected returns for the varied portfolios that they examine. Thus, this model will correctly capture abnormal returns (to a degree) and be the leading model in
long-term studies in the future. Due to its high power as well as accuracy, I will use the Fama-French five factor model in order to calculate the expected returns of assets and portfolios. A further delineation of the 3 factor and 5 factor model can be found in the methodology section.

To examine how acquiring and target firms perform before and after merger waves, financial research use long term event studies as a methodology. Mitchell & Stafford (2000) examine the reliability of long-term studies that calculate abnormal returns after an event. The authors discover that a previously popular model, BHARs, was used to determine the mean Buy and Hold Abnormal Rates. Mitchell & Stafford determine that BHARs in, “conjunction with bootstrapping is not an adequate model due to an assumption of independence of multiyear event-firm abnormal returns.” Additionally, they find that the BHARs methodology produces test statistics that are up to four times as large as intended. Thus the authors’ robustness checks conclude that a calendar-time portfolio approach that is recommended by Fama (1998) is the leading model to account for dependence of event-firm abnormal returns. A contrary opinion regarding BHAR’s was formed by Gur-Gershgoren (2008) et. al, after they increased the power of the test. They were able to do so by appropriately specifically augmenting the control firm originally proposed Barber and Lyon (1997) using two approaches, a maximal R² as well as characteristically. Even though the BHAR methodology is likely powerful and sound after the additions of Gur-Gershgoren (2008) et. al, most literature that I focus upon use the calendar time portfolio approach recommended by Fama (1998).

The calendar time approach or Jensen-alpha approach is a popular alternative to the BHAR methodology. Fama recommends a calendar time approach in order to calculate risk adjusted post-event performance. The fundamental concept of the calendar time approach is to first assume a sample of firms that have had significant events (e.g. merger, IPO, etc.) over a
variable number of years whose abnormal returns is equal to the return of the portfolio subtracted from the risk free rate based on treasury yields. Then this excess return is regressed upon capital asset pricing model (e.g. CAPM, Fama-French 3 factor or 5 factor) to calculate a predicted return for the portfolio. Then, predicted return for the portfolio is subtracted from the excess returns with a resulting abnormal return of the original portfolio. If the capital asset pricing model correctly estimates expected return, then the intercept, denoted as alpha, should be either statistically insignificant or zero. If a portfolio generates significantly significant positive or negative alphas, then the portfolio has positive or negative abnormal returns, respectively. An estimation period of the firm can be chosen freely (usually from 1 to 3 years is considered). This methodology has arguments led by Loughran and Ritter (2000) due to the fact that the calendar time approach could have a bias towards finding returns based on market efficiency. They argue that there could be mispricing’s in the market due to CEO’s either being overconfident or timing the corporate event to fully exploit the market. This would lead to the model over-weighting some observations and under-weighting others. (Andrade et al, 2001) that state there is no consensus as to which method has the least econometric problems.

Another event study that exists is the cumulative abnormal return which uses the sum of each month’s average abnormal performance in order to measure abnormal performance. This methodology is mainly used in shorter term analyses which seek to understand the abnormal returns of a firm around the announcement date of an event. However, it can be used to analyze longer term events through cumulating the abnormal returns monthly or daily. Furthermore, as asset pricing models become increasingly more powerful, simple CAR methodology is also increasing in power.
Now that there is a good understanding of how event studies were exactly performed, I explicate certain research that focuses upon this type of methodology. Previous literature from the 1990’s and early 2000’s state that acquirers have recorded poor long-term abnormal returns.\textsuperscript{12} Franks, Harris and Titman (1991) find that during the 1975-1984 period, only small M&A’s transactions had positive significant long-term abnormal returns. Additionally, Andre, Kooli and L’Her (2004) study the long-term performance of Canadian M&A’s during the 1990-2000 periods. Their results suggest that for the 267 Canadian mergers that they sampled, acquirers underperformed significantly over a three year post merger period. Furthermore, they find that M&A’s that were across countries also underperformed in the long term. Moeller et. al, (2004) established that shareholders from large firms after an acquisition suffered much greater losses than shareholders from smaller companies. During the 1980-2001 period, small firm shareholders earned a total of $9 billion from M&A’s whereas the shareholders from large firms lost a significant total of $312 billion. Moeller et. al, (2004) state that, “Acquisitions thus result in losses for shareholders in the aggregate because the losses incurred by large firms are much larger than the gains realized by small firms.”

