

**Do Mergers and Acquisitions Have an Impact on the Acquiring  
Shareholders' Wealth in Latin America?**

by

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## **Resumen**

Esta investigación examina el impacto de 177 fusiones o adquisiciones en el valor de las acciones de las entidades adquirentes en las transacciones completadas en la región de América Latina entre los años 2005 y 2010. Se utilizó una metodología de análisis de evento para calcular los rendimientos anormales de las acciones alrededor del evento, ya sea la fecha del anuncio o de la finalización de la fusión o adquisición. Los resultados generales de esta investigación muestran en promedio retornos negativos para los accionistas en las diferentes ventanas de tiempo, pero sin ningún significativo estadístico. En consecuencia, puede parecer que la fusión o adquisición no tuvo ningún impacto en la riqueza de los accionistas. Estos resultados contribuyen a los limitados estudios realizados sobre el impacto de las fusiones y adquisiciones en América Latina y a los estudios que examinan el evento en la fecha de finalización de la fusión o adquisición.

## **Abstract**

This research examines the impact of 177 mergers or acquisitions in the acquiring shareholders' value for completed deals in the Latin America region from 2005 through 2010. An event study methodology was used to calculate the abnormal returns surrounding the event, which was the announcement or completion date of the merger or acquisition. Prior research findings for different regions have disagreed as to whether acquiring shareholders generate positive or negative returns. Consequently, it may seem as if the merger or acquisition had no impact in the shareholders' wealth. These results contribute to the limited studies of the impact of mergers and acquisitions in Latin America and to studies examining the event at the completion date of the merger or acquisition.

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For my dad and mom, without all your support, guidance,  
and love this would not have been possible.

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## List of Abbreviations

AR	Abnormal Return
AAR	Average Abnormal Return
CAPM	Capital Asset Pricing Model
CAR	Cumulative Abnormal Return
CAAR	Cumulative Average Abnormal Return
CMAR	Cumulative Market-Adjusted Returns
CMFAR	Cumulative Matched-Firm-Adjusted Returns
EMH	Efficiency Market Hypothesis
EMMs	Emerging-Market Multinationals
M&A	Mergers and Acquisitions
NAFTA	North American Free Trade Agreement
NYSE	New York Stock Exchange
SCAR	Standardized Cumulative Abnormal Return
SD	Standard deviation
S&P500	Standard and Poors 500
US	United States

## **Chapter 1: Introduction**

Lately, many business combinations, mergers, acquisitions, and consolidations have been occurring in different industries and countries. In a business combination an entity gains control over the assets of another entity. Entities chose to combine with other entities to expand, reduce costs to obtain technological knowledge, combine research and development activities, increase market share or cover market demand not currently being served.

According to Bragg (2007), an acquisition occurs when an entity pays cash, stock, and/or debt to acquire some portion of the voting stock of another entity, and the acquired entity continues to exist as a separate legal entity. On the other hand, consolidation occurs when a new entity is formed to acquire other entities through an exchange of stock, after which the acquired entities are dissolved as separate legal entities. A merger is defined as a transaction that occurs when one entity acquires all the assets of another entity through the payment of cash, stock, and/or debt. All these combinations involve at least two companies and may result in a new company, two companies in one, a company with control over the other, or a company disappearing.

### **1.1 Justification**

There have been many event studies about the behavior of stock prices in business combinations, not just about acquiring stocks, but about target stocks as well. For example, Dutta (2006) concluded that with respect to short-term abnormal return there were positive and significant abnormal returns for the acquiring firm shares around the announcement date. Yuce and Ng (2005) concluded that the shareholders of the acquiring firms earn a positive return within two days before and after the announcement date. However, returns become insignificant and negative at the end of the first week. They also concluded that both types of firms earned

significant positive returns, but that the target firms continued to earn significantly higher returns compared to the acquiring firms. On the other hand, Bruner (2001) investigated a series of studies that were made regarding the abnormal returns of the acquiring and targets' firm. Bruner concluded that abnormal (or market-adjusted) returns to buyer shareholders from Merger and Acquisitions (M&A) activity are essentially zero. He also concluded that M&A transactions delivered a premium return to target firm. Savor (2003) studied the gold mining industry and concluded that gold mining acquirers seem to exhibit lower abnormal returns.

These are just a few studies that have been done related to this topic. However, none of them were done with Latin American M&A deals. Therefore, this investigation will help expand the knowledge of Latin American mergers and acquisitions from 2005 through 2010. Consequently, Latin American M&A is an important topic that should be studied to understand if stockholders gain or lose from this type of transaction.

## **1.2 Objective**

The main objective of this research was to investigate Latin America's mergers and acquisitions' stock prices of the acquiring firm. There will be a comparison of the bidder's stock price around the announcement date with the stock price around the completion date of the M&A. This will help determine if the M&A has any impact in the stock price and whether the shareholders gain or lose before and after a M&A. Furthermore, studies have been done regarding the value created through the M&A around the announcement date, but few have been found that use the completion date as the event for their studies. Therefore, this investigation, not only contributes to Latin American M&A, but it will also allow investigators to consider this event and be able to compare results with the announcement M&A event, just as will be done in this investigation.

### **1.3 Limitations**

There were some limitations while doing the investigation. A constraint was the accessibility of information for the different countries regarding stock prices and index prices that were missing. Another limitation was that the investigation was specifically from the acquirer's point of view, since the target firm's information is not always accessible. Finally, only a five-year period was investigated from 2005 through 2010 for completed M&A transactions, but it could have been done for a longer period for more accurate results.

### **1.4 Thesis Outline**

The following four chapters of this investigation will present detailed information about the topic, data, results, and conclusions. The second chapter consists of the literature review, including mergers and acquisition trends, theory of efficient markets, as well as prior studies. All of these topics are detailed in this chapter as the basis for this research. The next chapter provides the methodology. This chapter includes an explanation of the methodology that was used, how the sample was selected, and a description of how the study was conducted. The fourth chapter consists of the sample's detailed description, a discussion of the empirical results, and an analysis of findings. Finally, the fifth chapter includes conclusions and recommendations for future research.



## **Chapter 2: Literature Review**

Mergers and acquisitions (M&A) are often studied because of their importance and increasing occurrence as business strategies. In this section the different trends of mergers and acquisitions throughout the world and time are studied. The section also includes the increasing trend of mergers and acquisitions in Latin America, which is the geographic area investigated.

### **2.1 M&A Trends**

M&A have been happening for a long time, but in the 1980s they became a worldwide growth trend. The global value of M&A has risen rapidly from €60 billion in 1984 to €355 billion in 1990 (Cartwright & Cooper, 1996). As shown below, Table 1.1 presents that the behavior of announced M&A globally and in the United States have been increasing since 1995 and reached its peak in 2000 with 37,204 and 9,566 announced M&A, respectively. In 2001, however, M&A activity declined because of the economic problems that arose after September 11. After a few years, global M&A activity reached a peak again in 2007 with 42,921 announced M&A, dropping again the next year due to the economic recession (DePamphilis, 2010). Nonetheless, this investigation was based on the Latin American market, since Puerto Rico is also part of this geographic region.

Table 2.1 *Trends in Announced Mergers and Acquisitions*

Year	Global M&As		U.S. M&As		U.S. Share of Global M&As	
	Number	\$Value (billions)	Number	\$Value (billions)	Number (%)	\$Value (%)
1995	22,027	980	3,510	356	15.9	36.3
1996	23,166	1,146	5,848	495	25.2	43.2
1997	22,642	1,676	7,800	657	34.5	39.2
1998	27,256	2,581	7,809	1,192	28.7	46.2
1999	37,701	3,439	9,278	1,426	29.3	41.5
2000	37,204	3,497	9,566	1,706	25.7	48.8
2001	28,828	1,745	8,290	759	28.8	43.5
2002	26,270	1,207	7,303	441	27.7	36.5
2003	27,753	1,333	8,131	559	29.3	41.9
2004	31,467	1,949	9,783	812	31.1	41.7
2005	33,574	2,775	10,644	1,045	31.7	37.7
2006	38,602	3,794	10,977	1,563	28.4	41.2
2007	42,921	4,784	10,554	1,579	24.6	33.0
2008	27,478	2,898	6,237	947	22.7	32.7

Source: Thompson Reuters and Dealogic.

Note: All valuations include the value of debt assumed by the acquirer.

According to Metwalli and Tang (2004), since the early 1990s, many countries in Latin America have gone through major economic transformations and adopted new policies to attract foreign investment and promote economic growth. For example, Mexico has attracted significant investment from the United States, Japan, and many European countries by joining Canada and the United States to create NAFTA (North American Free Trade Agreement) in 1994 and privatizing its industries in the 1990s. Beginning in 1991, Brazil implemented its National Privatization Program to privatize steel, petrochemical, fertilizer, telecommunication, electricity, gas, and petroleum distribution companies. Brazil also welcomes foreign investment by providing state and local tax concession and other non-tax concession and incentives. Similar privatization and deregulation programs have also been implemented in Argentina, Chile, and other Latin American countries to promote investment, trade and economic growth.

All these innovations have had a positive result in the Latin America countries, which bring investments among Latin America and other foreign countries, resulting in economic

growth. Furthermore, in order to expand their companies or market share, some companies decide to merge or acquire. In Figure 2.1, it can be observed how consistently the number of M&A announcements has been increasing from 1990 through 1998 achieving its peak in the year 2000 with 617. In Figure 2.2, it can be seen that the values of the M&A transactions decreased from 1990 through 1993, but began increasing in 1994 until 1998. The greatest value of M&A was in 2000, since this was the year with the most M&A transactions. Both figures reflected that the number and values of M&A transactions decreased during 2001 and 2002, which can be explained by the global economic recession and growing concern about the monetary crisis in Brazil and Argentina (Metwalli & Tang, 2004).

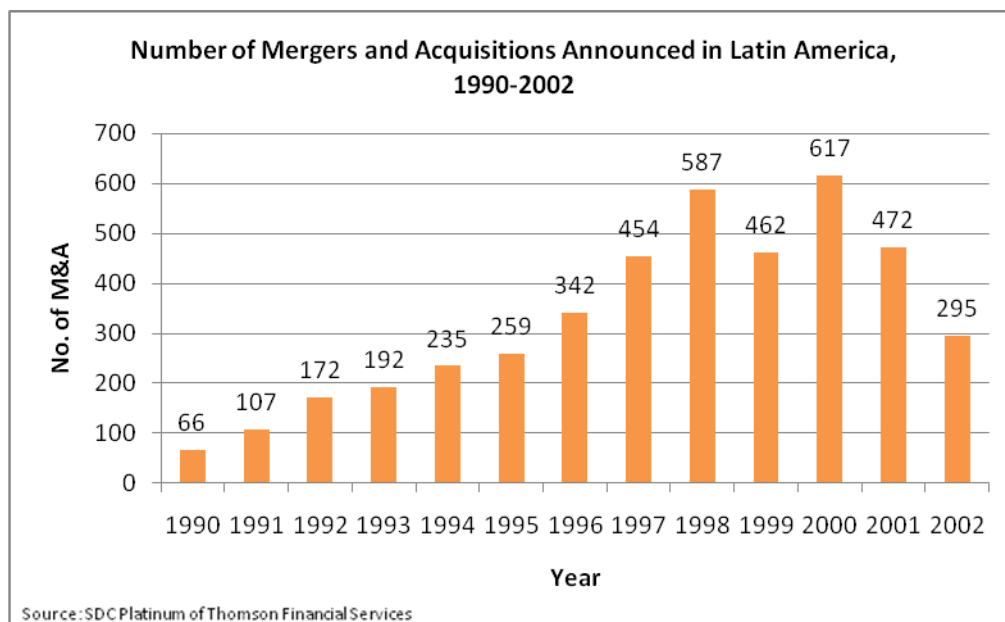


Figure 2.1 *Mergers & Acquisitions Announcements in Latin America*

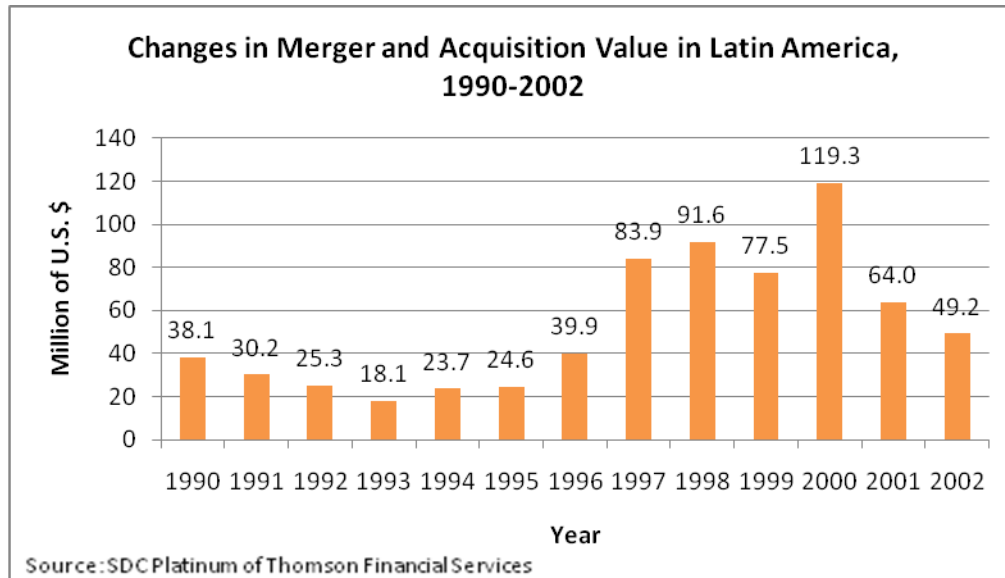


Figure 2.2 *Merger & Acquisition Value in Latin America*

Besides the trends mentioned above until 2002, the M&A transactions in Latin America are still booming as shown in the following figures extracted from a Greenberg Traurig report (2008) in association with Mergermarket. As observed in Figure 2.3, the volume of Latin American M&A deals has been increasing in each quarter from 2004 through 2007. In 2007, the region completed 425 deals worth \$63 billion, 32% more than the previous year.

As shown in Figures 2.4 and 2.5, Brazil is the country with the most M&A volume and value deals in the Latin American region. Brazil, the region's economic powerhouse and also the world's tenth largest economy, is likely to drive M&A expansion further in the region as its economy is forecasted to grow around 4.1% a year, well above the long-term average of 2.2%. Regional deal flow has remained surprisingly resilient in the face of the ongoing credit crunch, and countries within the area continue to exhibit strong economic fundamentals. Due to this, deal flow in 2008 saw M&A markets in the region continue to expand. Thus, it can be stated that Latin America is on the cusp of an M&A boom (Greenberg Traurig & Mergermarket, 2008).

### Latin America M&A trends

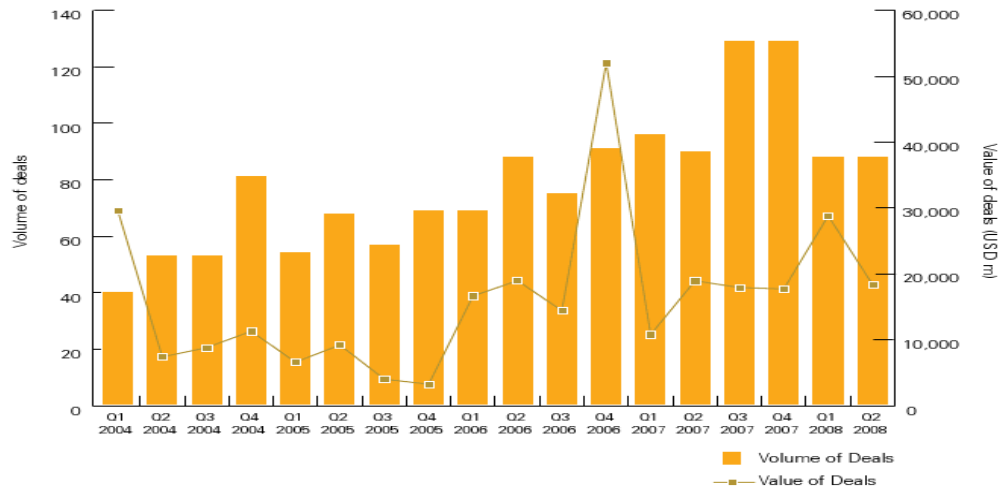


Figure 2.3 *Mergers & Acquisitions Trends in Latin America*

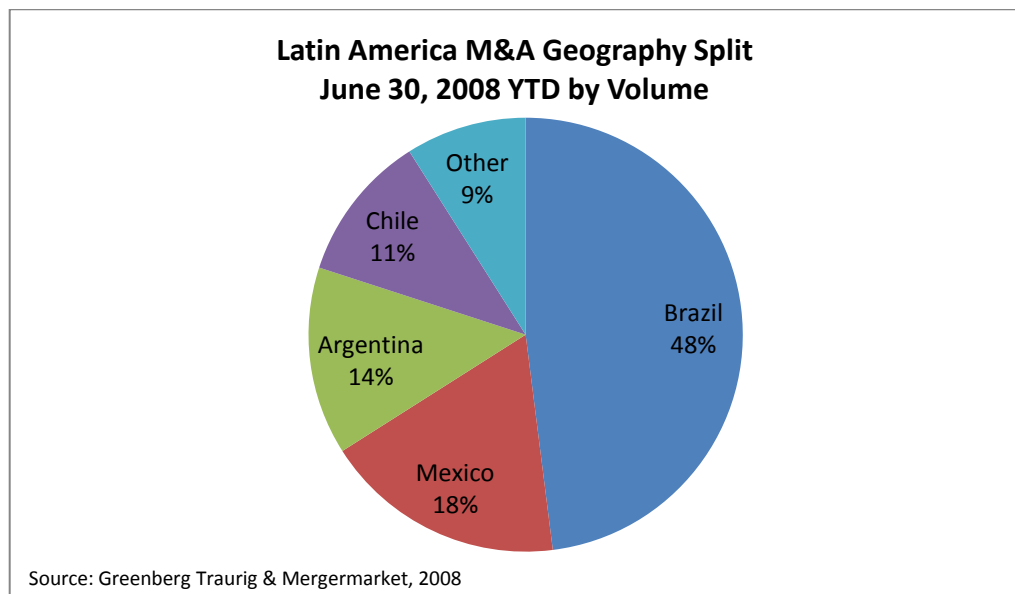


Figure 2.4 *Latin America Mergers & Acquisitions by location - Volume*

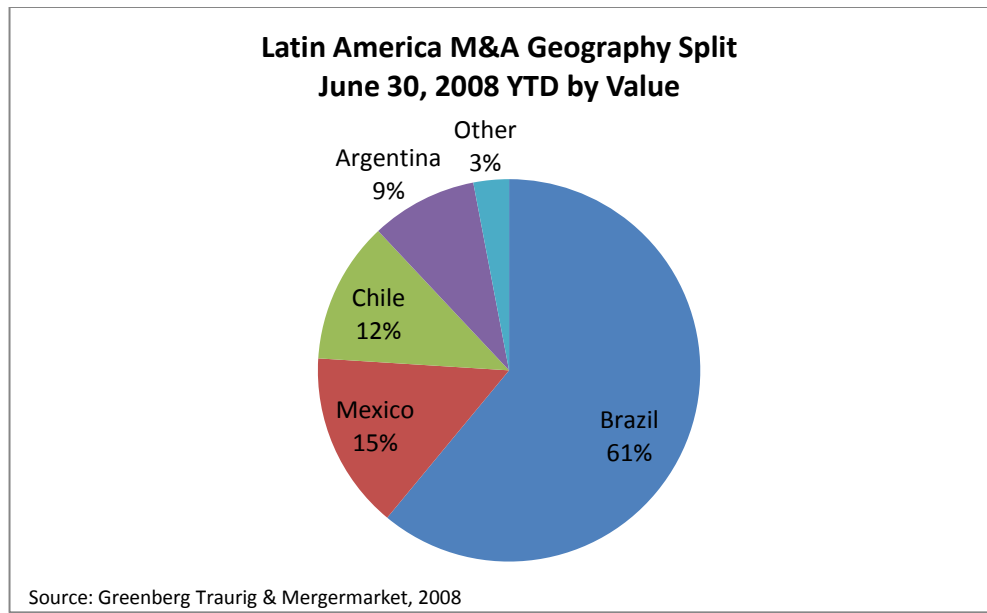


Figure 2.5 *Latin America Merger & Acquisitions by location – Value*

These recent trends in M&A activity in Latin America make this geographic region really important to investigate. In addition, M&A may only happen if the majority of shareholders approve it. Therefore, stockholders have an indispensable role in deciding what to do with M&A, so it is essential to study the stock prices because they are related to the shareholder's wealth.

## 2.2 Efficiency Market

The stock market is very volatile because it is continuously affected by various factors such as the economic activity, market structures and competitiveness, company's strategies, and political issues, among others. In this research, the stock prices were used to investigate whether the shareholders of the bidder's company have a positive or negative return towards the announcement and completion of M&A transaction. Since the stock market is so unpredictable, it was assumed that the stock market was in accordance with the Efficient Markets Hypothesis (EMH).

The EMH basically states that financial asset prices fully reflect all available, relevant information. Implicit in this assertion is the idea that financial asset prices reflect all historical and current information, and that they incorporate every piece of forecastable information into unbiased predictions of future prices (Chughtai, 2010). The EMH is subdivided into three categories of market efficiency: weak form, semi-strong and strong form. These categories, based on Megginson (1997), are explained below.

In markets characterized by weak-form efficiency, asset prices incorporate all historical information. While a seemingly innocuous proposition, this form of efficiency implies that trading strategies based on analyses of historical pricing trends or relationships cannot consistently yield excess returns to investors. Since prices are “memoryless,” they are unforecastable, and will only change in response to the arrival of new information.

In markets characterized by semi-strong-form efficiency, asset prices incorporate all publicly-available information. One implication of this is that the level of asset prices should reflect all pertinent historical, current, and forecastable (future) information that can be obtained from public sources. A second implication of this form of efficiency is that asset prices should change fully and instantaneously in response to the arrival of relevant new information. Thus, this type of efficiency integrates past and current public information into the stock market, so it could be reflected in the stock prices.

In markets characterized by strong-form efficiency, asset prices reflect all information—public and private. It is an extreme form of market efficiency because it implies that important company-specific information (a pending takeover bid, a dividend increase) will be fully incorporated in asset prices with the very first trade after the information is generated (immediately after the board of directors vote for a dividend increase) and before it is publicly

announced. In strong-form efficient markets, most insider trading would be unprofitable, and there would be no benefit whatsoever to ferreting out information on publicly-traded companies, since any data morsel so obtained would already be reflected in stock and bond prices. Therefore, in this form of efficiency, it is expected that the stock market reflects all private and public information into the stock prices instantaneously.

As explained above, the semi-strong-form efficient market reflects all available public information immediately in the stock price, which is an assumption in this investigation. It is assumed that the market is efficient, since the study is analyzing if the M&A had some type of impact in the stockholder's value, which is reflected through the stock price. Hence, if the M&A was announced or completed, it had to have some impact in the stock price and the shareholder should have a positive or negative value created.

### **2.3 Prior Studies**

Studies have been done of the distinct effects mergers and acquisitions have on stockholders. Researchers have used event studies to assert whether the acquiring and target stockholders have a positive or negative return after a merger or acquisition has occurred. Therefore, in this section, we look at various investigations to understand the findings that the researchers have gathered.

Eckbo (1983) investigated merger proposals, which had an antitrust complaint (challenged) or no complaint (unchallenged). Eckbo concluded that the bidder in unchallenged mergers typically earn positive but small and generally insignificant abnormal returns. However, target stockholders earn on average 14.08%, abnormal returns over the 31 trading days in the -20 through 10 period, and 3.13% over the announcement day alone. Thus, while it cannot be concluded that the typical bidder in the unchallenged sample is made significantly better off as a



result of the proposal announcement, target stockholders clearly earn large economic rents from this event. Furthermore, the bidder in challenged mergers earn on average 4.85% abnormal returns over the -20 through 10 period and 1.20% over the three days surrounding the announcement day. The corresponding returns to target stockholders were 25.03% and 10.27%, respectively. Generally, it appears as if stockholders of bidder and target firms in challenged mergers earn larger abnormal returns than the corresponding firms in unchallenged mergers. Additionally, it can be seen that target firms earn a bigger return than the bidder firms.

Asquith, Bruner, and Mullins (1983) analyzed companies that were in the Fortune 1000 list of 1979. These firms were then studied for the period of 1963 through 1979 to evaluate their mergers. They found that for 214 bidding firms from their sample the average excess return was +0.9% for the period consisting of the day of the announcement and day before. Furthermore, the cumulative excess return for the firms from day -20 to the announcement day was +2.8%. Thus, they found that the shareholders of bidding firms benefit from mergers.

When investigating the stock prices of the targets' firms, significant differences in abnormal returns do appear to exist. Sellers' shareholders in cash acquisitions earn, on average, 33.54% abnormal returns from 40 days prior to the original merger announcement through the announcement day. This figure is almost twice the corresponding number (17.47%) for mergers employing securities as the medium of exchange (Wansley, Lane, & Yang, 1983). Even though the abnormal returns are bigger for cash acquisitions than in stocks acquisition, both give the target firms shareholders a positive return.

Bradley, Desai and Kim (1988) studied a sample of 236 firms of successful tender offer contests occurring over the period of 1963-1984. They found that the cumulative abnormal return (CAR) for the portfolio of all 236 target firms from event day -5 through event day +5 was

28.07% with a t-statistic of 51.24, showing that an acquisition by tender offer was a wealth-increasing event for the stockholder of the target firm. Furthermore, they concluded that the CAR to the portfolio of all 236 acquiring firms from event day - 5 through + 5 was 0.79% with a t-statistic of 1.69. This was not significantly different from zero at the 5% level. However, the CAR from day -5 through day + 20 was 1.70% ( $t = 2.363$ ), which was significant at the 5% level. Thus, unlike for target firms, there was mixed evidence concerning the returns to acquiring firms.

Morck, Shleifer and Vishny (1990) stated that the mean value of bidder return in the 326 United States acquisitions from the period between 1975 and 1987 is -.70%, but statistically insignificant. For fast growing targets, the mean bidder return is -2.43%. For slow growing targets the mean bidder return is 2.15%. These findings show that generally, bidders have a negative announcement period return after an acquisition.

Asquith, Bruner and Mullins (1990) concluded that mergers were negative net present value investments for bidding firms, who were listed in the New York Stock Exchange (NYSE) or ASE and that bidding firms' stockholders lose. The results do not, however, consider the possible impact of form of financing. For the 102 bidders where the announced form of financing is all cash, the average two-day announcement excess return is +0.2%, although this result is insignificantly from zero. In contrast, bidders financing merger bids with common stock have negative average excess returns of -2.4%, which are statistically significant. Thus, they found that bidder firms' shareholders have negative returns.

Agrawal, Jaffe and Mandelker (1992) investigated 937 mergers over the period from 1955 to 1987 of companies listed in the NYSE or the American Stock Exchange. They investigated the long-term performance of the acquiring firms after the merger was completed.

They found that 1-12 months after merger completion the Average Abnormal Return (AAR) was -1.53%; 13-24 months after merger completion, AAR was -3.41%; 25-36 months after merger completion, AAR was -2.44%; 37-48 months after merger completion, AAR was -1.29%; and 49-60 months after merger completion, AAR was -1.59%. Most of these values were not statistically significant. It can be seen that the long-term value created by the merger is negative.

Walker (2000) used a five-day event period to evaluate the impact of corporate takeover announcements. He specifically used cumulative market-adjusted returns (CMAR) and matched-firm-adjusted returns (CMFAR) to evaluate stock price performance. After investigating the stock prices, the author concluded that acquiring firm shareholders generally earn higher returns following tender offers and cash offers and generally earn normal returns regardless of takeover strategy.

Kiyamaz (2003) investigated the wealth effects of foreign direct investments on US firms during the period of 1989-2000. Overall findings indicated that US acquirers experience statistically significant wealth gains of 0.57 percent around the announcement of acquisitions. Furthermore, acquisitions in Europe yield significant positive wealth gains while acquisitions in Asia/Pacific, North America, and Latin/Central America regions yield negative wealth gains.

Block (2005) investigated 298 international mergers between 1994 and 2000, and statistically abnormal returns were found. The results refer to the announcement period for the acquiring firm. The two-day returns of 1.77% were significant at an alpha level of 0.05. These results reflect a positive short-term return around the announcement date for the acquiring shareholders.

Williams and Liao (2008) studied 73 cross-border bank mergers and acquisitions transactions in which international banks acquired ownership stakes in 46 listed banks in

emerging market economies between 1998 and 2005. One of the regions included in the sample was Latin America, which was comprised by Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela. From this region, they concluded that the cumulative average abnormal returns for the acquiring firm were the following: -0.4243 for the event window (-2,-1); -1.4014 for the event window (-2,2); -0.5296 for the event window (-10,-1); -1.9420 for the event window (-10,2); -1.4325 for the event window (-10, 10); and -0.4651 for the event window (-15, 15). All of these values were statistically significant at 1% level. Consequently, there is a negative value created for the shareholders of the acquiring banks.

Aybar and Ficici (2009) investigated 433 cross-border M&A expansion announcements by emerging-market multinationals (EMMs) over the period of 1991–2004. They concluded that the announcements of international acquisitions of EMMs are, on average, associated with negative abnormal returns. While the mean (median) cumulative abnormal returns immediately prior to and after the announcement (two- and three-day event windows) were negative and statistically significant at the 10% level, mean (median) cumulative abnormal returns in wider event windows were statistically insignificant. Therefore, most of the returns turn out to be negative for the acquiring firms' shareholders surrounding the announcement date.

Renze-Westendorf, Schiereck, and Zeidler (2009) studied the wealth effects of 177 domestic and cross-border acquisitions announced by Spanish corporations between 1990 and 2004. Their findings showed that generally all CARs for the different event windows were positive, except for the post-announcement period where the CAR is slightly negative. However, the positive value impact of the announcement was not supported by the test statistics. Thus, the acquisitions had a positive impact for the acquiring shareholders, but this was not statistically significant.

Wong and Cheung (2009) based their study on a sample of 658 announced M&As from January 2000 to December 2007 in the geographic area of Asia, specifically in China, Japan, Hong Kong, Singapore, South Korea and Taiwan. They found that during the period of 50 days through 1 day before the announcement date (-50, -1), the majority of bidding firms had positive CAAR with the Japanese bidders scoring the highest CAAR of 8.2%, followed by Singaporean (6.9%), Hong Kong's (4.5%), Taiwanese (4.7%), Chinese (-3.3%) and South Korean (-6.18%). For the announcement period (day -1 to 0), only Singapore and Japanese bidding firms enjoyed a positive CAAR of 0.5% and 0.25% respectively. The CAAR for other bidding firms was negative and statistically insignificant. At the post-announcement period (day 1 to 50), South Korea obtained the highest CAAR of 43%, followed by China (11%), Singapore (8%), Taiwan (5%) and Japan (4%). Consequently, by these results it can be concluded that M&A announcements create positive returns to most enterprises in China, Japan, Hong Kong, Singapore, South Korea and Taiwan before, during, and after the announcement date.

For a study made by Bednarczyk, Schiereck and Walter (2010) in Central and Eastern Europe, the average market reaction of target stocks on the announcement of takeovers was positive but remarkably low. The [0, 5] event window only reported a preliminary significant CAAR of 1.58%. However, on average, cross-border M&As created short-term positive shareholder value for target firms. In addition, the highly significant positive value effect in a short time period around the announcement date diminished when the observation period was extended. On the other hand, shareholders of acquiring firms lost significantly, at least for event windows longer than 15 days. In contrast, Jensen and Ruback (1983) stated that the evidence seemed to indicate that corporate takeovers generate positive gains, which target firm shareholders' benefits and that bidding firm shareholders do not lose.

Soongswang (2010) studied tender offers made in Thailand from August 1992 through October 2002. The author suggested that in month -1, the monthly Average Abnormal Returns (AAR) for the successful bidding firm shareholder were positive at 1.40% and 4.10%, when estimated from the market and market-adjusted models respectively. Similarly, the cumulated AARs over the period (-12,-1) for the successful bidding firm shareholders were positive at 5.90% and 26.90%, as estimated from the market and market adjusted models consecutively. Therefore, bidding firm shareholders realized significant and positive abnormal returns prior to takeover announcement month.

As can be read, the studies disagree regarding the acquiring firms' shareholders return. Some of the studies concluded they had a positive return, while others concluded they had negative returns; in both cases, sometimes they were significant returns, others were not. This investigation studied a different time period and different geographic region to better assert if the bidders' shareholders gain or lose from a merger or acquisition.

## Chapter 3: Methodology

This investigation aimed at explaining if there was any value creation for bidders in mergers and acquisitions in Latin America. In order to assert this, an event study methodology was used to measure abnormal changes in the stock prices of publicly traded companies. This methodology basically observes the actual stock returns over the period of interest and computes the differences between the actual returns and the expected returns. This methodology will be explained in the following section.

### 3.1 Event Studies

Most of the previous studies have calculated the abnormal return of the bidder or target firm around the announcement date using event studies. According to Bruner (2001), event studies have arguably dominated the field since the 1970s. These studies examined the abnormal returns to shareholders in the period surrounding the announcement of a transaction. The raw return for one day is simply the change in share price and any dividends paid, divided by the closing share price the day before. The *abnormal return* is simply the raw return minus a benchmark of what investors required that day—typically, the benchmark is the return dictated by the capital asset pricing model (CAPM) or quite simply the return on a large market index, such as the S&P500. These studies are regarded to be *forward-looking* on the assumption that share prices are simply the present value of expected future cash flows to shareholders.

When an event study is conducted, the researcher decides how many days prior or after the announcement or completion date does it want to use to calculate the abnormal return. For example, Yuce and Ng (2005) did their investigation in a period based upon 20 days before and after announcement date. For this research, there were different event windows for each event, which are the announcement date and the completion date. The largest event window will be 30

days before the announcement or completion date until 30 days after the announcement or completion date (-30,30). The other event window will be 20 days before the announcement or completion date until 20 days after the announcement or completion date (-20,20). The next event window will be 5 days before the announcement or completion date until 5 days after the announcement or completion date (-5, 5). Finally, the last event window will be from the announcement or completion date until 5 days after the announcement or completion date (0, 5).

### **3.2 Data and Sample**

Latin America's M&As, specifically those in Brazil, Mexico, Argentina, Chile, and Colombia, were investigated to assert whether the acquiring stockholder have a positive or negative return. These countries were chosen because they are major economic centers in Latin America with well-developed stock markets.

To do this research the data was gathered from Mergermarket (2010), part of The Mergermarket Group, which is an unparalleled, independent M&A intelligence tool used by the world's foremost financial institutions to originate deals. Data selection procedures followed what had been done in prior studies. Data selection was originally limited to transactions with the following characteristics:

- The deal was limited to only mergers and/or acquisitions.
- The target firm as well as the bidder firm had to be established in a Latin American country (were a Latin American company)
- The target and bidder's companies could be in any industry.
- The deal could be considered domestic and/or cross border.
- It was completed between January 1, 2005, and December 31, 2010.



This selection resulted in an initial sample of 1,547 deals. However, only 630 of these transactions were completed during the period from 2005 through 2010. These 630 deals were then limited to:

- The acquiring firm's stock being publicly traded.
- The acquirer had to be from one of the following countries: Brazil, Argentina, Colombia, Chile, or Mexico.
- All the M&A closed transactions were not included.

These requirements resulted in 252 M&A transactions. Nonetheless, these deals were further reduced due to the lack of availability of certain acquiring companies' daily stock prices and the additional requirement that the M&A transactions had to involve only one acquirer. Therefore, the final sample consists of 177 M&A deals. Data for the market index of each country were gathered from Datastream (through the Thomson Business School Edition). Firm's daily stock prices were collected from *Bolsa de Valores de Colombia*, *Bolsa de Santiago*, and Yahoo! Finance.

### **3.3 Computation of Abnormal Returns**

As stated above, event study methodology was used in order to conclude whether the bidder's firm shareholders had a positive or negative return after the announcement and completion date of the M&A. The announcement and completion date of the transactions were collected from the Mergermarket (2010) database to identify the stock prices that were used to calculate the abnormal returns. The paragraphs below explain how the abnormal return was calculated from the final sample.

For this investigation, two events were considered using the Latin America sample selected. The first event was the announcement date of the M&A, and the second event was the

completion date of the M&A. As explained above, the acquiring firm expected returns and actual returns were calculated for each event using the market model in order to calculate the abnormal returns. Before employing the market model, the daily stocks and index return were calculated. Wells (2004) has shown that the natural logarithmic daily stock price is better than simple percentage changes of daily price. The reason is that the latter measurement can bring about an arithmetic anomaly problem and thus biased results. The rate of return on security  $i$  for day  $t$  is defined by  $R_{it}$

$$R_{it} = \ln \left[ \frac{P_{it}}{P_{i,t-1}} \right] \quad \text{Equation 3.1}$$

where  $R_{it}$  = rate of return on security  $i$  for day  $t$

$P_{it}$  = daily stock price for security  $i$  for day  $t$

$P_{i,t-1}$  = daily stock price for security  $i$  for day  $t-1$

According to Aybar and Ficici (2009), traditionally, the “market model” is assumed to be the underlying return process. The market model assumes a linear relationship between the return of a security and the return of the market portfolio, and the daily returns are calculated as stated above. For each security  $i$ , the market model assumes that the returns generated are given by

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad \text{Equation 3.2}$$

where  $R_{it}$  is the return on security  $i$  at time  $t$ . The subscript  $t$  indicates the time, the subscript  $i$  indicates a specific security, and the subscript  $m$  indicates the market.  $R_{mt}$  is the return on the market portfolio during period  $t$ . Under the assumption of linearity and normality of returns,  $\varepsilon_t$  is a random error term for security  $i$  at time  $t$ , and  $\beta_i$  is a firm-specific coefficient to be estimated from the market model regressions. The market model expressed above is used to compute the

return on the stock that would have been expected on the day of the event or during a selected event window if the event had not occurred.

The abnormal return (AR), due to the announcement on any given day, equals the actual return minus the predicted normal return:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad \text{Equation 3.3}$$

Daily abnormal returns were then computed for each day  $t$  for each firm  $i$ . To obtain a general insight into the abnormal return observations for a sample of  $N$  firms, abnormal returns (AR) for each day  $t$  are averaged as follows:

$$AR_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \quad \text{Equation 3.4}$$

Since the full impact of an event on firm value may not be felt on a single day, event studies often examine the returns for periods around an event, called the event window. In the study, the event window was defined as the period between 30 days prior to the event and 30 days after the event<sup>1</sup>. The expected returns on the stock calculated from the model for the security during the event window (-30, +30) were compared with the actual returns observed on each day within the event window. The difference between the predicted return and the actual return for a period such as event window is called the cumulative abnormal return and is calculated as follows:

$$CAR_i = \sum_{t=1}^T AR_{it} \quad \text{Equation 3.5}$$

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<sup>1</sup> Besides the [-30, 30] event window, [-20,20], [-5,5] and [0,5] windows were analyzed.

More specifically, the cumulative abnormal return during the event window ( $T_1, T_2$ ),  $CAR_i(T_1, T_2) = CAR_{i-EW}$  is given as

$$CAR_{i-EW} = \sum_{t=T_1}^{T_2} AR_{it} \quad \text{Equation 3.6}$$

Coutts, Mills and Roberts (1995) suggest using standardized cumulative abnormal returns (SCARs) for longer event windows to correct serial correlation of daily period abnormal returns for the same firm. Each firm's cumulative abnormal return is standardized according to

$$SCAR_i(T_1, T_2) = \frac{CAR_i(T_1, T_2)}{SD_i} = \frac{CAR_{i-EW}}{SD_i} \quad \text{Equation 3.7}$$

where  $SD_i$  is given as

$$SD_i = S_i \sqrt{k + \frac{k}{T} + \frac{\sum_{t=1}^k R_{mt} - k(\bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2}} \quad \text{Equation 3.8}$$

where  $S_i$  is the standard error of the market model regression,  $T$  is the number of observations in the estimation period,  $R_{mt}$  is the return on the market portfolio for day  $t$ ,  $\bar{R}_m$  is the average return of the market portfolio for the estimation period, and  $k$  is the number of days in the event window. A Z-statistic is calculated according to

$$Z = \frac{1}{\sqrt{N}} \sum_{i=1}^N SCAR_i \quad \text{Equation 3.9}$$

These procedures were done using SPSS Statistics 17.0 in order to generate the linear regression and Z-statistic to determine if there is any effect of the M&A in the bidder's shareholders' value around the announcement and completion date.

### 3.4 Hypothesis

To determine if the M&A has any impact in the stock price of the acquiring company and whether the shareholders generate a positive or negative return as a result of this transaction, the following hypotheses were tested.