Furthermore, older literature in finance studied announcement returns to acquirers, targets, and the value-weighted combined company and found that while announcement returns to targets are positive, announcement returns to acquirers are not statistically different than zero. This latter finding led many researchers to argue that mergers destroy value. Several critiques of the baseline findings have emerged. First, Moeller, Schlingemann & Stulz, (2004) showed that the value-weighted losses observed in previous studies come largely from a few “mega” deals that failed. In other words, while most mergers create value, the weighted first moment of the

\textsuperscript{12} Long-term abnormal returns are similar to abnormal returns, yet incorporate longer periods of time from months to years.
cross-section of announcement returns is not positive. A second set of papers pointed out that a company might be a “lemon” (i.e. a poor company) (Braginsky, 2004) in which case its best investment project may be an acquisition, rather than organic growth. The announcement of an acquisition would then signal to the market that the company is more likely to be a lemon, hence the negative announcement return; but in this case the acquisition is still the best, economically rational option for the buyer.

Next, I will expand upon previous literature that suggests that there exists negative long and short term returns for investors. Andre et. al, (2004), “The Long-Run Performance of Mergers and Acquisitions: Evidence from the Canadian Stock Market.” investigate the long-run performance of Canadian acquirers. They focus on two core issues: the magnitude and reliability of abnormal returns and the possible explanations of the long-term abnormal returns of M&A post event firms. Their methodology consists of an emphasis on a calendar-time portfolio approach and a WLS estimation procedure using the Fama-French three factors to calculate long run abnormal returns. The authors find that the, “Three-year post-acquisition abnormal returns for Canadian acquirers underperform significantly on an equal-weighted basis.” They find that the value-weighted abnormal returns are positive; however, this is motivated by a large cap acquirer which participates in four M&A transactions during the peak of the M&A wave. Additionally, they also find that cross country M&A deals perform poorly in the long run.

Another paper which closely correlates to the goal of this research is written by Moeller et. al, (2003). They examine the gains to shareholders of firms that announce acquisitions of public firms, private firms, or subsidiaries of other firms and differentiate between large firms and smaller firms. Their results show that small firms fare significantly better than large firms when they make an acquisition announcement. Overall, the abnormal return associated with
acquisition announcements for small firms exceeds the abnormal return associated with acquisition announcements for large firms by 2.24 percentage points. Except for acquisitions of public firms paid for with equity, small firms gain significantly when they announce an acquisition. Large firms experience significant shareholder wealth losses when they announce acquisitions of public firms irrespective of how the acquisition is financed. They propose the negative returns exist due to Roll’s hubris hypothesis that predicts that managers are overconfident and overpay. Using the research by Malmendier and Tate (2002) that measure overconfidence by the options a manager has left unexercised, they find evidence that overconfident managers make more acquisitions and that abnormal returns are lower.

A study titled “Wealth Destruction on a Massive Scale?” by Moeller et. al, (2005) examine the experience of acquiring-firm shareholders in 1991-2001 in comparison to the merger wave in 1980-1990. After collecting data of the acquirer firms from the CRSP and Compustat database, the authors perform a short and long term analysis of acquiring company’s abnormal returns. Similar to studies that use cumulative abnormal returns to estimate abnormal returns, the authors calculate the aggregate dollar loss of acquiring-firm shareholders as the change in the acquiring firm’s capitalization over the three days surrounding an event or merger announcement. Conjointly, the authors calculate the long run performance of firms announcing a large loss deal. They focus upon acquisitions with shareholder losses in excess of $1 billion which they label as large loss deals. To analyze these deals, they use monthly mean buy and hold abnormal returns (BHAR) as well as a calendar-time approach with two portfolios using the three Fama-French factors (1993) as well as an additional momentum factor advocated by Carhart (1997). Additionally, Moeller et. al, find that from 1991-2001 shareholders of acquiring
firms lost an cumulative $216 billion whereas during the 1980-1990 wave shareholders merely lost $4 billion.

More recent literature (Harris, 2005) has tried to circumvent the econometric problems with announcement returns by looking directly at plant-level efficiency. These generally indicate that mergers create value, on average. This however, is continued to be disputed due to the previous literature that analyzes abnormal performance of acquirers.

There are many theories as to why mergers may either reduce or increase shareholder value. Managers continue to seek the prospect of increased profitability and market share by M&A despite the risks. Managers have many motives for acquiring other companies; practical, psychological, opportunistic, and increased growth. Currently, many theories exist explaining the reasoning behind M&As. A few examples of these theories include management-retrenchment (Shleifer and Vishny, 1989), empire building (Baumol, 1967; Mueller, 1969), and an overestimation of a manager’s capability to recover a target firm’s performance that has naturally been underperforming (Roll, 1986). However, a large number of failures are recorded after these mergers. As Cartwright and Cooper (2010) state, “In reality, two plus two is as likely to add up to less than four, than to achieve the coveted five.”

Shleifer and Vishny (2003) discuss one of the many theories of why mergers occur, the overvalued shares theory. They assume that during a stock market upswing, many firms’ share prices become overvalued which overly inflate their stock prices. Managers of such firms realize that their stock is overvalued and in order to protect shareholders from the potential wealth loss that may occur when the market lowers its evaluations, they pursue M&As. Specifically, to accomplish the M&A by stock swapping their overvalued shares for the real assets of a another company. Rhodes-Kropf and Viswanathan (2004) also predict merger waves during stock market
booms, but offer a different explanation for why target managers accept overvalued shares. The authors claim that the evaluation during the market during a boom makes it difficult for target firms’ managers to review whether the price of a possible acquiring firms shares is high due to a market overvaluation, or due to the anticipated synergies from the merger, and thus they erroneously become willing partners in mergers that do not generate synergies. They claimed support for the theory using various measures of overvaluation such as the book to market ratio as well as the price to book ratio.

There exists a wealth of previous literature that has somewhat conflicting theories on performance of mergers after the event period. My research is distinguished from previous literature in three foremost aspects. Primarily, the investigation is firmly focused upon transaction values as an alternative to solely considering the firm size. Unlike Moeller (2004) who focuses upon market capitalization (firm size) of the firm, I investigate the dollar value that the acquirer paid for the acquired company. The intuition for this arrives mostly from the overvaluation theory that is explained previously. If large companies are indeed overvalued, they would be willing to undergo mergers that could destroy value and reduce performance. Secondly, the five Fama-French factor model will be utilized to measure abnormal returns in the stock portfolios that are classified based upon transaction value, year, acquirer net asset value, acquirer current assets and acquirer book value. This separates my research from previous literature since the five factor pricing model was only recently released in October, 2014 and has thus not been used for this type of calendar time event study. Moreover, previous research does not include such a large data set similar to the one that I will be using due to the fact that the 2001-2013 period has not been thoroughly researched. Andre (2004) and Moeller (2005) focus upon merger periods that occur before 2001. Finally, I will be analyzing specific possible yearly
merger wave periods in the 2001-2013 time period to effectively understand whether shareholders of acquirers lose value during periods of increased merger activity.

III. Hypothesis

Considering the body of literature that focuses upon the negative abnormal returns of mergers. I hypothesize that the results of my analysis will suggest that high value M&A’s will be indeed be detrimental to shareholders of acquiring firms in the long run when compared to the general market.

There will also be significant negative abnormal returns after the peak of a merger waves rather than a trough. If cumulative abnormal returns are indeed not significant or close to zero, the null hypothesis will hold stating that there is no significant difference between the firm and its expected return.

IV. Data

I obtained data from the Wharton Research Data Services as well as the Thompson One and the CRSP/COMPUSTAT merged database.

I obtained my initial data from the Thompson Financial Securities Data Corporation Worldwide Mergers and Acquisitions Database. This database provides information on new issues, mergers and acquisitions, private equity as well as comprehensive information for the global financial marketplace.

For the Thompson One database I required that the merger sample will be,

(1) Observations from 2001-2013;

(2) The acquiror and acquired company are in the United States;
(3) The transaction was completed;

(4) Acquirer has a 6 digit CUSIP;

(5) Deals will be either mergers, or acquisitions of majority interest;

(6) Transaction value greater than $1 million;

(7) Public or private U.S. firm or a non-public subsidiary of a public or private firm is acquired.

(8) The acquirer is a public listed firm on the Center for Research in Security Prices (CRSP) during the same period;

With this initial query I obtained a sample of mergers that included a total of 29,442 observations.\textsuperscript{13} I further narrowed this dataset by dropping all observations that were below 90\textsuperscript{th} percentile of transaction value.\textsuperscript{14}

The SDC database defines deal value by the total value of consideration paid by the acquirer, eliminating fees as well as expenses. This dataset contained acquirers that participated in multiple mergers in the same year. Since I propose to calculate the performance of the merger over a year event period, I could not calculate the calendar time abnormal return if there existed multiple observations of one firm. Thus, I added the transaction value (ValueofTransactionmil) for a unique firms that underwent multiple mergers in a single year in order to reduce multiplicity in the data.

The next step was to obtain the monthly returns for these firms from the CRSP database in Wharton Research Data Services. The 6 digit CUSIP identification of the data did not contain enough information to garner the monthly returns in the CRSP database.\textsuperscript{15} Thus, this reduced number of firms was further condensed when translating the 6 digit CUSIP values into 8 digit

\textsuperscript{13} Descriptive statistics for this initial dataset is found in Table 1. Panel A.

\textsuperscript{14} Percentile values can be found in Table 1. Panel B.

\textsuperscript{15} A CUSIP is a 6-9 digit alphanumeric code that identifies specific North American securities.
CUSIPs using the CRSP PERMNO/PERMCO translation tool. I obtained all monthly firm returns from the CRSP/COMPSTAT database from 2001-2014 in order to calculate the abnormal returns.\footnote{I obtained the monthly firm returns over a 2001-2014 period in case a merger occurred in the latter part of 2013.} The descriptive statistics of the final reduced dataset are listed in Table 2, the panels contains highlights of industry specifics as well as the top 10 largest transaction values that occur in the subsample of 1,156 firms.