$H_{0 \text{ Announcement}}$ : The average abnormal returns within the event window of the announcement date are zero.

$H_{1 \text{ Announcement}}$ : The average abnormal returns within the event window of the announcement date are different than zero.

$H_{0 \text{ Completion}}$ : The average abnormal returns within the event window of the completion date are zero.

$H_{1 \text{ Completion}}$ : The average abnormal returns within the event window of the completion date are different from zero.

## Chapter 4: Results and Analysis

### 4.1 Descriptive Statistics

#### 4.1.1 Argentina

For Argentina, the sample only consisted of eight M&A transactions. Most of these transactions were announced between 2007 and 2008 as illustrated in Table 4.1. Half of those transactions were domestic transactions and the other half cross-border transactions. Furthermore, most of those transactions were completed in 2008 and were paid in cash as shown in Table 4.2. In addition, the transaction with the highest value of \$85 million (265.16 million of Argentine pesos) was in 2007. Table 4.3 presents the transactions' distribution by industry for both the acquirer and target industries. It can be seen that 25% of the transactions were in the financial services industry for the target firm as well as for the acquiring firm. However, the transaction with the highest value was in the energy sector for the acquirer and the utilities (other) industry for the target for \$27.42 million (265.16 million of Argentinean pesos).

Table 4.1 *Quantity of Announced Transactions in the Sample for Argentina*

Year	Total Number of Announced Transactions	
	Domestic Transactions	Cross-border Transactions
2005	0	1
2006	0	0
2007	2	0
2008	2	1
2009	0	2
2010	0	0
TOTAL	4	4

Table 4.2 *Quantity and Value of Completed Transactions in the Sample for Argentina*

Year	Total Number of Completed Transactions				Total Value of Completed Transactions			
	Domestic Transactions	Cross-border Transactions	Public Deals	Form of Payment <sup>1</sup>	Transaction Value	Transaction Value	Transaction Value	Average Transaction Value
					(Millions US\$)	(Millions US\$)	(Millions Argentine Peso)	(Millions Argentine Peso)
2005	0	0	0	-	-	-	-	-
2006	0	1	0	C	83.00	83.00	253.67	253.67
2007	1	0	0	C	85.00	85.00	265.16	265.16
2008	3	0	1	C	106.00	35.33	324.29	108.10
2009	0	1	0	C	13.00	13.00	44.83	44.83
2010	0	2	0	C,N*	23.00	23.00	90.30	90.30
TOTAL	4	4	1		310.00	239.33	978.24	762.05

\* One transaction value not available.

<sup>1</sup> C= Cash: N = Not available

Table 4.3 *Acquirer and Target Industry in the Sample for Argentina*

	Transaction		Transaction Value			
	Number	Percent	Millions US\$	Percent (US\$)	Millions Argentine Peso	Percent (Argentine Peso)
<b>Acquirer Industry</b>						
Financial Services*	2	25.00	23.00	7.42	90.30	9.23
Consumer: Foods	2	25.00	63.00	20.32	198.01	20.24
Media	1	12.50	35.00	11.29	105.47	10.78
Real Estate	1	12.50	21.00	6.77	65.63	6.71
Energy	1	12.50	85.00	27.42	265.16	27.11
Industrial products and services	1	12.50	83.00	26.77	253.67	25.93
<b>TOTAL</b>	<b>8</b>	<b>100.00</b>	<b>310.00</b>	<b>100.00</b>	<b>978.24</b>	<b>100.00</b>
<b>Target Industry</b>						
Financial Services*	2	25.00	23.00	7.42	90.30	9.23
Consumer: Foods	1	12.50	13.00	4.19	44.83	4.58
Computer Services	1	12.50	35.00	11.29	105.47	10.78
Consumer: Retail	1	12.50	21.00	6.77	65.63	6.71
Chemicals and materials	1	12.50	50.00	16.13	153.18	15.66
Utilities (other)	1	12.50	85.00	27.42	265.16	27.11
Industrial products and services	1	12.50	83.00	26.77	253.67	25.93
<b>TOTAL</b>	<b>8</b>	<b>100.00</b>	<b>310.00</b>	<b>100.00</b>	<b>978.24</b>	<b>100.00</b>

\* One transaction value not available.

#### 4.1.2 Brazil

Brazil is the country with the largest amount of M&A transactions with a total of 107 deals. Most of these transactions were announced during 2007 – 2009, and about 63% were domestic transactions as illustrated in Table 4.4. Although most of those were completed in the same years, the greatest transactions values were in 2009 and 2010 for \$26,358 million (57,217.68 million of Brazilian Real) and \$19,828 million (35,029.39 million of Brazilian Real), respectively as can be seen in Table 4.5. Contrary to the Argentinean M&A deals, the form of payment for these transactions in Brazil were in cash, equity or a combination of both, among others, as shown in Table 4.5. As shown in Table 4.6, almost 50% of the transactions of the



acquirers were in the following industries: financial services, telecommunications-carriers, energy, and medical. On the other hand, target industries with most transactions were in the energy, financial services, consumer-foods, and medical sector. Furthermore, the acquirer and target industry with the highest transaction values were the financial services for \$21,906 million (48,899.46 million of Brazilian Real) and \$21,289 million (47,614.94 million of Brazilian Real), respectively.

Table 4.4 *Quantity of Announced Transactions in the Sample for Brazil*

Year	Total Number of Announced Transactions	
	Domestic Transactions	Cross-border Transactions
2004	0	2
2005	5	5
2006	3	6
2007	20	9
2008	20	7
2009	17	7
2010	2	4
TOTAL	67	40

Table 4.5 *Quantity and Value of Completed Transactions in the Sample for Brazil*

Total Number of Completed Transactions					Total Value of Completed Transactions			
Year	Domestic Transactions	Cross-border Transactions	Public Deals	Form of Payment <sup>1</sup>	Value (Millions US\$)	Average Value (Millions US\$)	Value (Millions Brazilian Real)	Average Value (Millions Brazilian Real)
2005	2	5	1	C,E	965.00	137.86	2,204.94	314.99
2006	5	7	3	C,E,CONV	8,293.00	691.08	17,696.20	1,474.68
2007	13	8	3	C,E,B	7,253.00	345.38	14,006.98	667.00
2008	23	6	15	C,E,B,N*	6,139.00	211.69	10,542.02	363.52
2009	18	7	13	C,E,O,B	26,358.00	1054.32	57,217.68	2,288.71
2010	6	7	2	C,E,N**	19,828.00	1525.23	35,029.39	2,694.57
TOTAL	67	40	37		68,836.00	3965.56	136,697.20	7,803.47

\* Two transaction values not available.

<sup>1</sup>C=Cash; E=Equity; CONV=Convertibles; B=Both Cash and Equity; O=Other

\*\* One transaction value not available.

Table 4.6 *Acquirer and Target Industry in the Sample for Brazil*

	Transaction		Transaction Value			
	Number	Percent	Millions US\$	Percent (US\$)	Brazilian Real (Millions)	Percent (Brazilian Real)
<b>Acquirer Industry</b>						
Financial Services*	14	13.08	21,906.00	31.82	48,899.46	35.77
Telecommunications: Carriers	13	12.15	8,639.00	12.55	17,618.42	12.89
Energy	13	12.15	4,726.00	6.87	8,692.22	6.36
Medical**	12	11.21	577.00	0.84	1,055.90	0.77
Consumer: Foods	11	10.28	3,835.00	5.57	6,762.21	4.95
Mining	6	5.61	7,027.00	10.21	12,825.06	9.38
Chemicals and materials	5	4.67	5,171.00	7.51	9,519.36	6.96
Manufacturing (other)	5	4.67	220.00	0.32	386.47	0.28
Real Estate	5	4.67	2,154.00	3.13	3,974.26	2.91
Consumer: Retail	4	3.74	2,252.00	3.27	4,455.08	3.26
Industrial products and services	4	3.74	328.00	0.48	645.53	0.47
Agriculture	3	2.80	7,879.00	11.45	13,723.68	10.04
Transportation	3	2.80	2,371.00	3.44	4,937.82	3.61
Construction	2	1.87	549.00	0.80	955.58	0.70
Computer Services	2	1.87	392.00	0.57	710.96	0.52
Automotive	1	0.93	180.00	0.26	325.02	0.24
Consumer: Other	1	0.93	353.00	0.51	622.02	0.46
Services (other)	1	0.93	73.00	0.11	121.51	0.09
Leisure	1	0.93	192.00	0.28	438.62	0.32
Industrial automation	1	0.93	12.00	0.02	28.00	0.02
<b>TOTAL</b>	<b>107</b>	<b>100.00</b>	<b>68,836.00</b>	<b>100.01</b>	<b>136,697.20</b>	<b>100.00</b>
<b>Target Industry</b>						
Energy	19	14.96	4,264.00	6.19	8,426.72	6.16
Financial Services*	15	11.81	21,289.00	30.93	47,614.94	34.83
Consumer: Foods	13	10.24	9,040.00	13.13	15,814.01	11.57
Medical**	11	8.66	154.00	0.22	301.58	0.22
Telecommunications: Carriers	10	7.87	8,202.00	11.92	16,647.41	12.18
Real Estate	8	6.30	2,573.00	3.74	4,729.59	3.46
Chemicals and materials	7	5.51	12,254.00	17.80	21,851.94	15.99
Industrial products and services	6	4.72	423.00	0.61	815.36	0.60
Construction	5	3.94	1,639.00	2.38	2,950.11	2.16
Consumer: Other	4	3.15	653.00	0.95	1,148.67	0.84
Mining	4	3.15	1,406.00	2.04	2,707.26	1.98
Computer Services	3	2.36	136.00	0.20	286.32	0.21
Manufacturing (other)	3	2.36	86.00	0.12	159.33	0.12
Services (other)	3	2.36	221.00	0.32	362.24	0.26
Leisure	3	2.36	291.00	0.42	635.80	0.47
Medical: Pharmaceuticals	2	1.57	1,319.00	1.92	2,212.65	1.62
Transportation	2	1.57	2,223.00	3.23	4,697.09	3.44
Media	2	1.57	337.00	0.49	747.11	0.55
Agriculture	1	0.79	17.00	0.02	28.99	0.02
Consumer: Retail	1	0.79	634.00	0.92	1,160.68	0.85
Automotive	1	0.79	180.00	0.26	325.02	0.24
Computer Software	1	0.79	386.00	0.56	700.55	0.51
Telecommunications: Hardware	1	0.79	10.00	0.01	19.98	0.01
Internet/ecommerce	1	0.79	1,086.00	1.58	2,324.05	1.70
Utilities (other)	1	0.79	13.00	0.02	29.81	0.02
<b>TOTAL</b>	<b>127</b>	<b>100.00</b>	<b>68,836.00</b>	<b>99.98</b>	<b>136,697.20</b>	<b>100.00</b>

\* Two transaction values not available.

\*\* One transaction value not available.

#### 4.1.3 Chile

The sample for Chile only consisted of 13 M&A transactions. The year with the largest amount of announced M&A deals was 2007 followed by 2009. In addition, most of them were cross-border transactions as can be appreciated in Table 4.7. Furthermore, most of those transactions were completed in the same years and were paid in cash for a total of \$2,776 million (1,374,710.69 million of Chilean pesos) as illustrated in Table 4.8. Additionally, in Table 4.9 it can be seen that 53.85% of the transactions were conducted in the consumer retail industry for the target as well as the acquirer for a value of \$1,893 million (1,005,863.70 million of Chilean pesos).

Table 4.7 *Quantity of Announced Transactions in the Sample for Chile*

Year	Total Number of Announced Transactions	
	Domestic Transactions	Cross-border Transactions
2005	1	1
2006	2	0
2007	1	3
2008	0	1
2009	1	2
2010	0	1
TOTAL	5	8

Table 4.8 *Quantity and Value of Completed Transactions in the Sample for Chile*

Year	Total Number of Completed Transactions		Public Deals	Form of Payment <sup>1</sup>	Total Value of Completed Transactions			
	Domestic Transactions	Cross-border Transactions			Transaction Value (Millions US\$)	Average Transaction Value (Millions US\$)	Transaction Value (Millions Chilean Peso)	Average Transaction Value (Millions Chilean Peso)
2005	1	1	1	C,E	843.00	421.50	492,253.00	246,126.50
2006	2	0	0	C	94.00	47.00	49,875.10	24,937.55
2007	1	2	0	C	1,306.00	653.00	655,860.09	218,620.03
2008	0	2	0	C,B	517.00	172.33	239,464.61	119,732.31
2009	1	2	0	C,N*	1,470.00	735.00	718,850.60	239,616.87
2010	0	1	0	C	29.00	9.67	13,990.30	13,990.30
TOTAL	5	8	1		4,259.00	2,038.50	2,170,293.70	863,023.55

\* One transaction value not available.

<sup>1</sup>C=Cash; E=Equity; B=Both Cash and Equity; N= Not available

Table 4.9 *Acquirer and Target Industry in the Sample for Chile*

	Transaction		Transaction Value			
	Number	Percent	Millions US\$	Percent (US\$)	Millions Chilean Peso	Percent (Chilean Peso)
<b>Acquirer Industry</b>						
Consumer: Retail*	7	53.85	1,893.00	44.45	1,005,863.70	46.35
Computer Services	2	15.38	46.00	1.08	21,406.91	0.99
Manufacturing (other)	1	7.69	1,430.00	33.58	696,246.00	32.08
Consumer: Foods	1	7.69	12.00	0.28	6,332.09	0.29
Energy	1	7.69	844.00	19.82	422,509.00	19.47
Agriculture	1	7.69	34.00	0.80	17,936.00	0.83
<b>TOTAL</b>	<b>13</b>	<b>100.00</b>	<b>4,259.00</b>	<b>100.00</b>	<b>2,170,293.70</b>	<b>100.00</b>
<b>Target Industry</b>						
Consumer: Retail*	7	53.85	1,893.00	44.45	1,005,863.70	46.35
Telecommunications: Carriers	1	7.69	29.00	0.68	13,990.30	0.64
Manufacturing (other)	1	7.69	1,430.00	33.58	696,246.00	32.08
Consumer: Foods	1	7.69	12.00	0.28	6,332.09	0.29
Computer Services	1	7.69	17.00	0.40	7,416.61	0.34
Agriculture	1	7.69	34.00	0.80	17,936.00	0.83
Energy	1	7.69	844.00	19.82	422,509.00	19.47
<b>TOTAL</b>	<b>13</b>	<b>100.00</b>	<b>4,259.00</b>	<b>100.00</b>	<b>2,170,293.70</b>	<b>100.00</b>

\* One transaction value not available.

#### 4.1.4 Colombia

As illustrated in Table 4.10, more than half of the transactions were announced between 2006 and 2009. All transactions were almost evenly completed throughout the 2005 and 2010 period and half of them were domestic, while the other half were cross-border, as seen in Table 4.11. However, 2009 was the year with the highest transaction value with \$1,103 million (2,522,694 million of Colombian pesos). Furthermore, Table 4.12 demonstrates that more than 50% of the transactions were conducted in the energy and consumer foods industry. The transaction amount for the acquirer and target in both of industries add up to \$2,522 million

(5,496,974 million of Colombian pesos) and \$2,552 million (5,602,405 million of Colombian pesos), respectively.

Table 4.10 *Quantity of Announced Transactions in the Sample for Colombia*

Year	Total Number of Announced Transactions	
	Domestic Transactions	Cross-border Transactions
2005	2	0
2006	2	3
2007	2	0
2008	1	0
2009	1	4
2010	0	1
TOTAL	8	8

Table 4.11 *Quantity and Value of Completed Transactions in the Sample for Colombia*

Total Number of Completed Transactions					Total Value of Completed Transactions			
Year	Domestic Transactions	Cross-border Transactions	Public Deals	Form of Payment <sup>1</sup>	Value (Millions US\$)	Average Value (Millions US\$)	Value (Millions Colombian Peso)	Average Transaction Value (Millions Colombian Peso)
2005	2	0	2	E	870.00	435.00	2,009,160.00	1,004,580.00
2006	2	2	0	C,N*	408.00	102.00	965,312.00	241,328.00
2007	2	1	1	C	841.00	280.33	1,747,610.40	582,536.80
2008	1	0	0	O	225.00	225.00	397,019.00	397,019.00
2009	1	2	0	C	1,103.00	367.67	2,522,694.00	840,898.00
2010	0	3	0	C,B	606.00	202.00	1,074,970.00	358,323.33
TOTAL	8	8	3		4,053.00	1,612.00	8,716,765.40	3,424,685.13

\* One transaction value not available.

<sup>1</sup>C=Cash; E=Equity; B=Both Cash and Equity; O=Other; N= Not available

Table 4.12 *Acquirer and Target Industry in the Sample for Colombia*

	Transaction		Transaction Value			
	Number	Percent	Millions US\$	Percent (US\$)	Millions Colombian Peso	Percent (Colombian Peso)
<b>Acquirer Industry</b>						
Energy	5	31.25	1,989.00	49.07	4,308,959.00	49.43
Consumer: Foods*	4	25.00	533.00	13.15	1,188,015.00	13.63
Consumer: Retail	2	12.50	631.00	15.57	1,259,807.00	14.45
Financial Services	2	12.50	560.00	13.82	1,297,640.00	14.89
Construction	2	12.50	330.00	8.14	640,613.00	7.35
Telecommunications: Carriers	1	6.25	10.00	0.25	21,731.40	0.25
<b>TOTAL</b>	<b>16</b>	<b>100.00</b>	<b>4,053.00</b>	<b>100.00</b>	<b>8,716,765.40</b>	<b>100.00</b>
<b>Target Industry</b>						
Energy	6	35.29	2,019.00	49.81	4,414,390.00	50.64
Consumer: Foods*	4	23.53	533.00	13.15	1,188,015.00	13.63
Financial Services	3	17.65	560.00	13.82	1,297,640.00	14.89
Construction	1	5.88	300.00	7.40	535,182.00	6.14
Consumer: Retail	2	11.76	631.00	15.57	1,259,807.00	14.45
Telecommunications: Carriers	1	5.88	10.00	0.25	21,731.40	0.25
<b>TOTAL</b>	<b>17</b>	<b>100.00</b>	<b>4,053.00</b>	<b>100.00</b>	<b>8,716,765.40</b>	<b>100.00</b>

\* One transaction value not available.



#### 4.1.5 Mexico

Mexico is, within the sample, the second country with the largest amount of transactions adding up to 33. As seen in Table 4.13, the majority of the deals were announced during 2007 and 2008. Also, during those same years the majority of the deals were completed as shown in Table 4.14. However, 2006 was the year with highest transaction value of \$32,211 million (361,813.66 million of Mexican pesos). Furthermore, most of the deals were cross-border transactions and were paid in cash, equity, or a combination of both. Both acquirers and targets were mostly part of the telecommunications carriers industry, as illustrated in Table 4.15, with a 33.33 and 23.53 percent, respectively. These transactions accounted for more than 90% of the transaction value for the acquirers as well as for the targets for \$80,794 million (931,230.41 million Mexican pesos) and \$80,735 million (930,602.89 Mexican pesos), respectively.

Table 4.13 *Quantity of Announced Transactions in the Sample for Mexico*

Year	Announced Transactions	
	Number of Domestic Transactions	Number of Cross-border Transactions
2005	5	0
2006	2	4
2007	4	6
2008	2	6
2009	0	2
2010	2	0
TOTAL	15	18

Table 4.14 *Quantity and Value of Completed Transactions in the Sample for Mexico*

Year	Total Number of Completed Transactions			Form of Payment <sup>1</sup>	Total Value of Completed Transactions			
	Domestic Transactions	Cross-border Transactions	Public Deals		Value (Millions US\$)	Average Value (Millions US\$)	Value (Millions Mexican Peso)	Average Value (Millions Mexican Peso)
2005	5	0	0	C,B	874.00	174.80	9,423.35	1,884.67
2006	1	2	2	C,E	32,211.00	10,737.00	361,813.66	120,604.55
2007	3	7	1	C	2,988.00	298.80	32,646.36	3,264.64
2008	3	7	1	C,E,B,N*	15,343.00	1,534.30	159,721.81	15,972.18
2009	0	0	0	-	-	-	-	-
2010	3	2	3	C,E,B,N**	37,346.00	7,469.20	472,380.00	94,476.00
TOTAL	15	18	7		88,762.00	20,214.10	1,035,985.18	236,202.04

\* Two transaction values not available.