The Fama-French factors I will be using to calculate the abnormal returns for high value transactions will be attained from the Fama/French database.\footnote{This database can be accessed at \url{http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html}} Specifically, I will use the Fama-French 5 Factors (2x2x2x2) that are constructed using 4 value-weighted portfolios formed on: size and book-to-market, size and operating profitability, and size as well as investment. It contains the monthly return data from July 1963 to October 2014 for all firms that are included in the NYSE, AMEX as well as NASDAQ.

**Table 1. Initial Descriptive Statistics**

The sample consists of 29,442 completed U.S. mergers between two public companies during the 2001-2013 period. I obtain my data from the Thompson Financial Securities Data Corporation (SDC).

<table>
<thead>
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<th>Panel A. Distribution by Year</th>
<th>Number of Transactions</th>
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<tbody>
<tr>
<td>2001</td>
<td>2,366</td>
<td>7.39</td>
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<td>2002</td>
<td>2,257</td>
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<tr>
<td>2003</td>
<td>2,320</td>
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<tr>
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<td>2005</td>
<td>2,765</td>
<td>8.64</td>
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<td>2006</td>
<td>2,893</td>
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<tr>
<td>2007</td>
<td>2,852</td>
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<tr>
<td>2008</td>
<td>1,993</td>
<td>6.23</td>
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<tr>
<td>2009</td>
<td>1,593</td>
<td>4.98</td>
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<td>2010</td>
<td>1,874</td>
<td>5.86</td>
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\footnote{I obtained the monthly firm returns over a 2001-2014 period in case a merger occurred in the latter part of 2013.}
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<th>Year</th>
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<td>2010</td>
<td>108</td>
<td>9.34</td>
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Table 2. Descriptive Statistics for Acquirers

The sample consists of 1,156 completed U.S. mergers between two public companies during the 2001-2013 period. I obtain my data from the Thompson Financial Securities Data Corporation (SDC).
<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Firms</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>76</td>
<td>6.57</td>
</tr>
<tr>
<td>2012</td>
<td>109</td>
<td>9.43</td>
</tr>
<tr>
<td>2013</td>
<td>125</td>
<td>10.81</td>
</tr>
<tr>
<td>Total</td>
<td>1,156</td>
<td>100</td>
</tr>
</tbody>
</table>

**Panel B. Distribution by Industry Sector**

<table>
<thead>
<tr>
<th>Acquiror Industry Sector</th>
<th>No. of Firms</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising Services</td>
<td>2</td>
<td>0.17</td>
</tr>
<tr>
<td>Aerospace and Aircraft</td>
<td>13</td>
<td>1.12</td>
</tr>
<tr>
<td>Agriculture, Forestry, and Fishing</td>
<td>5</td>
<td>0.43</td>
</tr>
<tr>
<td>Air Transportation and Shipping</td>
<td>4</td>
<td>0.35</td>
</tr>
<tr>
<td>Amusement and Recreation Services</td>
<td>10</td>
<td>0.87</td>
</tr>
<tr>
<td>Business Services</td>
<td>52</td>
<td>4.5</td>
</tr>
<tr>
<td>Chemicals and Allied Products</td>
<td>12</td>
<td>1.04</td>
</tr>
<tr>
<td>Commercial Banks, Bank Holding Companies</td>
<td>85</td>
<td>7.35</td>
</tr>
<tr>
<td>Communications Equipment</td>
<td>11</td>
<td>0.95</td>
</tr>
<tr>
<td>Computer and Office Equipment</td>
<td>39</td>
<td>3.37</td>
</tr>
<tr>
<td>Construction Firms</td>
<td>10</td>
<td>0.87</td>
</tr>
<tr>
<td>Credit Institutions</td>
<td>3</td>
<td>0.26</td>
</tr>
<tr>
<td>Drugs</td>
<td>86</td>
<td>7.44</td>
</tr>
<tr>
<td>Electric, Gas, and Water Distribution</td>
<td>59</td>
<td>5.1</td>
</tr>
<tr>
<td>Electronic and Electrical Equipment</td>
<td>40</td>
<td>3.46</td>
</tr>
<tr>
<td>Food and Kindred Products</td>
<td>34</td>
<td>2.94</td>
</tr>
<tr>
<td>Health Services</td>
<td>26</td>
<td>2.25</td>
</tr>
<tr>
<td>Hotels and Casinos</td>
<td>8</td>
<td>0.69</td>
</tr>
<tr>
<td>Insurance</td>
<td>55</td>
<td>4.76</td>
</tr>
<tr>
<td>Investment &amp; Commodity Firms, Dealers, Exec</td>
<td>114</td>
<td>9.86</td>
</tr>
<tr>
<td>Machinery</td>
<td>26</td>
<td>2.25</td>
</tr>
<tr>
<td>Measuring, Medical, Photo Equipment; Cl</td>
<td>54</td>
<td>4.67</td>
</tr>
<tr>
<td>Metal and Metal Products</td>
<td>28</td>
<td>2.42</td>
</tr>
<tr>
<td>Mining</td>
<td>15</td>
<td>1.3</td>
</tr>
<tr>
<td>Miscellaneous Retail Trade</td>
<td>19</td>
<td>1.64</td>
</tr>
<tr>
<td>Motion Picture Production and Distributor</td>
<td>8</td>
<td>0.69</td>
</tr>
<tr>
<td>Oil and Gas; Petroleum Refining</td>
<td>105</td>
<td>9.08</td>
</tr>
<tr>
<td>Other Financial</td>
<td>1</td>
<td>0.09</td>
</tr>
<tr>
<td>Paper and Allied Products</td>
<td>13</td>
<td>1.12</td>
</tr>
<tr>
<td>Personal Services</td>
<td>2</td>
<td>0.17</td>
</tr>
<tr>
<td>Prepackaged Software</td>
<td>33</td>
<td>2.85</td>
</tr>
<tr>
<td>Printing, Publishing, and Allied Service</td>
<td>17</td>
<td>1.47</td>
</tr>
<tr>
<td>Radio and Television Broadcasting Station</td>
<td>26</td>
<td>2.25</td>
</tr>
<tr>
<td>Industry Description</td>
<td>Value of Transaction mil</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------</td>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td>Real Estate; Mortgage Bankers and Brokers</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>Repair Services</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Retail Trade-Eating and Drinking Places</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>Retail Trade-Food Stores</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>Retail Trade-General Merchandise and Ap</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>Rubber and Miscellaneous Plastic Products</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td>Sanitary Services</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>Savings and Loans, Mutual Savings Banks</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>Soaps, Cosmetics, and Personal-Care Products</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>Social Services</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Stone, Clay, Glass, and Concrete Products</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Telecommunications</td>
<td>3.46</td>
<td></td>
</tr>
<tr>
<td>Textile and Apparel Products</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>Tobacco Products</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>Transportation Equipment</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>Transportation and Shipping (except air)</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>Wholesale Trade-Durable Goods</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>Wholesale Trade-Nondurable Goods</td>
<td>1.21</td>
<td></td>
</tr>
<tr>
<td>Wood Products, Furniture, and Fixtures</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,156</td>
<td></td>
</tr>
</tbody>
</table>