<sup>1</sup>C=Cash; E=Equity; B=Both Cash and Equity; N= Not available

\*\* One transaction value not available.

Table 4.15 *Acquirer and Target Industry in the Sample for Mexico*

	Transaction		Transaction Value			
	Number	Percent	Millions US\$	Percent (US\$)	Millions Mexican Peso	Percent (Mexican Peso)
<b>Acquirer Industry</b>						
Telecommunications:Carriers	11	33.33	80,794.00	91.02	931,230.41	90.98
Chemicals and materials*	5	15.15	617.00	0.70	6,838.37	0.67
Consumer: Other**	4	12.12	654.00	0.74	7,550.14	0.74
Consumer: Retail	2	6.06	4,067.00	4.58	49,697.40	4.86
Financial Services	2	6.06	91.00	0.10	1,080.25	0.11
Consumer: Foods	2	6.06	170.00	0.19	1,840.83	0.18
Construction	2	6.06	994.00	1.12	10,846.94	1.06
Manufacturing (other)	2	6.06	56.00	0.06	623.90	0.06
Industrial products and services	1	3.03	850.00	0.96	8,774.81	0.86
Transportation	1	3.03	9.00	0.01	98.44	0.01
Leisure	1	3.03	460.00	0.52	4,945.23	0.48
<b>TOTAL</b>	<b>33</b>	<b>100.00</b>	<b>88,762.00</b>	<b>100.00</b>	<b>1,023,526.72</b>	<b>100.00</b>
<b>Target Industry</b>						
Telecommunications: Carriers	8	23.53	80,735.00	90.96	930,602.89	90.92
Consumer: Other**	5	14.71	687.00	0.77	7,891.44	0.77
Construction**	4	11.76	1,454.00	1.64	15,792.17	1.54
Chemicals and materials**	2	5.88	84.00	0.09	915.67	0.09
Consumer: Retail	2	5.88	4,067.00	4.58	49,697.40	4.86
Financial Services	2	5.88	91.00	0.10	1,080.25	0.11
Consumer: Foods	2	5.88	170.00	0.19	1,840.83	0.18
Manufacturing (other)	2	5.88	506.00	0.57	5,647.32	0.55
Internet/ecommerce	2	5.88	44.00	0.05	474.99	0.05
Energy**	1	2.94	-	-	-	-
Industrial products and services	1	2.94	850.00	0.96	8,774.81	0.86
Media	1	2.94	15.00	0.02	152.53	0.01
Automotive	1	2.94	50.00	0.06	557.98	0.05
Transportation	1	2.94	9.00	0.01	98.44	0.01
<b>TOTAL</b>	<b>34</b>	<b>100.00</b>	<b>88,762.00</b>	<b>100.00</b>	<b>1,023,526.72</b>	<b>100.00</b>

\* Two transaction values not available.

\*\* One transaction value not available.

All these countries accounted for 177 transactions and most of them were domestic transactions, with Brazil being the country with the largest amount of deals. Additionally, most of these transactions were paid with cash in each country, even though

in some of them equity, or a combination of both was used. Moreover, most of the transactions were announced during 2007 and completed between 2007, 2008 and 2009. There was not an industry for the acquirers or the targets that repeated itself for every country, but the ones that accounted with most of the transactions for each country were financial services, telecommunications-carriers, energy, consumer-foods and consumer-retail. Furthermore, Mexico was the country with the highest transaction value for a single industry (telecommunications-carriers) with more than \$80,000 million.

## **4.2 Announcement Date<sup>2</sup>**

### **4.2.1 Argentina**

As illustrated in Table 4.16, all the average abnormal returns (AARs) for all the event windows surrounding the announcement date were negative for Argentina's acquiring shareholders as concluded by Morck, Shleifer and Vishny (1990) for US acquirers. In addition, according to the p-values all of these AARs were not statistically significant, except for the event window (0, 5), for which it was not mathematically possible to calculate the Z-statistic. Furthermore, there is not sufficient evidence to reject the hypothesis that the AARs within the event window of the announcement date are zero.

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<sup>2</sup> Refer to Appendix A for the SPSS output on the regression analysis for the expected return for each country within each event window.

Table 4.16 *Summary of Results Surrounding the Announcement Date for Argentina*

<b>Announcement Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	-1.64E-10	-0.0058576	0.995326
(-20,20)	-3.66E-10	0.009364	0.992529
(-5,5)	-1.14E-10	0.3980751	0.690575
(0,5)	-5.06E-17	-	-

#### 4.2.2 Brazil

The AAR for the event window [-30, 30] for the announcement date for Brazil is 6.3646E-16, which is in average a positive return for the acquiring shareholders, as seen in Table 4.17. However, this value is not statistically significant. For the other three event windows, the AARs were negative and still not statistically significant. As it can be illustrated for Brazil, as the event window gets smaller, the average returns turn more negative, which is contrary to the conclusion reached by Bednarczyk, Schiereck and Walter (2010) that stated that Central and Eastern Europe shareholders of acquiring firms lose significantly, at least for event windows longer than 15 days. Moreover, there is not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the announcement date are zero.

Table 4.17 *Summary of Results Surrounding the Announcement Date for Brazil*

<b>Announcement Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	6.36459E-16	-0.0017899	0.99857
(-20,20)	-0.00022194	-0.0139219	0.98889
(-5,5)	-0.000231916	-0.2556652	0.79821
(0,5)	-0.001572753	-0.0128182	0.98977

#### 4.2.3 Chile

As shown in Table 4.18, all the average abnormal returns (AARs) for all the event windows, except for the event window (0, 5), surrounding the announcement date were positive for Chile, which means that on average the acquiring shareholders earn a positive return. However, all returns were not statistically significant. Furthermore, there is not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the announcement date are zero.

Table 4.18 *Summary of Results Surrounding the Announcement Date for Chile*

<b>Announcement Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	3.89E-17	0.0185229	0.985222
(-20,20)	3.97E-17	-0.011418	0.99089
(-5,5)	1.15E-16	-0.7771115	0.437093
(0,5)	-5.56E-17	-0.0410535	0.967253

#### 4.2.4 Colombia

All the average abnormal returns (AARs) for all the event windows surrounding the announcement date were negative for Colombia, except for the event window (0, 5), as seen in Table 4.19. These negative AARs represent that on average the acquiring shareholders had a negative return as concluded by Asquith, Bruner and Mullins (1990) that stockholder's from the bidding firm will lose in the transaction (no positive return), while during the event window of (0, 5), on average they earn a positive return. However, those returns were not statistically significant. So there was not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the announcement date are zero.

Table 4.19 *Summary of Results Surrounding the Announcement Date for Colombia*

<b>Announcement Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	-6.75E-18	0.0082519	0.993416
(-20,20)	-1.36E-17	0.0124419	0.990073
(-5,5)	-7.39E-17	0.292374	0.770001
(0,5)	5.24E-17	-0.2150785	0.829706

#### 4.2.5 Mexico

The AAR for the event window [-20, 20] days regarding the announcement date for Mexico is 1.2975E-16, as illustrated in Table 4.20. This value may represent on average a positive return for the acquiring shareholders, but is not statistically significant. For the other three event windows, the AARs were negative and still not statistically significant. This is supported by Aybar and Ficici (2009), who concluded that mean (median) cumulative abnormal returns in wider event windows were statistically insignificant and negative. Additionally, there is not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the announcement date are zero.

Table 4.20 *Summary of Results Surrounding the Announcement Date for Mexico*

<b>Announcement Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	-7.89723E-17	-0.0013109	0.99895
(-20,20)	1.29752E-16	-0.0889212	0.92914
(-5,5)	-1.25923E-16	0.5185380	0.60408
(0,5)	-1.42589E-16	0.24754518	0.80449

### 4.3 Completion Date<sup>3</sup>

#### 4.3.1 Argentina

The AARs for the different the event windows (-30, 30) and (-5, 5) for Argentina were positive, while for the event windows (-20, 20) and (0, 5) returns were negative as seen in Table 4.21. These two positive AARs may suggest on average a positive return for the acquiring shareholders, but they are not statistically significant. On the other hand, the negative AARs for the event window (-20, 20) and (0, 5) may represent a negative return for the acquiring shareholders, but these are also statistically not significant. Furthermore, there is not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the completion date are zero.

Table 4.21 *Summary of Results Surrounding the Completion Date for Argentina*

<b>Completion Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	3.48E-10	-0.0055869	0.99554
(-20,20)	-2.13E-10	-0.0174622	0.98607
(-5,5)	4.55E-10	-0.0540804	0.95687
(0,5)	-1.0842E-17	-0.0660714	0.94732

#### 4.3.2 Brazil

The AAR for the event window of 20 days before and 20 days after the announcement date for Brazil is 5.28E-16, which is on average a positive return for the acquiring shareholders, as shown in Table 4.22. However, this value is not statistically significant. For the other three event windows, the AARs are negative and still not statistically significant. This is supported by Williams and Liao (2008), who concluded

<sup>3</sup> Refer to Appendix A for the SPSS output on the regression analysis for the expected return for each country within each event window.



that there is negative value created for the shareholders of the acquiring banks . Moreover, there is not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the completion date are zero.

Table 4.22 *Summary of Results Surrounding the Completion Date for Brazil*

<b>Completion Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	-2.29E-16	-4.761E-05	0.99996
(-20,20)	5.28E-16	0.0194542	0.98448
(-5,5)	-1.45E-16	0.2130149	0.83132
(0,5)	-1.18E-16	-0.0106557	0.9915

#### 4.3.3 Chile

All the average abnormal returns (AARs) for all the event windows surrounding the completion date were negative for Chile, except for the event window (0, 5), as illustrated in Table 4.23. These negative AARs represent that on average the acquiring shareholders had a negative return. This is supported by Agrawal, Jaffe and Mandelker (1992) who had same negative average results, but for different event windows. In addition, the returns calculated were not statistically significant, but for the event window (0, 5) it could not be determined since it was mathematically impossible to calculate the Z-statistic. Moreover, there is not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the completion date are zero.

Table 4.23 *Summary of Results Surrounding the Completion Date for Chile*

<b>Completion Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	-6.32E-17	-0.0187912	0.98501
(-20,20)	-2.40E-16	-0.0276175	0.97797
(-5,5)	-1.67E-17	-0.2764183	0.78223
(0,5)	2.00E-17	-	-

#### 4.3.4 Colombia

The AARs for the different event windows surrounding the completion date for Colombia are positive, except with the AAR for the event window of 30 days before and 30 days after the announcement, which is negative, as shown in Table 4.24. These three positive AARs may suggest on average a positive return for the acquiring shareholders. On the other hand, the negative AAR for the event window (-30, 30) may represent a negative return for the acquiring shareholders. As illustrated, as the event window gets wider for Colombia, the acquiring shareholders earn a lesser return, but are not statistically significant. Furthermore, there is not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the completion date are zero.

Table 4.24 *Summary of Results Surrounding the Completion Date for Colombia*

<b>Completion Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	-2.3566E-10	0.0064081	0.99489
(-20,20)	6.32672E-17	0.0054792	0.99563
(-5,5)	6.60378E-17	0.1501814	0.88062
(0,5)	9.57712E-17	0.1529084	0.87847

#### 4.3.5 Mexico

As illustrated in Table 4.25, for the event windows of (-30, 30), (-20, 20), and (0, 5), the AARs are negative, whereas the AAR for the event window (-5, 5) is positive. All these values represent on average a negative wealth created by Mexico's acquiring shareholders, but all those values are statistically insignificant. Additionally, there is not sufficient evidence to reject the hypothesis that stated that the AARs within the event window of the completion date are zero.

Table 4.25 *Summary of Results Surrounding the Completion Date for Mexico*

<b>Completion Period Event Window</b>	<b>AAR (Percent)</b>	<b>Z-Statistic</b>	<b>P-value</b>
(-30,30)	-2.75E-16	-0.0051735	0.99587
(-20,20)	-1.17E-16	0.0152386	0.98784
(-5,5)	1.07E-16	-0.3020318	0.76263
(0,5)	-1.35E-16	-0.0459394	0.96336

As shown in sections 4.2 and 4.3, more than half of the average abnormal returns were negative surrounding either the announcement or completion date for most countries.. In addition, those values were not statistically significant for any event window. Furthermore, there was not sufficient evidence to reject either null hypothesis that indicated that the AARs within the event window of the announcement or completion date were zero.

## Chapter 5: Conclusions and Recommendations

### 5.1 Conclusion

This research intends to contribute to the area of M&A in the geographic region of Latin America. Argentina, Brazil, Chile, Colombia, and Mexico were specifically studied, since these are the countries with emerging markets and well-established stock exchanges. This investigation had the purpose of finding whether the M&A had an impact in the acquiring shareholders wealth. This geographic area was selected since Puerto Rico is part of the area. In addition, since not many investigations were found for Latin America, the study contributes to research in this region.

From all these countries, 177 M&A deals were investigated from the period of 2005 through 2010. As illustrated in the previous chapter, there was not an identifiable pattern or similarity for each event window or event for all the countries, except that more than half of the average returns were negative. Furthermore, all those negative or positive values were almost zero. Thus, it can be concluded that the acquiring shareholders earn on average a negative return surrounding the announcement or completion date, but they were not statistically significant,

This statement can be supported by previous studies in which it was also concluded that bidder's shareholders earn negative returns such as: Morck, Shleifer and Vishny (1990) for US acquirers; Asquith, Bruner and Mullins (1990) and Agrawal, Jaffe, and Mandelker (1992) which had same negative average results, but for different event windows; and Bednarczyk, Schiereck and Walter (2010) that stated that Central and Eastern Europe shareholders of acquiring firms lose significantly, at least for event

windows longer than 15 days. Furthermore, Aybar and Ficici (2009) concluded that mean (median) cumulative abnormal returns in wider event windows are statistically insignificant and negative, which is in accordance with the results of this investigation and conclusion. Moreover, this research also supports the investigation made by Williams and Liao (2008), who concluded that there is negative value created for the shareholders of the acquiring banks. However, even if the shareholders seemed to have on average negative returns, these were statistically insignificant, which may represent that according to this research sample, M&As have no significant impact in the Latin American acquiring shareholders' wealth.

## **5.2 Future Research**

The areas of future research from this topic involve different event periods and variables for determining shareholder's wealth in M&A. This investigation only included a five-year period for completed transactions, but it could be done for a longer period and evaluate the results for Latin America. This investigation could also be done for different event windows, which may be longer or shorter to evaluate the returns for acquiring shareholders. Furthermore, it could be done specifically for industry instead rather than for a country.

Furthermore, a cross sectional analysis to explain the variation in the abnormal returns could be conducted integrating different variables such as method of payment, percent acquired, friendly or hostile takeover, quantity of firms acquire in a single transaction, relationship between the acquiring and target firm, among others, in a multiple regression analysis. This could also determine if the inclusion of these variables

might have an effect in the M&A and thus in the shareholders' wealth. Finally, this investigation and all the previously mentioned areas researched could be studied for the target firm as well.

## References

- Agrawal, A., Jaffe, J., & Mandelker, G. (1992, September). The post-merger performance of acquiring firms: A re-examination of anomaly. *The Journal of Finance*, 4, 1605-1621.
- Asquith, P., Bruner, R., & Mullins, D. (1983, April). The gains to bidding firms from merger. *Journal of Financial Economics*, 11(1), 121-139.
- Asquith, P., Bruner, R., & Mullins, D. (1990, August). Merger returns and the form of financing. Working Paper, Harvard University.
- Aybar, B., & Ficici, A. (2009). Cross-border acquisitions and firm value: An analysis of emerging-market multinationals. *Journal of International Business Studies*, 40(8), 1317-1338.
- Bednarczyk, T., Schiereck, D., & Walter, H. (2010). Cross-border acquisitions and shareholder wealth: Evidence from the energy and industry in Central and Eastern Europe\*. *Journal for East European Management Studies*, 15(2), 106-127.
- Block, S. (2005). Are international mergers value enhancing to acquirer shareholders? *Journal of Global Business*, 16(31), 73-81.
- Bradley, M., Desai, A., & Kim, E. (1988). Synergistic gains from corporate acquisitions and their division between the stockholders of target and acquiring firms. *Journal of Financial Economics*, 21(1), 3-40.
- Bragg, S. (2007). *Wiley GAAP policies and procedures*. (2<sup>nd</sup> ed.). New Jersey: John Wiley & Sons Inc.
- Bruner, R. (2001, October). *Does M&A pay? A survey of evidence for the decision-maker*. Retrieved from [http://starlightenergy.org/Brunner at Darden on M A Success.pdf](http://starlightenergy.org/Brunner_at_Darden_on_M_A_Success.pdf)
- Cartwright, S., & Cooper, C. (1996). *Managing mergers, acquisitions & strategic alliances: Integrating people and cultures*. (2<sup>nd</sup> ed.). Great Britain: MPG Books Ltd, Bodmin, Cornwall.
- Coutts, J. A., Mills, T. C., & Roberts, J. 1995. Testing cumulative prediction errors in event study methodology. *Journal of Forecasting*, 14(2): 107-115.

- Chughtai, S. (2010). Semi strong market efficiency: An empirical study of Karachi stock exchange. *Interdisciplinary Journal of Contemporary Research In Business*, 2(2), 179-206.
- DePamphilis, D. (2010). *Mergers, acquisitions, and other restructuring activities*. (5<sup>th</sup> ed.). Burlington, MA: Academic Press Advanced Finance Series.
- Dutta, S. (2006). *Performance and characteristics of Canadian acquiring firms*. Ph.D. dissertation, Carleton University (Canada), Canada. Retrieved from Dissertations & Theses. (Publication No. AAT NR18215).
- Eckbo, E. (1983, September). Horizontal mergers, collusion, and stockholder wealth, *Journal of Financial Economics*, 11(1-4), 241-273.
- Greenberg Traurig, & Mergermarket. (2008). *Latin American M&A spotlight*. Retrieved from [https://docs.google.com/viewer?url=http://www.altassets.com/pdfs/gt\\_latina\\_mergermarket.pdf](https://docs.google.com/viewer?url=http://www.altassets.com/pdfs/gt_latina_mergermarket.pdf)
- Jensen, M., & Ruback, R. (1983). The market for corporate control: The scientific evidence. *Journal of Financial Economics*, 11(1-4), 5-50.
- Kiyamaz, H. (2003). Wealth effect for U.S. acquires from foreign direct investments. *Journal of Business Strategies*, 20(1), 7-22.
- Meggison, W. (1997). Risk, return, and market efficiency. *Corporate Finance Theory* (pp.93-163). Reading, MA: Addison Wesley.
- Mergermarket. (2010). *Overview*. Retrieved from: <http://www.mergermarket.com/about/>
- Metwalli, A., & Tang, R. (2004, January). Update: M&A in Latin America. *The Journal of Corporate Accounting & Finance*, 15(2), 43-51.
- Morck, R., Shleifer, A., & Vishny, R. (1990). Do managerial objectives drive bad acquisitions? *The Journal of Finance*, 45(1), 31-48.
- Renze-Westendorf, M., Schiereck, D., & Zeidler, F. (2009). Cross-border acquisitions and shareholder wealth: Evidence from Spain. *Management Research*, 7(2), 127-140.
- Savor, M. (2003). *Risk management and its effect on mergers and acquisitions*. Ph.D. dissertation, HEC Montreal (Canada), Canada. Retrieved from Dissertations & Theses. (Publication No. AAT NQ82759).

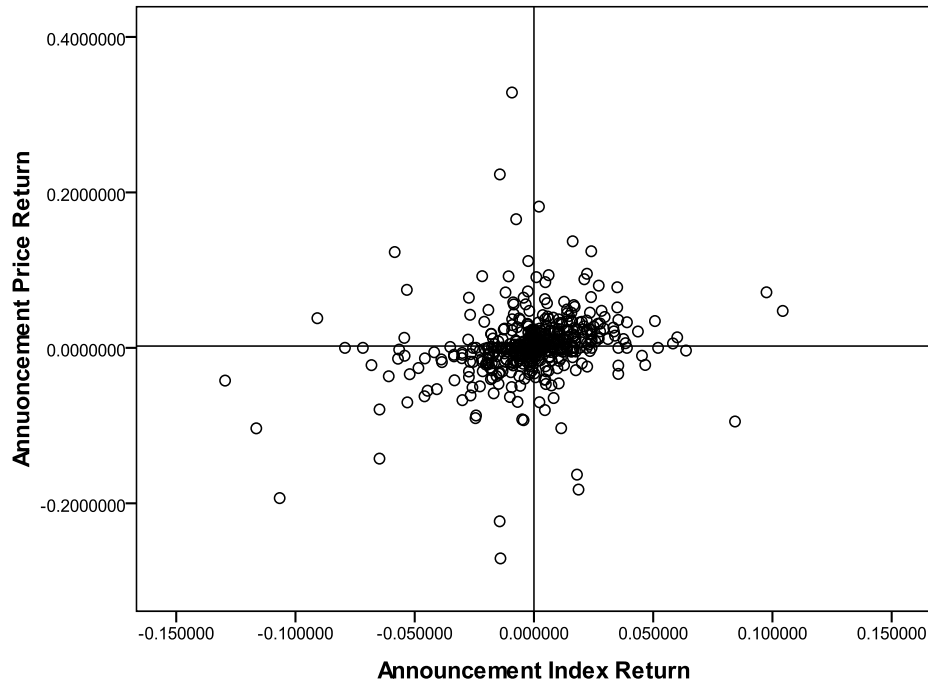


- Soongswang, A. (2010). M&A for value creation: The experience in Thailand. *Interdisciplinary Journal of Contemporary Research in Business*, 1(11), 28-50.
- Walker, M. (2000). Corporate takeovers, strategic objectives, and acquiring-firm shareholder wealth. *Financial Management*, 29(1), 53-66.
- Wansley, J., Lane, W., & Yang, H. (1983). Abnormal returns to acquired firms by type of acquisition and method of payment: 1. Introduction. *Financial Management (pre-1986)*, 12(3), 16- 22. Retrieved from ABI/INFORM Global. (Document ID: 608450771).
- Wells, W. (2004). A beginner's guide to event studies. *Journal of Insurance Regulation*, 22(4), 61-70.
- Williams, J., & Liao, A. (2008). The search for value: Cross-border bank M&A in emerging markets. *Comparative Economic Studies*, 50(2), 274-296.
- Wong, A., & Cheung, K. (2009). The effects of merger and acquisition announcements on the security prices of bidding firms and target firms in Asia. *International Journal of Economics and Finance*, 1(2), 274-283.
- Yuce, A., & Ng, A. (2005). Effects of private and public Canadian mergers. *Canadian Journal of Administrative Sciences*, 22(2), 111-124.

## Appendixes

### 1. Announcement Event Window [-30,30]

**Announcement Price Return Versus Announcement Index Return**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.252 <sup>a</sup>	.064	.062	.0425540747

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.060	1	.060	33.071	.000 <sup>a</sup>
Residual	.880	486	.002		
Total	.940	487			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

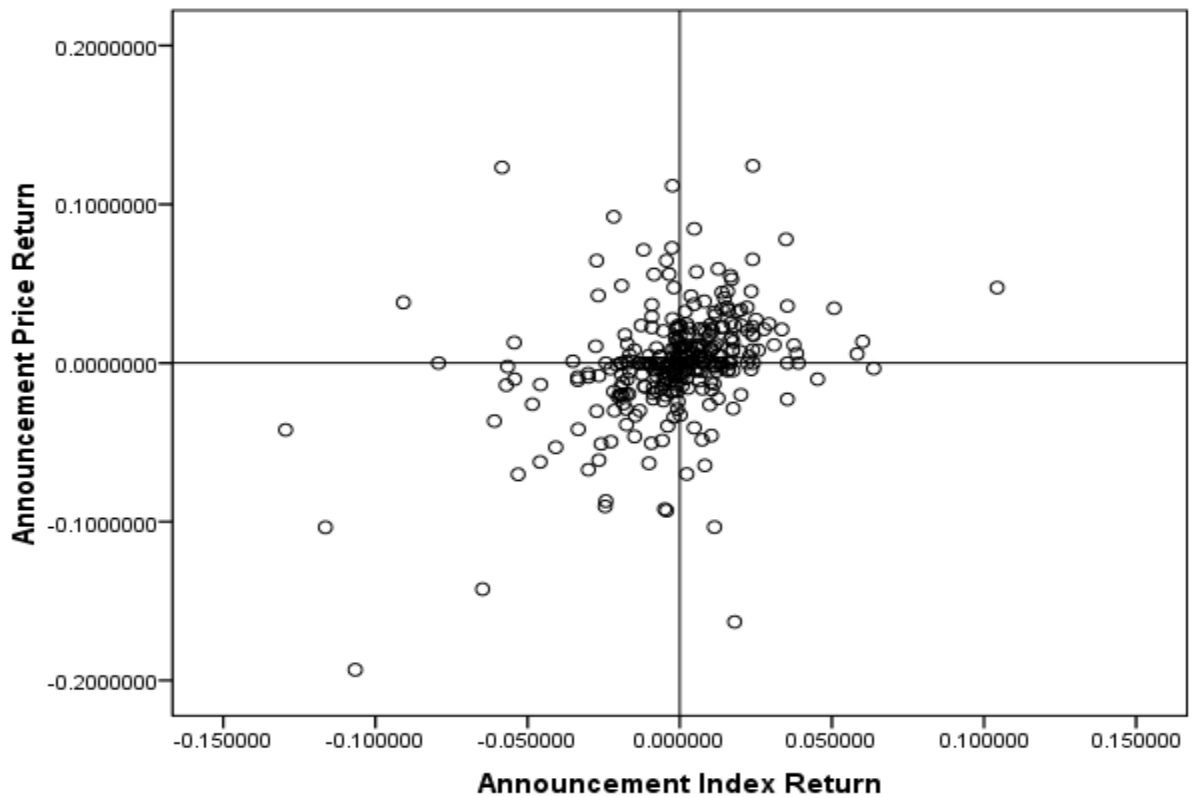
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.003	.002		1.397	.163
Announcement Index Return	.478	.083	.252	5.751	.000

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.059271414	.052601703	.002321257	.0110892321	488
Residual	-.2668498755	.3302201927	.0000000000	.0425103623	488
Std. Predicted Value	-5.554	4.534	.000	1.000	488
Std. Residual	-6.271	7.760	.000	.999	488

a. Dependent Variable: Announcement Price Return

**2. Announcement Event Window [-20,20]****Announcement Price Return Versus Announcement Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.360 <sup>a</sup>	.130	.127	.0321489543

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.050	1	.050	48.564	.000 <sup>a</sup>
Residual	.337	326	.001		
Total	.387	327			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.002		.526	.599
Announcement Index Return	.527	.076	.360	6.969	.000

a. Dependent Variable: Announcement Price Return

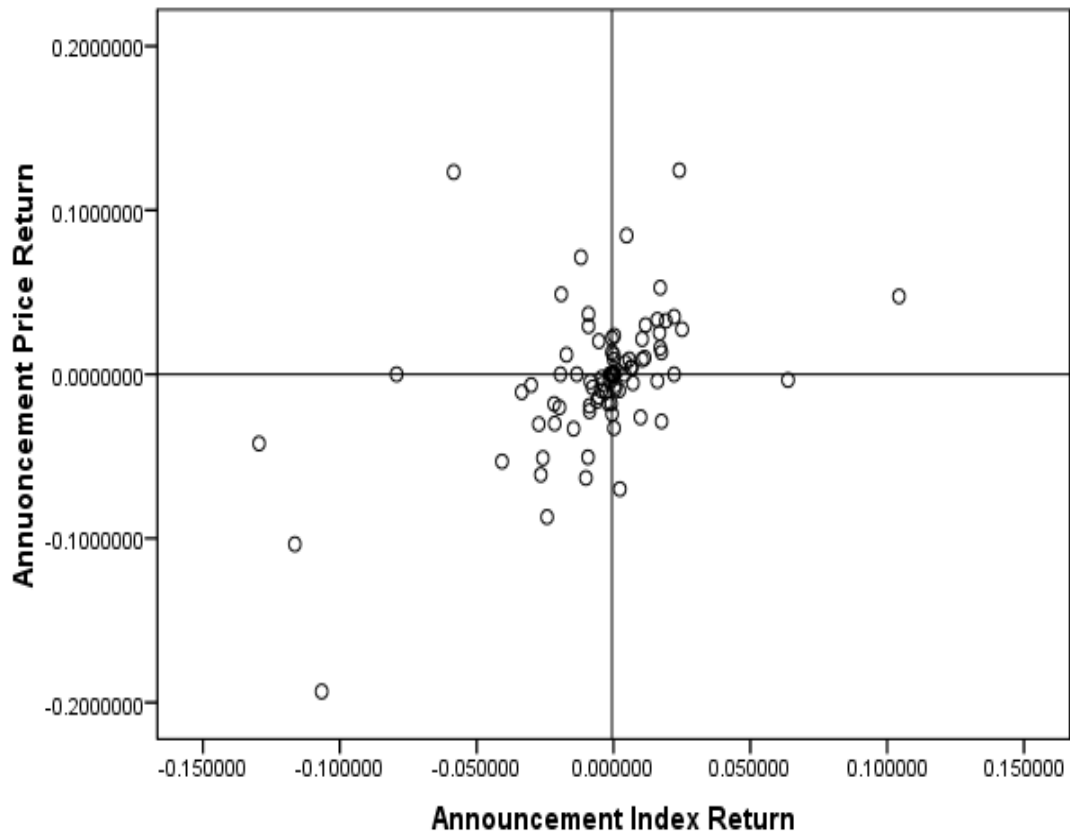
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.067277737	.055877578	.000101367	.0123894602	328
Residual	-.1735417545	.1530718505	.0000000000	.0320997592	328
Std. Predicted Value	-5.438	4.502	.000	1.000	328
Std. Residual	-5.398	4.761	.000	.998	328

a. Dependent Variable: Announcement Price Return

### 3. Announcement Event Window [-5,5]

#### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.479 <sup>a</sup>	.229	.220	.0364882189

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.034	1	.034	25.556	.000 <sup>a</sup>
Residual	.114	86	.001		
Total	.149	87			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

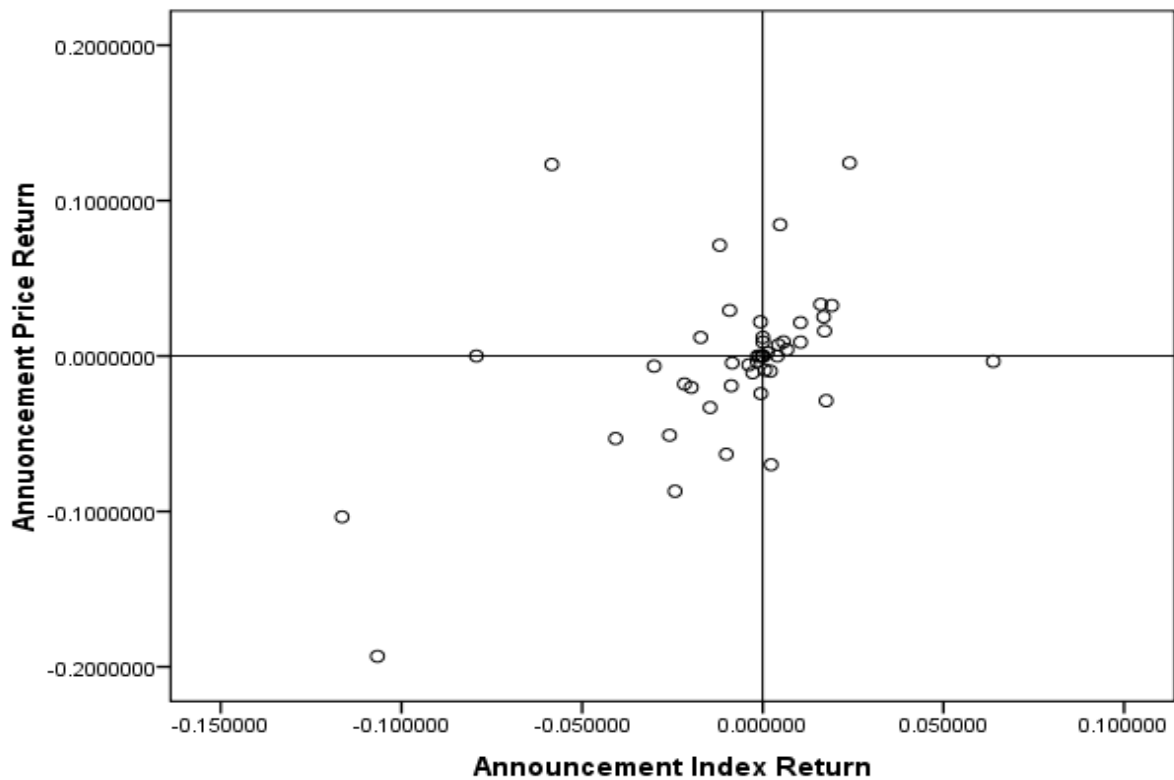
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.004		.267	.790
Announcement Index Return	.655	.130	.479	5.055	.000

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.083794594	.069392949	-.002453558	.0197759102	88
Residual	-.1244913489	.1604544818	.0000000000	.0362779104	88
Std. Predicted Value	-4.113	3.633	.000	1.000	88
Std. Residual	-3.412	4.397	.000	.994	88

a. Dependent Variable: Announcement Price Return

**4. Announcement Event Window [0, 5]****Announcement Price Return Versus Announcement Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.487 <sup>a</sup>	.237	.220	.0449366451

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.029	1	.029	14.283	.000 <sup>a</sup>
Residual	.093	46	.002		
Total	.122	47			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.003	.007		.450	.655
Announcement Index Return	.812	.215	.487	3.779	.000

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

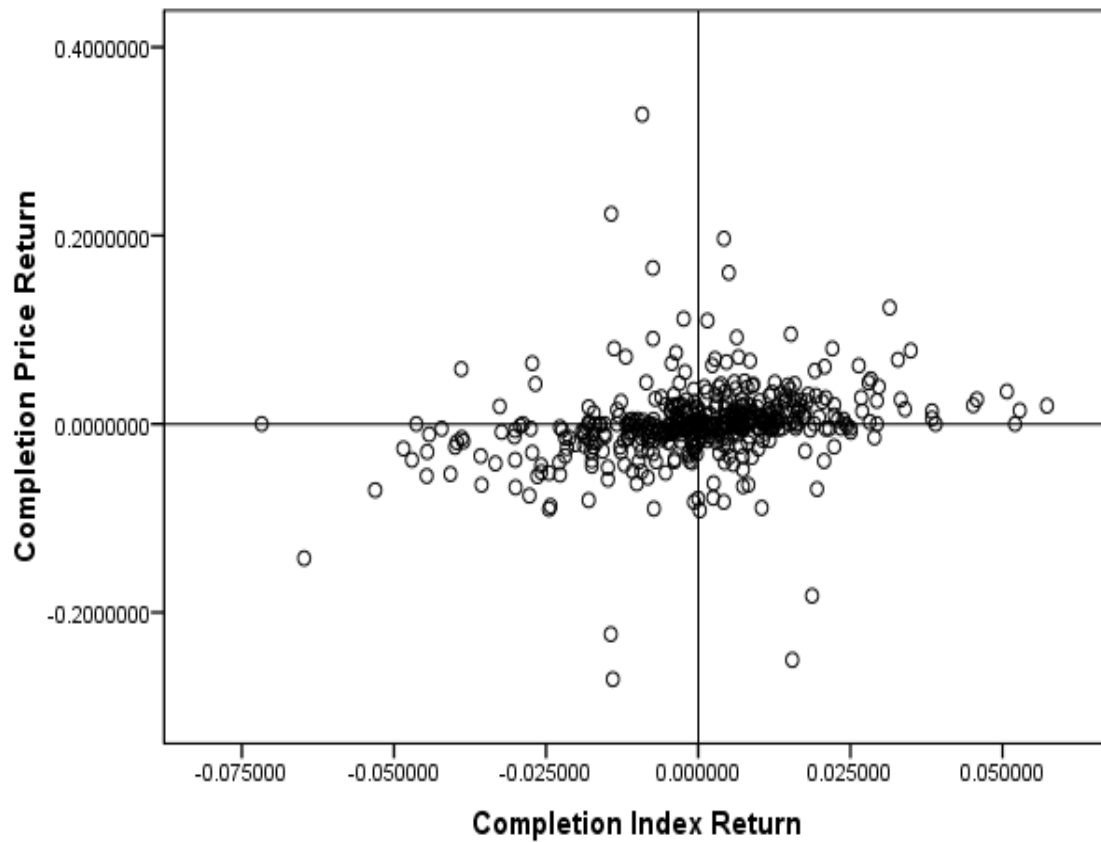
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.091577239	.054825552	-.003545093	.0247723022	48
Residual	-.1096764579	.1676792353	.0000000000	.0444560254	48
Std. Predicted Value	-3.554	2.356	.000	1.000	48
Std. Residual	-2.441	3.731	.000	.989	48

a. Dependent Variable: Announcement Price Return



### 5. Completion Event Window [-30,30]

**Completion Price Return Versus Completion Price Index**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.254 <sup>a</sup>	.064	.062	.0423378718

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.060	1	.060	33.443	.000 <sup>a</sup>
Residual	.871	486	.002		
Total	.931	487			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

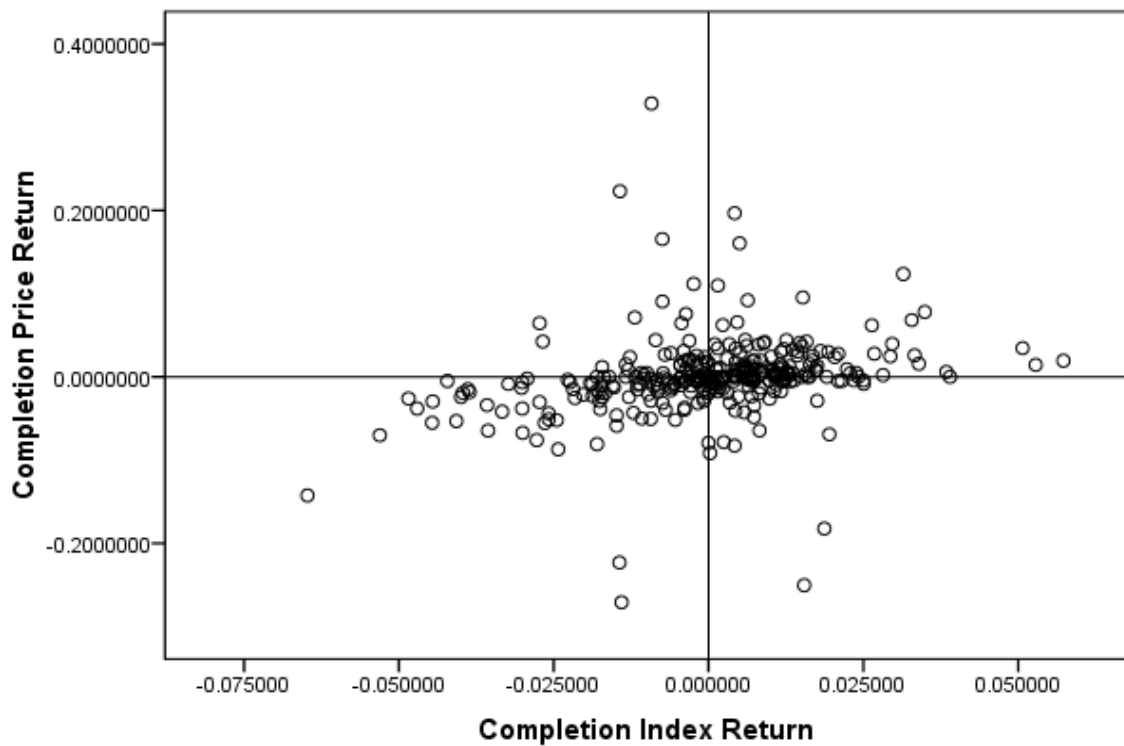
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.002		-.297	.767
Completion Index Return	.667	.115	.254	5.783	.000

a. Dependent Variable: Completion Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.048441686	.037668493	-.000525725	.0110947239	488
Residual	-.2609353960	.3352230489	.0000000000	.0422943815	488
Std. Predicted Value	-4.319	3.443	.000	1.000	488
Std. Residual	-6.163	7.918	.000	.999	488

a. Dependent Variable: Completion Price Return

**6. Completion Event Window [-20,20]****Completion Price Return Versus Completion Price Index**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.263 <sup>a</sup>	.069	.066	.0476975303