**Panel C. Top 10 Transactions**

<table>
<thead>
<tr>
<th>Date Announced</th>
<th>Date Effective</th>
<th>Acquiror Industry Sector</th>
<th>Value of Transaction mil</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Nov-09</td>
<td>12-Feb-10</td>
<td>Insurance</td>
<td>36723.997</td>
</tr>
<tr>
<td>15-Dec-04</td>
<td>12-Aug-05</td>
<td>Telecommunications</td>
<td>38975.067</td>
</tr>
<tr>
<td>14-Dec-09</td>
<td>25-Jun-10</td>
<td>Oil and Gas; Petroleum Refining</td>
<td>40298.142</td>
</tr>
<tr>
<td>27-Oct-03</td>
<td>1-Apr-04</td>
<td>Commercial Banks, Bank Holding Companies</td>
<td>49260.627</td>
</tr>
<tr>
<td>11-Jan-08</td>
<td>1-Jul-08</td>
<td>Commercial Banks, Bank Holding Companies</td>
<td>4143.851</td>
</tr>
<tr>
<td>28-Jan-05</td>
<td>1-Oct-05</td>
<td>Soaps, Cosmetics, and Personal-Care Prod</td>
<td>54906.807</td>
</tr>
<tr>
<td>14-Jan-04</td>
<td>1-Jul-04</td>
<td>Commercial Banks, Bank Holding Companies</td>
<td>58663.146</td>
</tr>
<tr>
<td>15-Jul-02</td>
<td>15-Apr-03</td>
<td>Drugs</td>
<td>59515.024</td>
</tr>
<tr>
<td>26-Jan-09</td>
<td>15-Oct-09</td>
<td>Drugs</td>
<td>67285.695</td>
</tr>
<tr>
<td>2-Sep-13</td>
<td>21-Feb-14</td>
<td>Telecommunications</td>
<td>130298.32</td>
</tr>
</tbody>
</table>
V. Methodology

My methodology will focus upon calculating cumulative abnormal returns of portfolios that will be based upon transaction value. For the long-run abnormal performance test, I will begin the multiyear event at the announcement date of the merger or acquisition. To estimate long-term abnormal returns subsequent to a merger announcement, I use abnormal returns for a firm which are the cumulatively added to form a cumulative abnormal return.