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.055	1	.055	24.237	.000 <sup>a</sup>
Residual	.742	326	.002		
Total	.797	327			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-4.473E-5	.003		-.017	.986
Completion Index Return	.768	.156	.263	4.923	.000

a. Dependent Variable: Completion Price Return

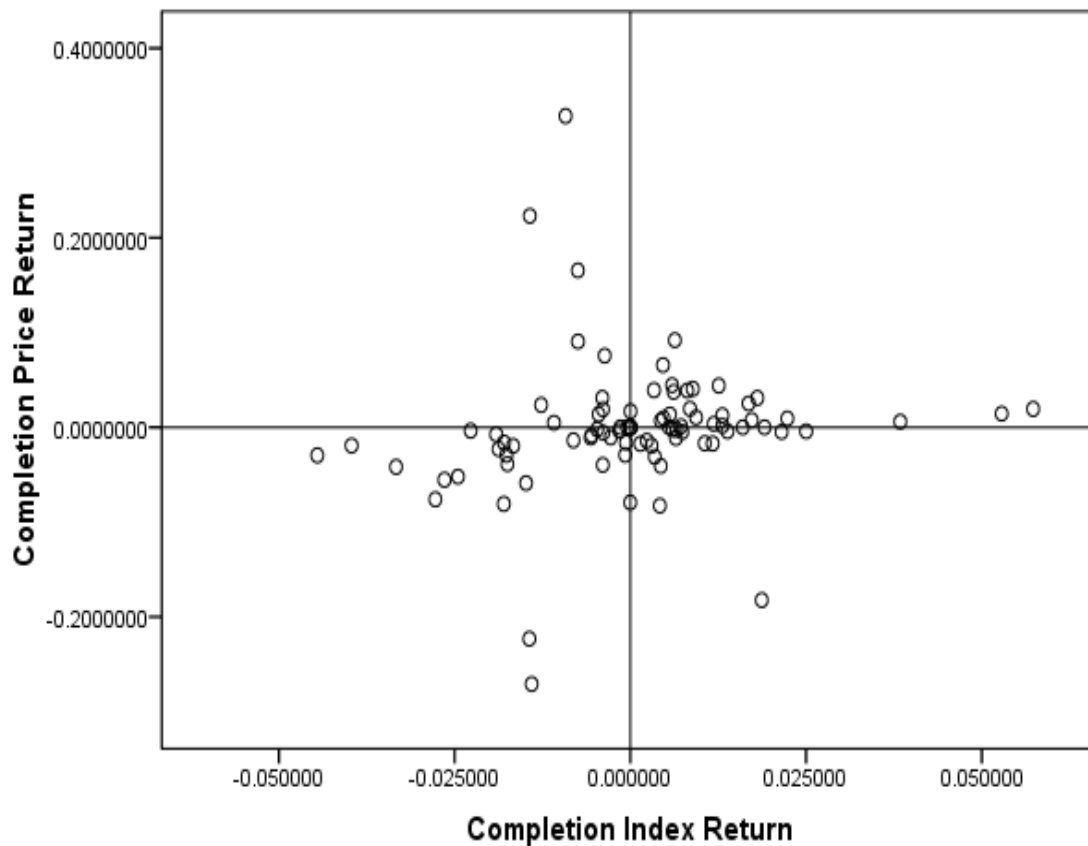
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.049762733	.043937743	-.000158474	.0129854708	328
Residual	-.2621657550	.3356234133	.0000000000	.0476245425	328
Std. Predicted Value	-3.820	3.396	.000	1.000	328
Std. Residual	-5.496	7.036	.000	.998	328

a. Dependent Variable: Completion Price Return

## 7. Completion Event Window [-5,5]

Completion Price Return Versus Completion Price Index



Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.133 <sup>a</sup>	.018	.006	.0702902007

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.008	1	.008	1.541	.218 <sup>a</sup>
Residual	.425	86	.005		
Total	.433	87			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

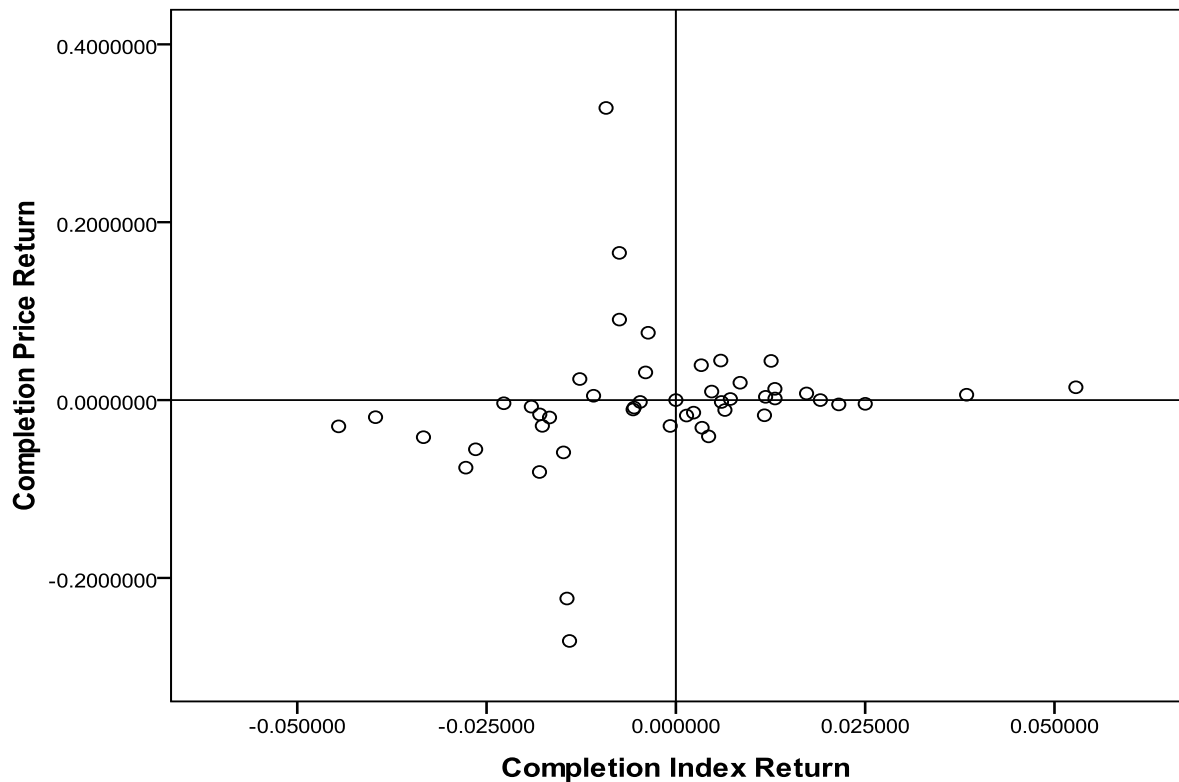
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.002	.007		-.234	.816
Completion Index Return	.563	.454	.133	1.241	.218

a. Dependent Variable: Completion Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.026840972	.030523717	-.001506735	.0093553029	88
Residual	-.2612112761	.3354491591	.0000000000	.0698850665	88
Std. Predicted Value	-2.708	3.424	.000	1.000	88
Std. Residual	-3.716	4.772	.000	.994	88

a. Dependent Variable: Completion Price Return

**8. Completion Event Window [0, 5]****Completion Price Return Versus Completion Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.189 <sup>a</sup>	.036	.015	.0802852734

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.011	1	.011	1.708	.198 <sup>a</sup>
Residual	.297	46	.006		
Total	.308	47			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.002	.012		-.198	.844
Completion Index Return	.821	.628	.189	1.307	.198

a. Dependent Variable: Completion Price Return

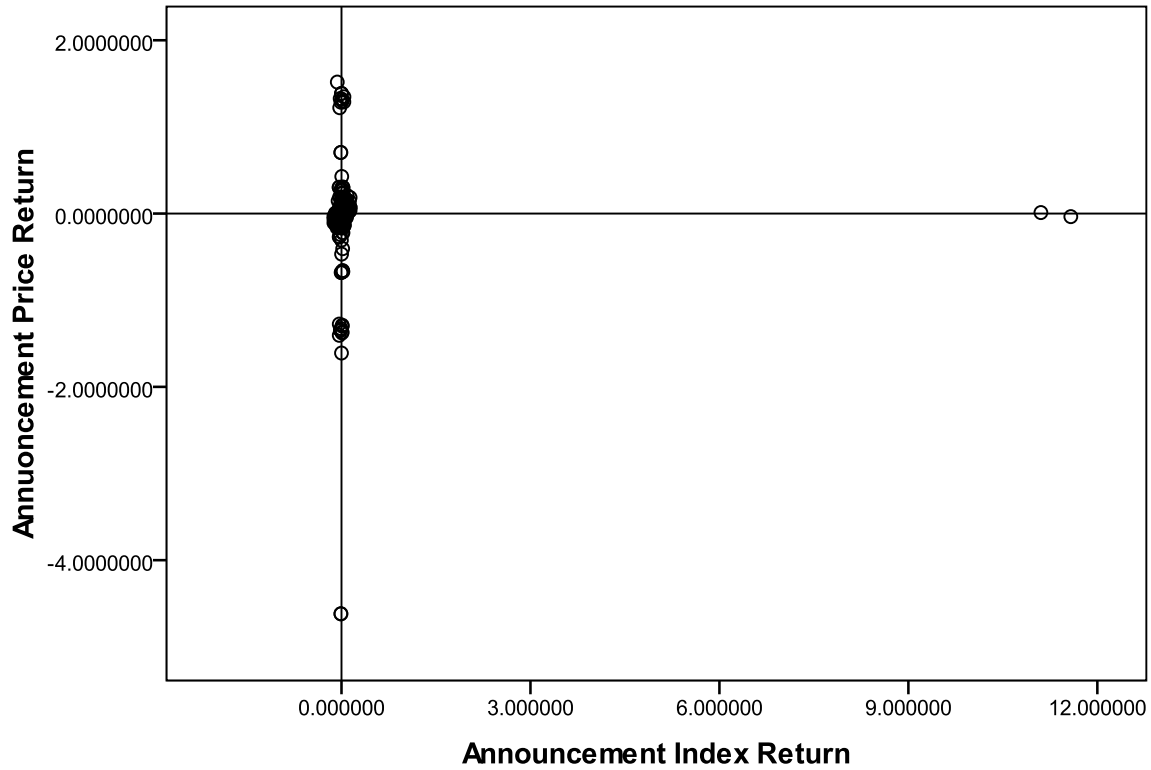
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.038894635	.041072212	-.004179178	.0153062663	48
Residual	-.2570258379	.3383893371	.0000000000	.0794265826	48
Std. Predicted Value	-2.268	2.956	.000	1.000	48
Std. Residual	-3.201	4.215	.000	.989	48

a. Dependent Variable: Completion Price Return

### 1. Announcement Event Window [-30,30]

#### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.011 <sup>a</sup>	.000	.000	.1173652210

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.011	1	.011	.798	.372 <sup>a</sup>
Residual	89.879	6525	.014		
Total	89.890	6526			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.001		-.670	.503
Announcement Index Return	.007	.007	.011	.893	.372

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

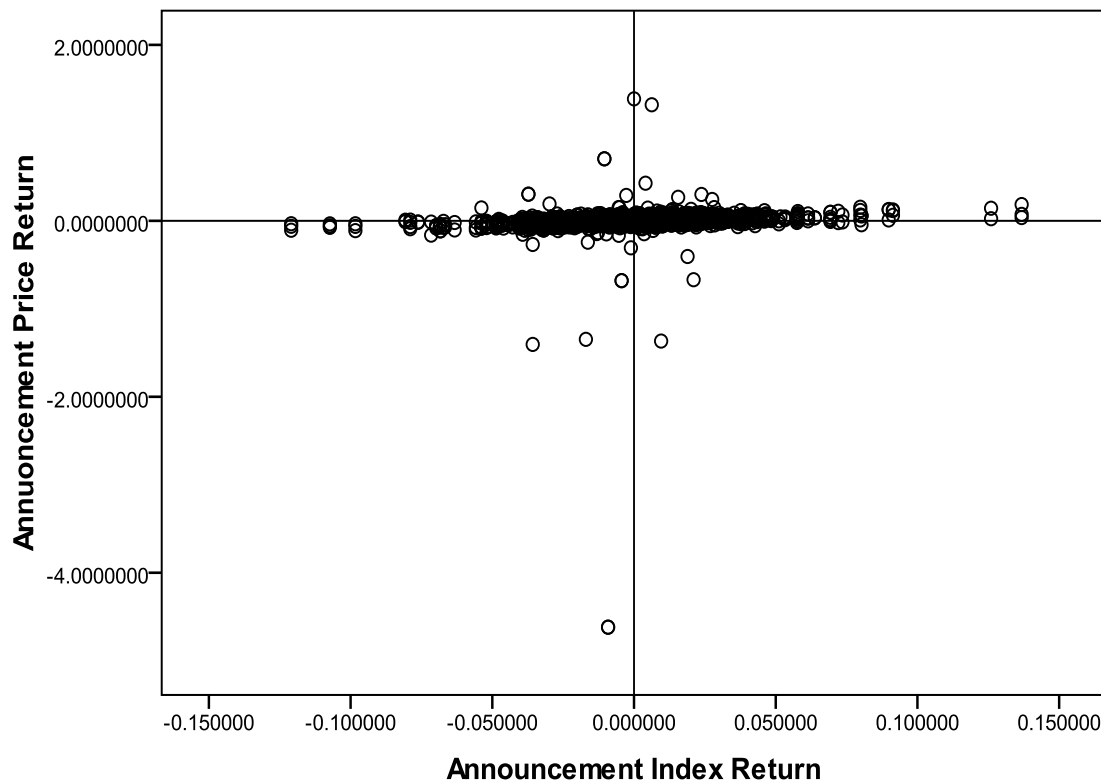
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.001759779	.074292183	-.000947037	.0012976219	6527
Residual	-4.6178164482E0	1.5187294483E0	.0000000000	.1173562286	6527
Std. Predicted Value	-.626	57.982	.000	1.000	6527
Std. Residual	-39.346	12.940	.000	1.000	6527

a. Dependent Variable: Announcement Price Return



## 2. Announcement Event Window [-20,20]

### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.128 <sup>a</sup>	.016	.016	.1149420105

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.967	1	.967	73.160	.000 <sup>a</sup>
Residual	57.946	4386	.013		
Total	58.913	4387			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

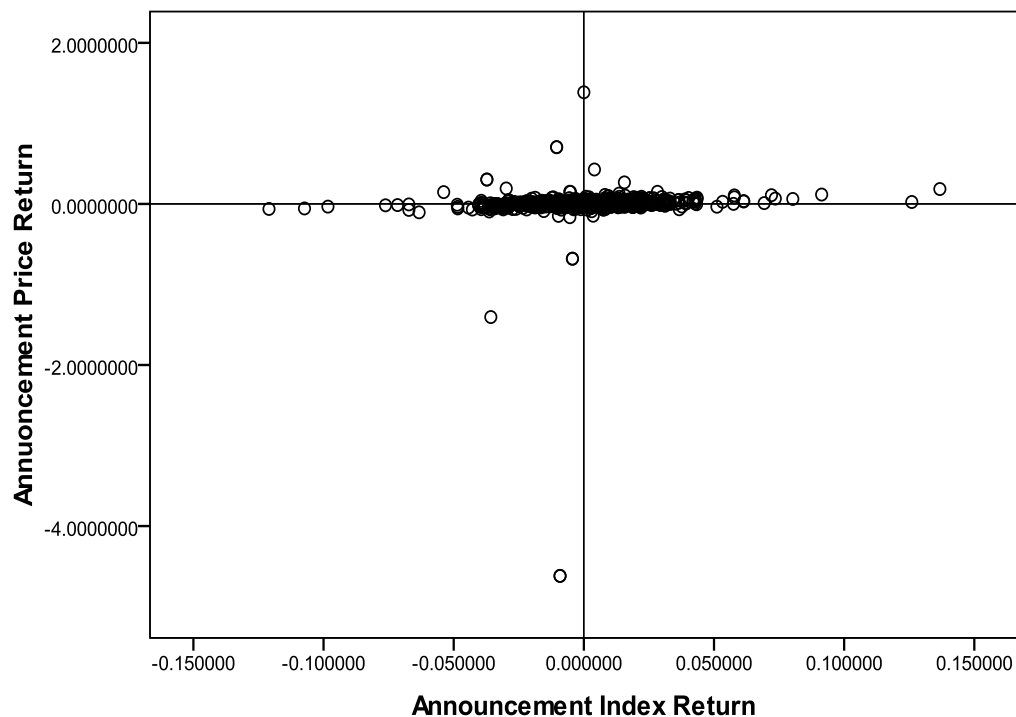
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.002	.002		-1.132	.258
Announcement Index Return	.731	.085	.128	8.553	.000

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.090388343	.098012887	-.001542719	.0148433086	4388
Residual	-4.6101970673E0	1.3882591724E0	.0000000000	.1149289095	4388
Std. Predicted Value	-5.986	6.707	.000	1.000	4388
Std. Residual	-40.109	12.078	.000	1.000	4388

a. Dependent Variable: Announcement Price Return

**3. Announcement Event Window [-5,5]****Announcement Price Return Versus Announcement Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.083 <sup>a</sup>	.007	.006	.2055130555

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.341	1	.341	8.063	.005 <sup>a</sup>
Residual	49.669	1176	.042		
Total	50.010	1177			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.004	.006		-.727	.467
Announcement Index Return	.856	.301	.083	2.840	.005

a. Dependent Variable: Announcement Price Return

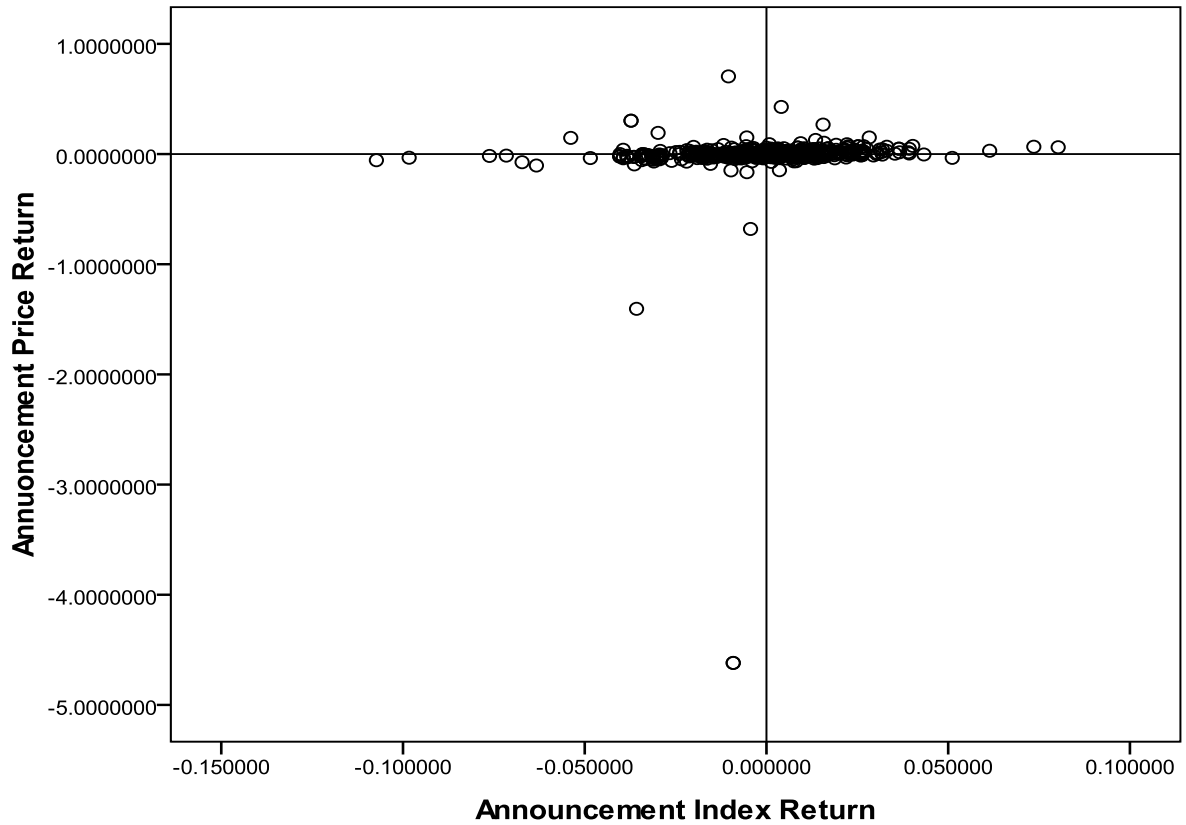
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.107876144	.112686172	-.003729167	.0170097206	1178
Residual	-4.6066622734E0	1.3906525373E0	.0000000000	.2054257332	1178
Std. Predicted Value	-6.123	6.844	.000	1.000	1178
Std. Residual	-22.415	6.767	.000	1.000	1178

a. Dependent Variable: Announcement Price Return

#### 4. Announcement Event Window [0, 5]

**Announcement Price Return Versus Announcement Index Return**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.073 <sup>a</sup>	.005	.004	.2688088204