Thus, I created an event portfolio of 90th and greater percentile firms that assume a merger within some period from 2001 to 2013. I then obtained the value weighted return of each firm in a calendar month from the CRSP database18 that calculates the return on the portfolio for each calendar month (t=1 to T). Many separate portfolios were created in order to analyze and differentiate the abnormal returns of high value transactions and the market. These portfolios comprised of events that have occurred at least 12 months prior to the measurement month. Furthermore, the firms that have undergone an event must have monthly value weighted returns at least 10 months prior to the event date. This is in order to estimate the parameters for abnormal returns. For each portfolio, I calculated the excess return of each firm which was the value weighted monthly return subtracted from the risk free treasury rate. Then the excess returns of the event portfolio are regressed on the Fama-French five factor model as in the following regression:

$$R_{p,t} - R_{f,t} = a_p + B_p (R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + rRMW_t + cCMA_t + e_{p,t}$$

Rpt is the equal or value-weighted return for calendar month t for the portfolio of event firms that experienced the event within the previous T months, Rft is the risk-free interest rate. The dependent variable of the five factor regression is the monthly excess return of the asset and

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18 A value weighted return is obtained by calculating the return of the asset weighted by its market capitalization.
is calculated as \((R_{pt} - R_{f,t})\). \(R_{m,t}\) is the return on the value weighted (VW) market portfolio and this is subtracted from the risk free interest rate \(R_{f,t}\). \(SMB_t\) stands for small minus big and otherwise is known as the risk factor in returns related to the size. Specifically, it is the difference between the returns on small and large stock portfolios with similar weighted average book-market (BE/ME) ratios. \(HML_t\) represents high minus low or otherwise the risk factor related to book-to-market ratio. Fama French (1993) promote that the \(HML\) is the monthly difference between the average return of high BE/ME portfolios and low BE/ME portfolios. The fourth factor \(RMW\) considers the difference between the returns on diversified portfolios of stocks with robust and weak profitability (Fama-French, 2014). The last factor, \(CMA\) reflects the difference among the returns on portfolios of stocks of low and high investment firms, or otherwise known as conservative and aggressive companies. \(B_i, s_i, h_i, r_i, c_i\) capture the loadings of the portfolios and if they theoretically include all variance in the expected return, the alpha value will be 0. However, if the model incompletely includes the variance in expected returns of the M&A portfolio, then \(a\) will include the abnormal return due to the event as well as the inexplicable return resulting from the misspecification of the model. Thus, within this model, the intercept \(a\) measures the, “Average monthly abnormal return of the portfolio of M&A event firms, which is considered as 0 under the null hypothesis of no abnormal performance” (Andre, 2004). These 5 factors as well as the risk free rate are obtained from the 2x2x2x2 data set created by Kenneth French. I calculate

After I obtained the abnormal performance measure for each firm monthly, I calculated the cumulative abnormal return which is the sum of each month’s average abnormal performance. The CAR starting at time \(t_1\) through time \(t_2\) (i.e., horizon length \(L = t_2 - t_1 + 1\)) is defined as:
Using the CAR’s I will calculate the abnormal performance of mega mergers using OLS analysis. The focus of my OLS regression analysis will include one main portfolios which will include transactions above the 90th percentile. From this initial portfolio, I will further split this original portfolio into classifications. Furthermore, I created unique portfolios based upon the industrial sector, acquirer asset value as well as the acquirer book value of the firm. Moreover, I split the merger data into distinct time periods in order to understand if certain years with a large number of mergers could an impact upon abnormal returns for acquirers similar to that of a merger wave.

VI. Results

My analysis of the long-run abnormal return of U.S. mega mergers focus upon the cumulative abnormal returns of firms that have experienced a very large merger. I first calculate abnormal returns of all firms in the sample and calculate the predicted expected return of the asset using the Fama-French 5 factor model. Then I calculate the abnormal return as well as a cumulative abnormal return of each firm for a one year period. Then I use OLS procedure to identify if the abnormal return or alpha value differs from the null hypothesis of taking on the value of 0.

I first measure the one year post acquisition cumulative abnormal return of the average high value transaction merger using equal weighted returns, where I find a significant negative underperformance of -0.283%. Which means that on average, mega mergers during the 2001 to 2013 period significantly underperformed when compared to the market return.
I analyze the abnormal returns of firms that have announcement dates in specific years ranging from 2001-2013. I then create separate portfolios of all years that had mega mergers which is shown in table 5. This certain analysis was performed due to the fact that certain years actually had increased frequency than others. I discover that nearly all years when taken separately seem to have a significant negative abnormal return. This result could have been expected since the average of all firms in the sample had already been known to have negative returns. One of the interesting aspects of the table is that during the years of 2005 and 2006, there are positive significant CAR’s. In the literature, Shleifer and Vishny (2003) state that a possible overvaluation can occur during waves of increased merger activity. In this case, the overvaluation of the mergers could cause this positive CAR due to a market correction not having occurred in the year of study. Furthermore, Rhodes-Kropf and Viswanathan (2004) suggest that during a stock market boom, the target firm can have difficulty in calculating the true value of a merger bid due to the general overvaluation of the market. Both literatures predict that during a stock market boom (which occurred in 2005 and 2006) there is a general increase in the number of mergers. This is slightly supported by results due to the marginal increase of mega mergers in 2005-06. Specifically, the alphas are positive for 2005 and 2006 at 0.26% ($t = 47.98$) and 0.14% ($t = 5.63$).

<table>
<thead>
<tr>
<th>Table 3. CAR’s Over All Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAR</strong></td>
</tr>
<tr>
<td>_cons</td>
</tr>
<tr>
<td>Statistically significant at .01 level***</td>
</tr>
</tbody>
</table>

Table 4. Portfolios Based Upon Specific Years

| Year | Cumulative Abnormal Return | Robust | Std. Err | t | P>|t| | Freq. |
|------|-----------------------------|--------|----------|---|-----|------|
Next, I examine the CAR’s of industrial sectors that have experiences mega mergers. My aim is to understand if certain industrial sectors have either under or over performed after a mega merger. The results of the analysis can be found in table 10. The significant sectors with positive CAR’s cannot be easily connected to theoretical story. I find that only the Agriculture, Forestry sectors have a positive CAR of 1.57% ($t = 4.08$). Insurance, Food and Kindred Products and Radio and TV broadcasting sectors all have significantly negative CAR’s. These results are not extremely interesting and cannot be explained through the previous literature.

Subsequently, I calculate the CAR’s of the classifications that I outlined earlier. Similar to the study of Moeller (2005), I create portfolios of mergers that are further broken down through percentiles of the classifications. The analysis of the summation of transaction values point to the fact that the lowest 25% of mega mergers in my sample actually underperform for a year period. This contradicts Moeller (2005) who states that the largest value destroying mergers are only a few of the prevalent companies. In this case, firms below the 75th percentile of the sample accrued significant negative CAR’s.
Table 5. Sum of Transaction values

| Sum of Transaction Values | Alpha     | Robust Std Error | t      | P>|t| | Freq. |
|---------------------------|-----------|------------------|--------|-------|-------|
| Above 75%, >2869.512      | .0019424  | 0.0020089        | 0.97   | 0.334 | 288   |
| Below 75%, <2869.512      | -.0044225 | 0.0010445        | -4.23  | 0***  | 866   |
| Above 50%, >1300          | .0001891  | 0.0013224        | 0.14   | 0.886 | 579   |
| Below 50%, <1300          | -.0058782 | 0.0013069        | -4.5   | 0**   | 575   |
| Above 25%, >773           | -.0019507 | 0.0010797        | -1.81  | 0.071*** | 865 |
| Below 25%, <773           | -.0054778 | 0.0018527        | -2.96  | 0.003*** | 289 |

For the next classification, I breakdown the acquirer net assets in terms of percentiles in table to study the CAR’s of firms with higher and lower net assets. Similar to the previous table I find that acquirers that were below the 75th percentile had significantly negative CAR’s.

Table 6. Acquirer Net Assets

| Acquirer Net Assets | Alpha       | Robust Std Error | t      | P>|t| | Freq. |
|---------------------|-------------|------------------|--------|-------|-------|
| Above 75%, >12425.6 | .0004997    | 0.0017277        | 0.29   | 0.773 | 305   |
| Below 75%, <12425.6 | -.0040316   | 0.0011045        | -3.65  | 0***  | 849   |
| Above 50%, >3196.7  | -.0018113   | 0.0012824        | -1.41  | 0.158 | 588   |
| Below 50%, <3196.7  | -.0038964   | 0.0013591        | -2.87  | 0.004*** | 566 |
| Above 25%, >1159.1  | -.0021363   | 0.0010594        | -2.02  | 0.044*** | 872 |
| Below 25%, <1159.1  | -.0049916   | 0.0019634        | -2.54  | 0.012** | 282 |

Similar to that of the previous classifications, only the largest firms did not have significantly negative CAR’s. These previous classifications are positively correlated with the
size of the acquiring firm, and thus points to the possibility that unless a mega merger is in the upper 25\textsuperscript{th} percentile of size classifications, the merger may prove to be performance decreasing over the next year.

Table 7. Current Total Assets

| Host Cur Total Assets | Alpha  | Robust Std Error | t     | P>|t|   | Freq. |
|-----------------------|--------|------------------|-------|-------|-------|
| Above 75%, >1715746   | 0.0041384 | 0.005431        | 0.76  | 0.453 | 26    |
| Below 75%, <1715746   | -0.0029947 | 0.0009466     | -3.16 | 0.002*** | 1128 |
| Above 50%, >8537.15   | -0.002746  | 0.0012655      | -2.17 | 0.03** | 588   |
| Below 50%, <8537.15   | -0.0029254 | 0.0013775     | -2.12 | 0.034** | 566   |
| Above 25%, >2836.1    | -0.0018473 | 0.0010917     | -1.69 | 0.091* | 872   |
| Below 25%, <2836.1    | -0.0058852 | 0.0017797     | -3.31 | 0.001*** | 282   |

Lastly, I examine the average acquirer book value in the last 12 months of the acquiring firm. Interestingly, I find that firms above the 25\textsuperscript{th} percentile of have significantly negative CAR’s. This results is interesting due to the fact that the book value of a firm is usually a good indicator for the valuation of a company. An explanation of this could be that during a merger wave, the book value of a company could sharply increase which could lead to a stronger market correction into the future.