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.252	1	.252	3.481	.063 <sup>a</sup>
Residual	46.317	641	.072		
Total	46.569	642			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

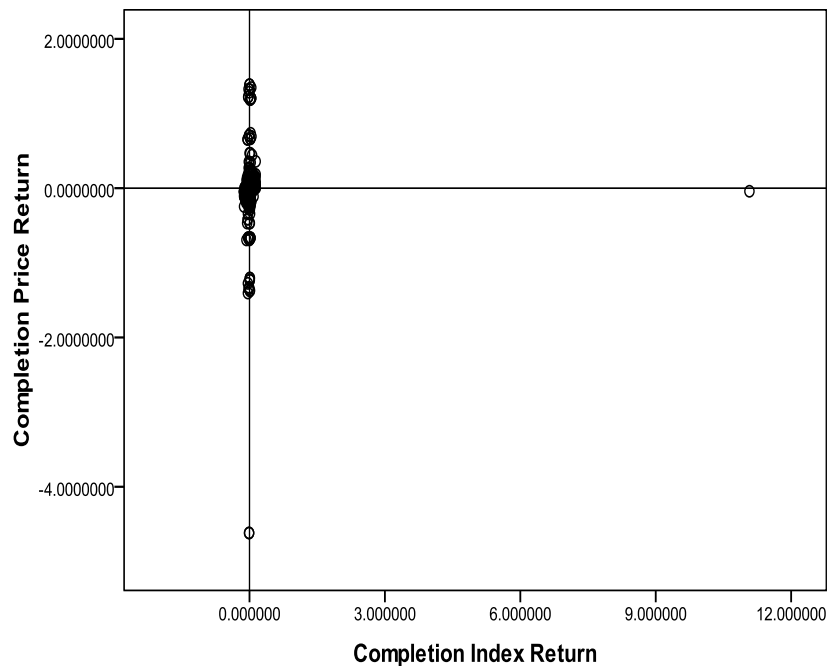
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.012	.011		-1.106	.269
Announcement Index Return	1.064	.570	.073	1.866	.063

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.125927791	.073688105	-.012059518	.0197934223	643
Residual	-4.5973887444E0	.7276266813	.0000000000	.2685993862	643
Std. Predicted Value	-5.753	4.332	.000	1.000	643
Std. Residual	-17.103	2.707	.000	.999	643

a. Dependent Variable: Announcement Price Return

**5. Completion Event Window [-30,30]****Completion Price Return Versus Completion Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.019 <sup>a</sup>	.000	.000	.1229124972

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.035	1	.035	2.289	.130 <sup>a</sup>
Residual	98.546	6523	.015		
Total	98.581	6524			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.002	.002		-1.196	.232
Completion Index Return	.017	.011	.019	1.513	.130

a. Dependent Variable: Completion Price Return

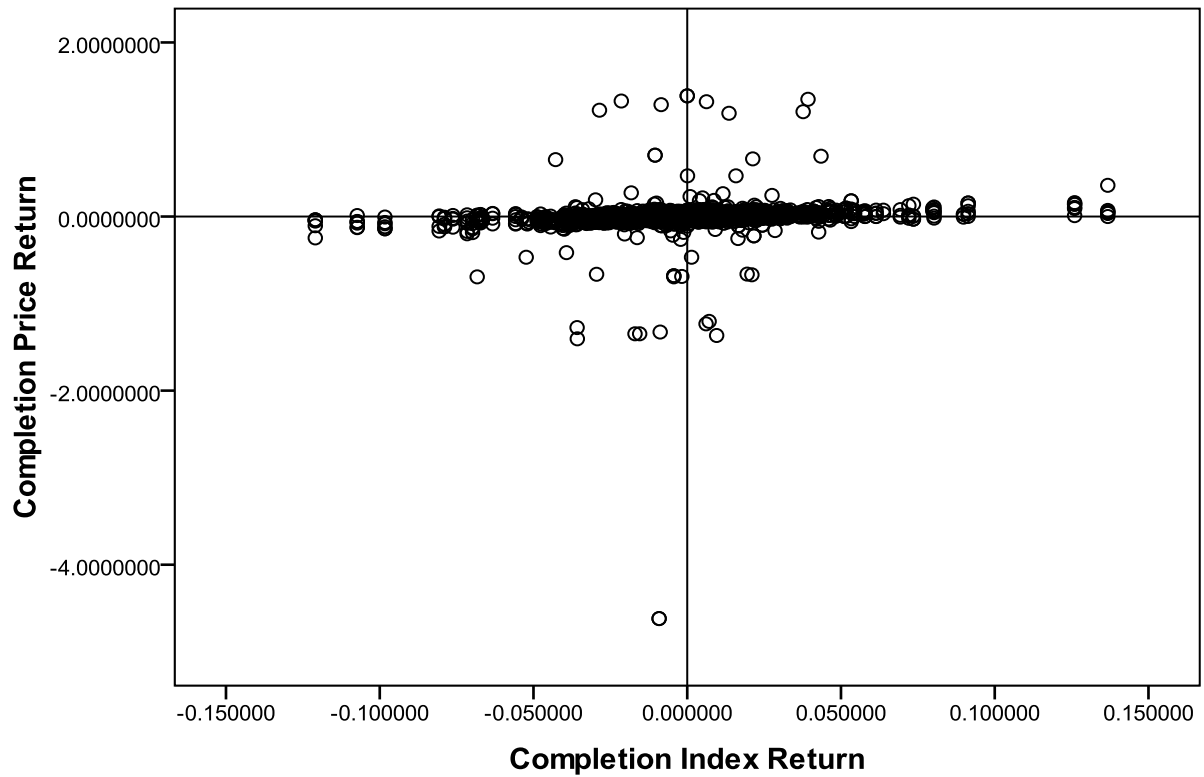
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.003825753	.181778640	-.001791508	.0023021919	6525
Residual	-4.6168770790E0	1.3881149292E0	.0000000000	.1229030768	6525
Std. Predicted Value	-.884	79.737	.000	1.000	6525
Std. Residual	-37.562	11.294	.000	1.000	6525

a. Dependent Variable: Completion Price Return

## 6. Completion Event Window [-20,20]

### Completion Price Return Versus Completion Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.138 <sup>a</sup>	.019	.019	.1367977976

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.602	1	1.602	85.608	.000 <sup>a</sup>
Residual	82.022	4383	.019		
Total	83.624	4384			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.003	.002		-1.269	.204
Completion Index Return	.853	.092	.138	9.252	.000

a. Dependent Variable: Completion Price Return

**Residuals Statistics<sup>a</sup>**

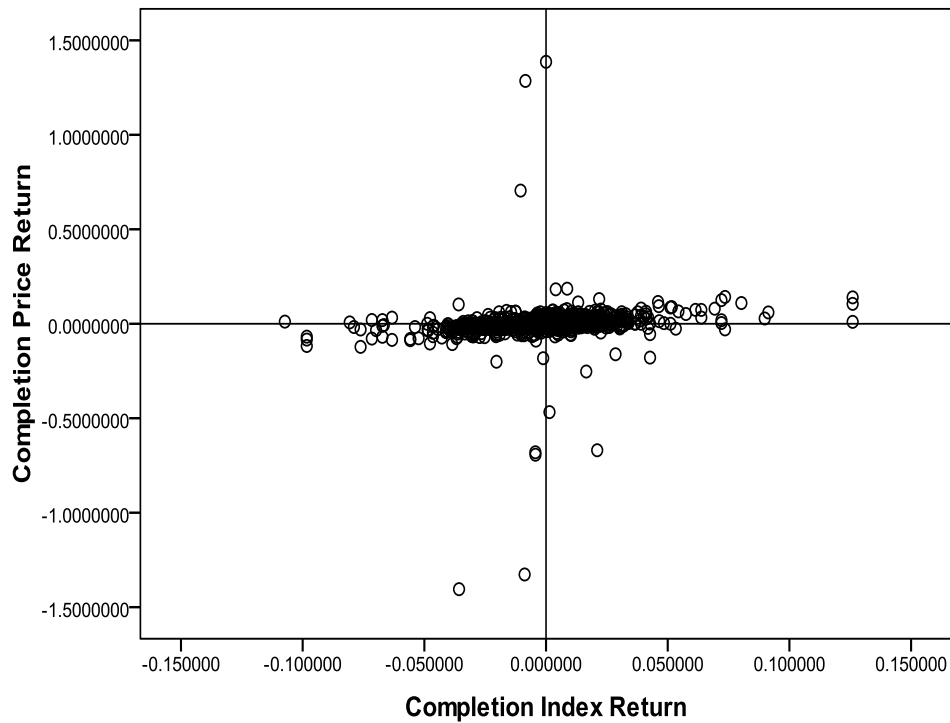
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.105799526	.114037678	-.002589349	.0191161724	4385
Residual	-4.6084241867E0	1.3889162540E0	.0000000000	.1367821948	4385
Std. Predicted Value	-5.399	6.101	.000	1.000	4385
Std. Residual	-33.688	10.153	.000	1.000	4385

a. Dependent Variable: Completion Price Return



## 7. Completion Event Window [-5,5]

Completion Price Return Versus Completion Index Return



Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.162 <sup>a</sup>	.026	.025	.0936279964

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.277	1	.277	31.600	.000 <sup>a</sup>
Residual	10.300	1175	.009		
Total	10.577	1176			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

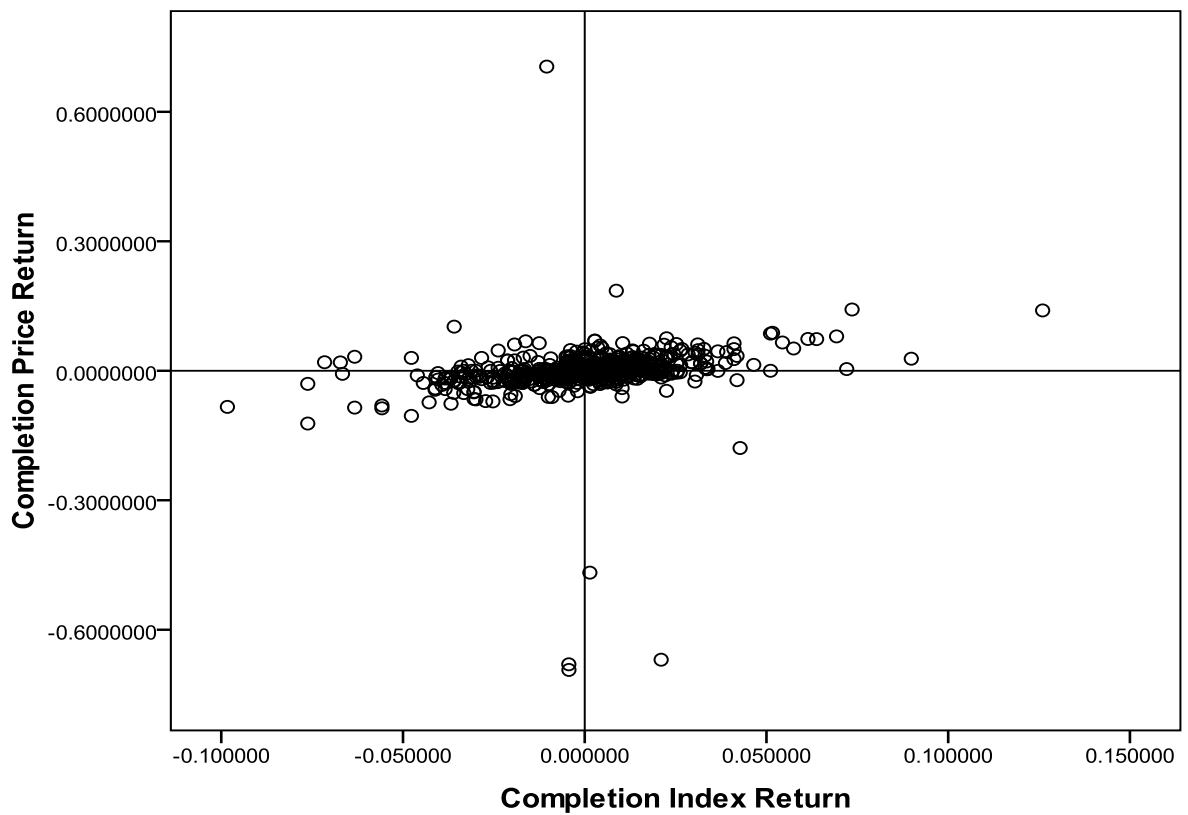
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.003		-.275	.783
Completion Index Return	.700	.125	.162	5.621	.000

a. Dependent Variable: Completion Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.075897112	.087464347	-.000523130	.0153476871	1177
Residual	-1.3789322376E0	1.3870453835E0	.0000000000	.0935881801	1177
Std. Predicted Value	-4.911	5.733	.000	1.000	1177
Std. Residual	-14.728	14.814	.000	1.000	1177

a. Dependent Variable: Completion Price Return

**8. Completion Event Window [0, 5]****Completion Price Return Versus Completion Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.208 <sup>a</sup>	.043	.042	.0628782792

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.115	1	.115	29.076	.000 <sup>a</sup>
Residual	2.530	640	.004		
Total	2.645	641			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.002	.002		-.706	.480
Completion Index Return	.633	.117	.208	5.392	.000

a. Dependent Variable: Completion Price Return

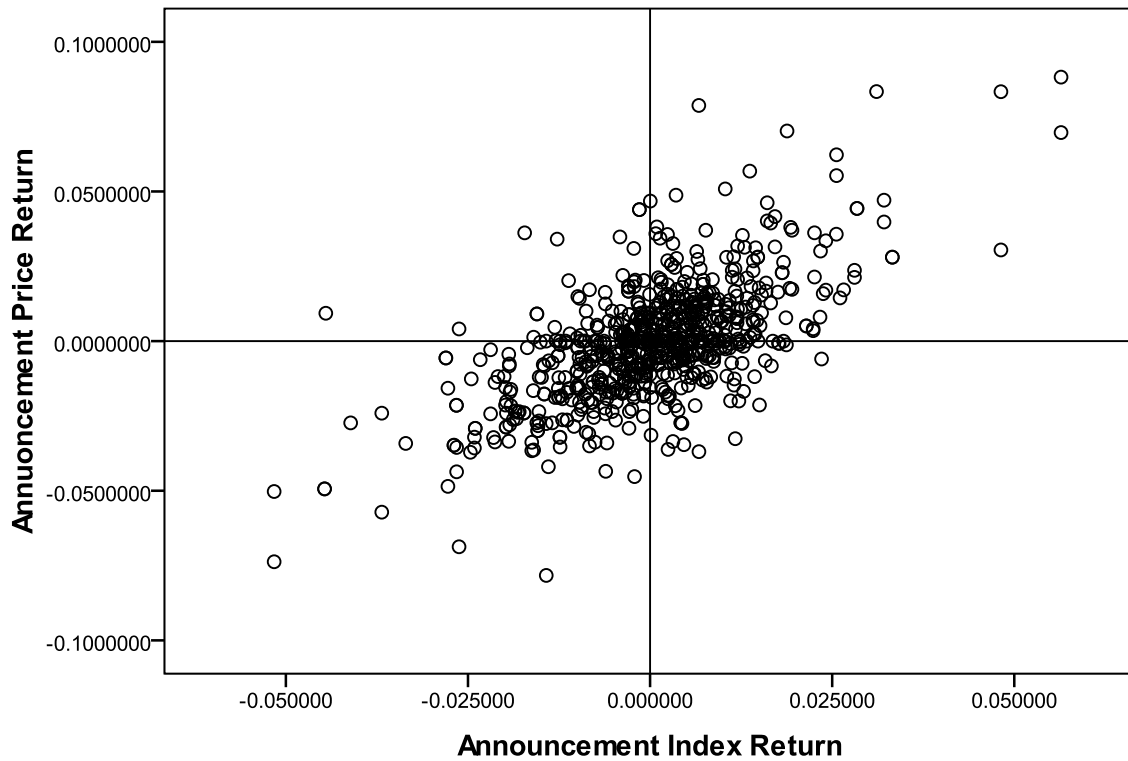
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.064012624	.078031912	-.001650496	.0133917820	642
Residual	-.6886395216	.7131455541	.0000000000	.0628292131	642
Std. Predicted Value	-4.657	5.950	.000	1.000	642
Std. Residual	-10.952	11.342	.000	.999	642

a. Dependent Variable: Completion Price Return

### 1. Announcement Event Window [-30,30]

#### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.645 <sup>a</sup>	.417	.416	.0143655286

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.117	1	.117	564.642	.000 <sup>a</sup>
Residual	.163	791	.000		
Total	.280	792			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.001		-1.366	.172
Announcement Index Return	1.010	.043	.645	23.762	.000

a. Dependent Variable: Announcement Price Return

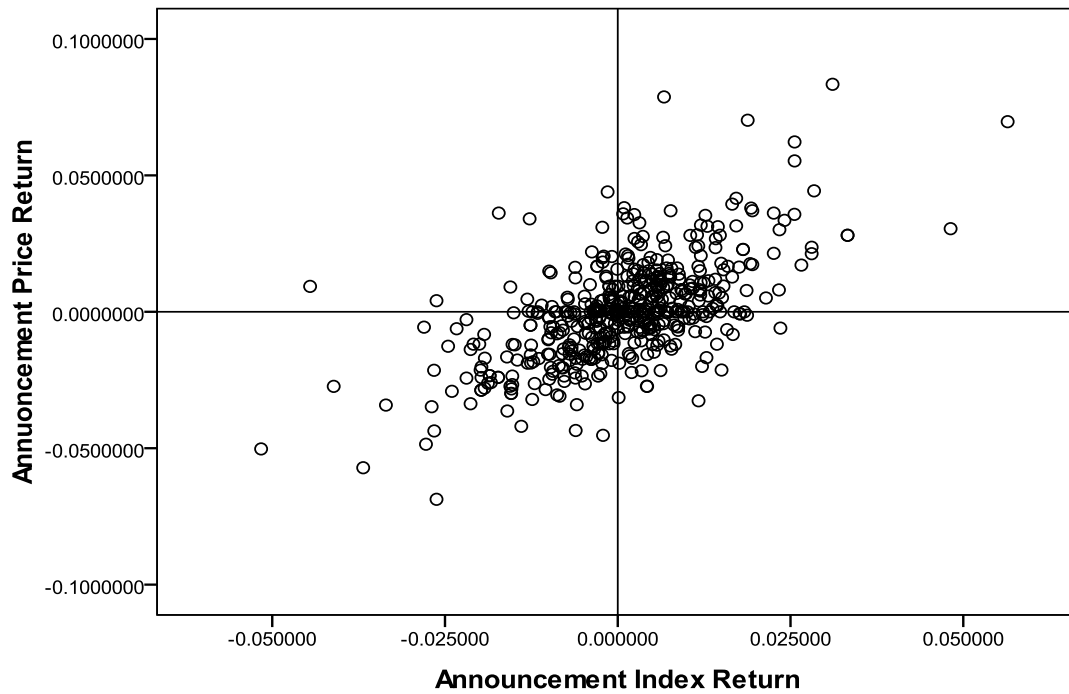
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.052821752	.056288406	-.000439656	.0121295705	793
Residual	-.0632026270	.0726789534	.0000000000	.0143564566	793
Std. Predicted Value	-4.319	4.677	.000	1.000	793
Std. Residual	-4.400	5.059	.000	.999	793

a. Dependent Variable: Announcement Price Return

## 2. Announcement Event Window [-20,20]

### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.622 <sup>a</sup>	.387	.386	.0140800471