Table 8. Acquirer Book Value Last Twelve Months

<p>| Acquirer Book Value LTM | Alpha | Robust Std Error | t     | P&gt;|t|   | Freq. |
|------------------------|-------|------------------|-------|-------|-------|
| Above 75%, &gt;21.59      | -0.0024861 | 0.0014362      | -1.73 | 0.084* | 312   |
| Below 75%, &lt;21.59      | -0.0029629  | 0.001164       | -2.55 | 0.011** | 842   |</p>
<table>
<thead>
<tr>
<th></th>
<th>Car</th>
<th>Abn Rtns</th>
<th>T Stat</th>
<th>P Value</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 50%, &gt;13.73</td>
<td>-.0037493</td>
<td>0.0011774</td>
<td>-3.18</td>
<td>0.002***</td>
<td>593</td>
</tr>
<tr>
<td>Below 50%, &lt;13.73</td>
<td>-.0018665</td>
<td>0.0014625</td>
<td>-1.28</td>
<td>0.202</td>
<td>561</td>
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<tr>
<td>Above 25%, &gt;7.76</td>
<td>-.0038839</td>
<td>0.0010162</td>
<td>-3.82</td>
<td>0***</td>
<td>874</td>
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<tr>
<td>Below 25%, &lt;7.76</td>
<td>.000443</td>
<td>0.0021698</td>
<td>0.2</td>
<td>0.838</td>
<td>280</td>
</tr>
</tbody>
</table>

These results provide evidence that mega mergers are on average performance decreasing for the acquiring firm. These results also support the aim of my research which was to examine if mega mergers are indeed performance decreasing. In this way, shareholders of acquirers that seek mega mergers tend to have inferior returns for their portfolios.

VII. Conclusions

I used a sample of 1,156 mergers that were announced between 2001 and 2013 and I investigate the performance of these U.S. mergers over a year period. In my research, I focus upon the magnitude of the cumulative abnormal returns, possible merger wave effects as well as classifications that were used as possible explanations of the long-term CAR’s in mega mergers. The foremost results are: Using the Fama-French 5 factor model to calculate expected return as well as the CAR’s, I find that mega mergers overall have a reduction in performance in the long run which holds my hypothesis to be true. This finding is supported by Moeller (2005) who also finds that very large firms that undergo mergers are value destroying. Furthermore, I find slight evidence of merger waves positively impacting the CAR’s to increase value of the firm during a market boom period. This finding is supported by Shleifer and Vishny (2003) as well as Kropf and Viswanathan (2003). Furthermore, I find an interesting caveat that outlines a decrease in performance when smaller firms that have lower current assets as well as other size factors
undergo megamergers. In this way, I empirically discovered that mega mergers are indeed performance decreasing in the stock market for the long term.

VIII. References


IX. Appendix

<table>
<thead>
<tr>
<th>Table 9. Classifications</th>
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<td>Transaction Value</td>
</tr>
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<td>Current Assets</td>
</tr>
<tr>
<td>Total Assets</td>
</tr>
<tr>
<td>Sum Values</td>
</tr>
<tr>
<td>Acquirer Book Value LTM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 10. Industrial Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquirer Industry Sector</td>
</tr>
</tbody>
</table>

32
<table>
<thead>
<tr>
<th>Industry</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>t-Value</th>
<th>p-Value</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising Services</td>
<td>-0.016488</td>
<td>0.0046965</td>
<td>0.35</td>
<td>0.785</td>
<td>2</td>
</tr>
<tr>
<td>Aerospace and Aircraft</td>
<td>0.071151</td>
<td>0.0116033</td>
<td>0.61</td>
<td>0.551</td>
<td>13</td>
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<tr>
<td>Agriculture, Forestry, and Fishing</td>
<td>0.015767</td>
<td>0.003861</td>
<td>4.08</td>
<td>0.015*</td>
<td>5</td>
</tr>
<tr>
<td>Air Transportation and Shipping</td>
<td>-0.0124216</td>
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<td>-1.32</td>
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<td>4</td>
</tr>
<tr>
<td>Amusement and Recreation Services</td>
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<td>0.0080535</td>
<td>1.43</td>
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<td>10</td>
</tr>
<tr>
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<td>Other Financial</td>
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<td>Paper and Allied Products</td>
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<td>0.0049494</td>
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