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.067	1	.067	335.454	.000 <sup>a</sup>
Residual	.105	531	.000		
Total	.172	532			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.001		-1.012	.312
Announcement Index Return	.964	.053	.622	18.315	.000

a. Dependent Variable: Announcement Price Return

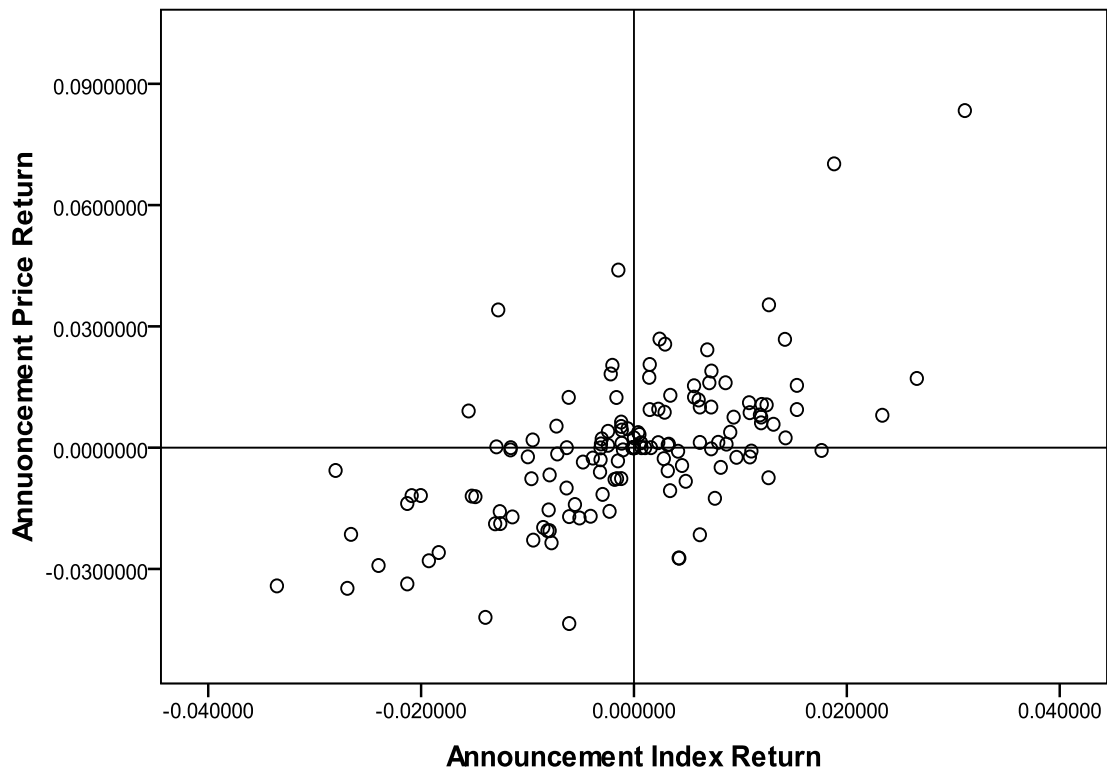
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.050366532	.053767920	.000183678	.0111805867	533
Residual	-.0432629883	.0729090646	.0000000000	.0140668078	533
Std. Predicted Value	-4.521	4.793	.000	1.000	533
Std. Residual	-3.073	5.178	.000	.999	533

a. Dependent Variable: Announcement Price Return

### 3. Announcement Event Window [-5,5]

#### Announcement Price Return Versus Announcement Index Return



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.604 <sup>a</sup>	.365	.361	.0139557683

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.016	1	.016	81.161	.000 <sup>a</sup>
Residual	.027	141	.000		
Total	.043	142			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.001		.340	.735
Announcement Index Return	.982	.109	.604	9.009	.000

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

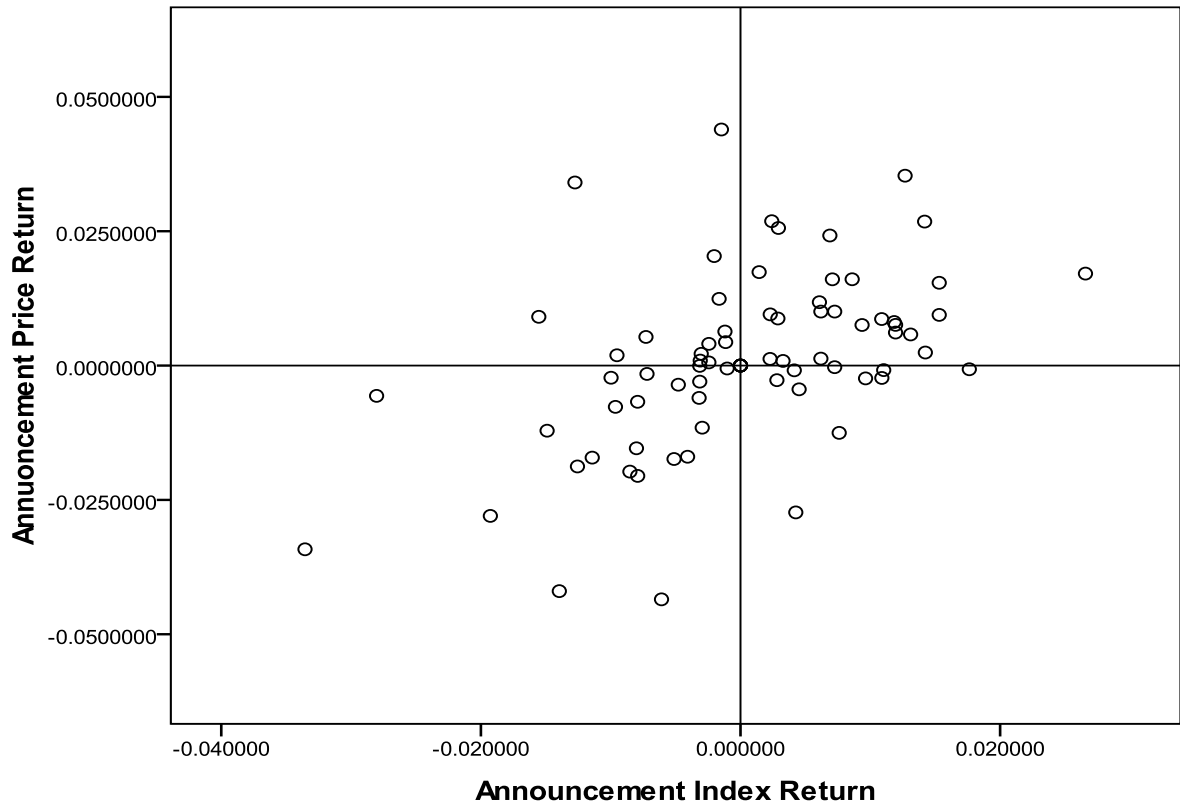
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.032533042	.030911600	-.000268270	.0105507773	143
Residual	-.0379308127	.0524700098	.0000000000	.0139065414	143
Std. Predicted Value	-3.058	2.955	.000	1.000	143
Std. Residual	-2.718	3.760	.000	.996	143

a. Dependent Variable: Announcement Price Return



#### 4. Announcement Event Window [0, 5]

**Announcement Price Return Versus Announcement Index Return**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.490 <sup>a</sup>	.240	.230	.0138838523

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.005	1	.005	24.058	.000 <sup>a</sup>
Residual	.015	76	.000		
Total	.019	77			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.002		.566	.573
Announcement Index Return	.763	.156	.490	4.905	.000

a. Dependent Variable: Announcement Price Return

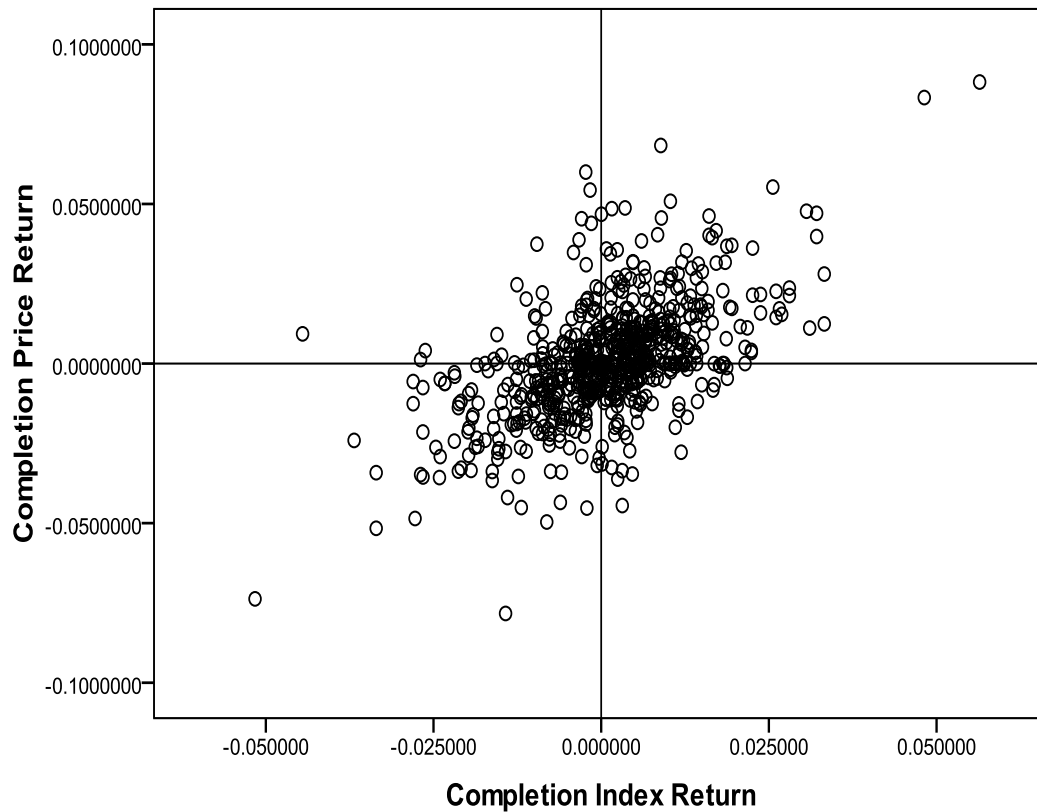
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.024709143	.021168174	.001114373	.0077605605	78
Residual	-.0397533327	.0441636555	.0000000000	.0137934028	78
Std. Predicted Value	-3.328	2.584	.000	1.000	78
Std. Residual	-2.863	3.181	.000	.993	78

a. Dependent Variable: Announcement Price Return

## 5. Completion Event Window [-30,30]

### Completion Price Return Versus Completion Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.571 <sup>a</sup>	.327	.326	.0140367569

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.076	1	.076	383.463	.000 <sup>a</sup>
Residual	.156	791	.000		
Total	.231	792			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.662E-5	.000		.093	.926
Completion Index Return	.917	.047	.571	19.582	.000

a. Dependent Variable: Completion Price Return

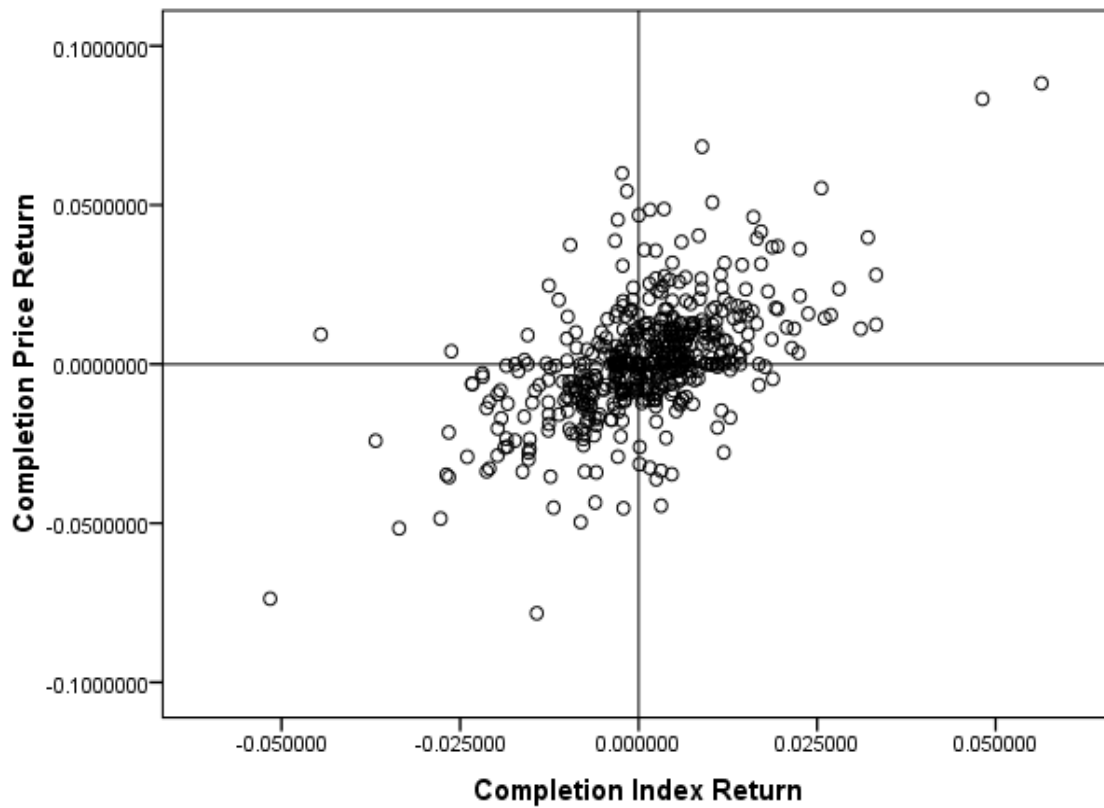
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.047259241	.051764175	.000772846	.0097671077	793
Residual	-.0652773827	.0620539933	.0000000000	.0140278925	793
Std. Predicted Value	-4.918	5.221	.000	1.000	793
Std. Residual	-4.650	4.421	.000	.999	793

a. Dependent Variable: Completion Price Return

## 6. Completion Event Window [-20,20]

**Completion Price Return Versus Completion Index Return**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.570 <sup>a</sup>	.325	.324	.0147761624

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.056	1	.056	255.594	.000 <sup>a</sup>
Residual	.116	531	.000		
Total	.172	532			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

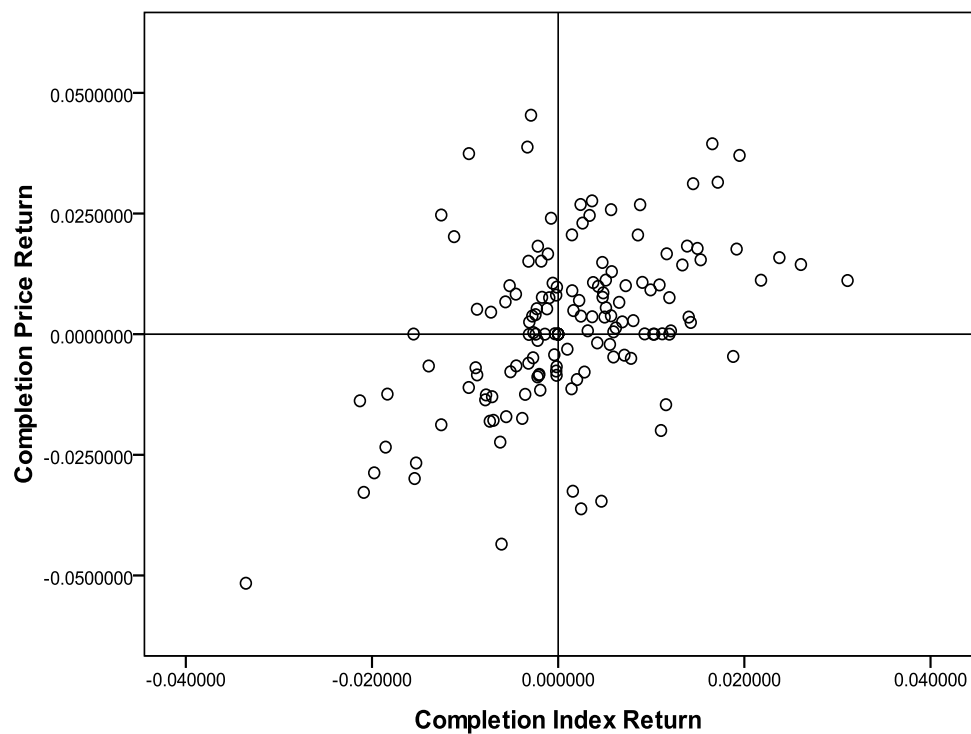
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.001		.552	.582
Completion Index Return	.942	.059	.570	15.987	.000

a. Dependent Variable: Completion Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.048276816	.053519864	.001088881	.0102419211	533
Residual	-.0652187392	.0618057586	.0000000000	.0147622685	533
Std. Predicted Value	-4.820	5.119	.000	1.000	533
Std. Residual	-4.414	4.183	.000	.999	533

a. Dependent Variable: Completion Price Return

**7. Completion Event Window [-5,5]****Completion Price Return Versus Completion Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.478 <sup>a</sup>	.229	.223	.0145778514

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.009	1	.009	41.782	.000 <sup>a</sup>
Residual	.030	141	.000		
Total	.039	142			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.001		.727	.468
Completion Index Return	.806	.125	.478	6.464	.000

a. Dependent Variable: Completion Price Return

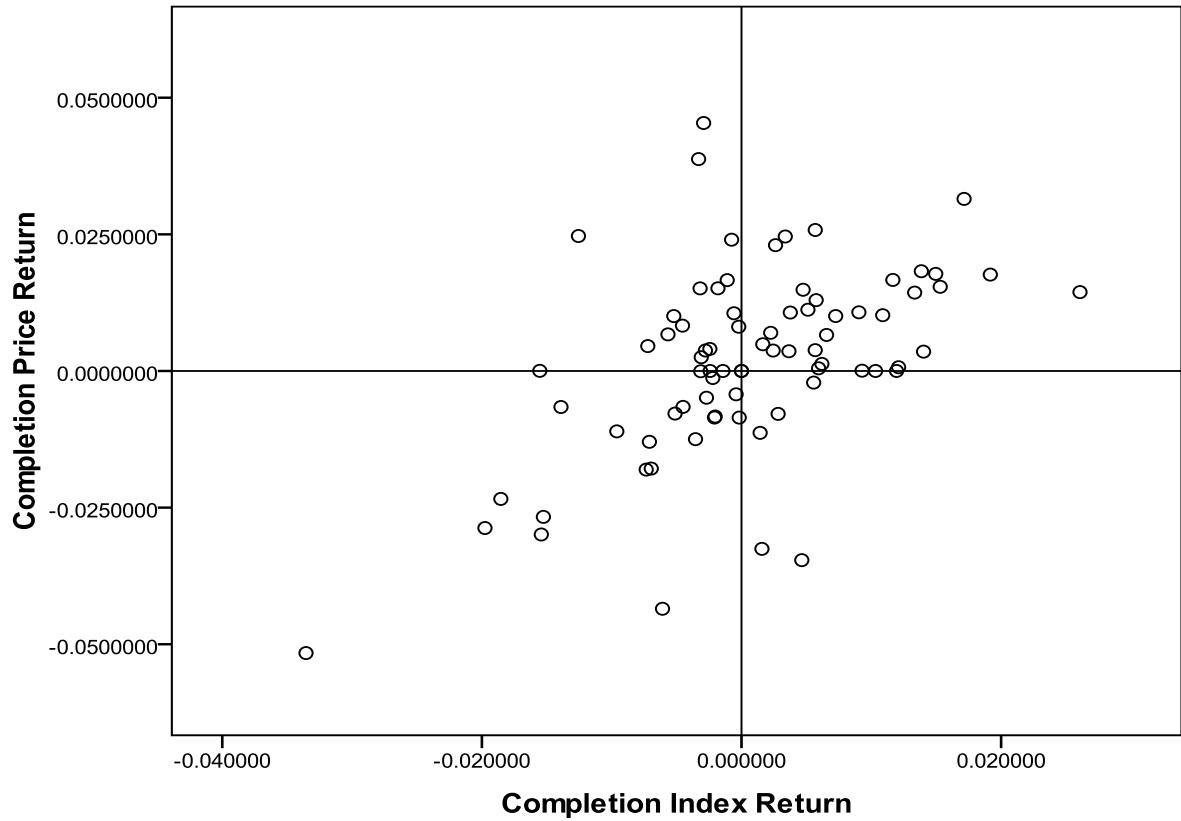
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.026144043	.025950925	.002001149	.0079075907	143
Residual	-.0394973420	.0468296483	.0000000000	.0145264303	143
Std. Predicted Value	-3.559	3.029	.000	1.000	143
Std. Residual	-2.709	3.212	.000	.996	143

a. Dependent Variable: Completion Price Return

## 8. Completion Event Window [0, 5]

**Completion Price Return Versus Completion Index Return**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.529 <sup>a</sup>	.280	.270	.0147381530

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.006	1	.006	29.522	.000 <sup>a</sup>
Residual	.017	76	.000		
Total	.023	77			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return



**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.002		.867	.389
Completion Index Return	.951	.175	.529	5.433	.000

a. Dependent Variable: Completion Price Return

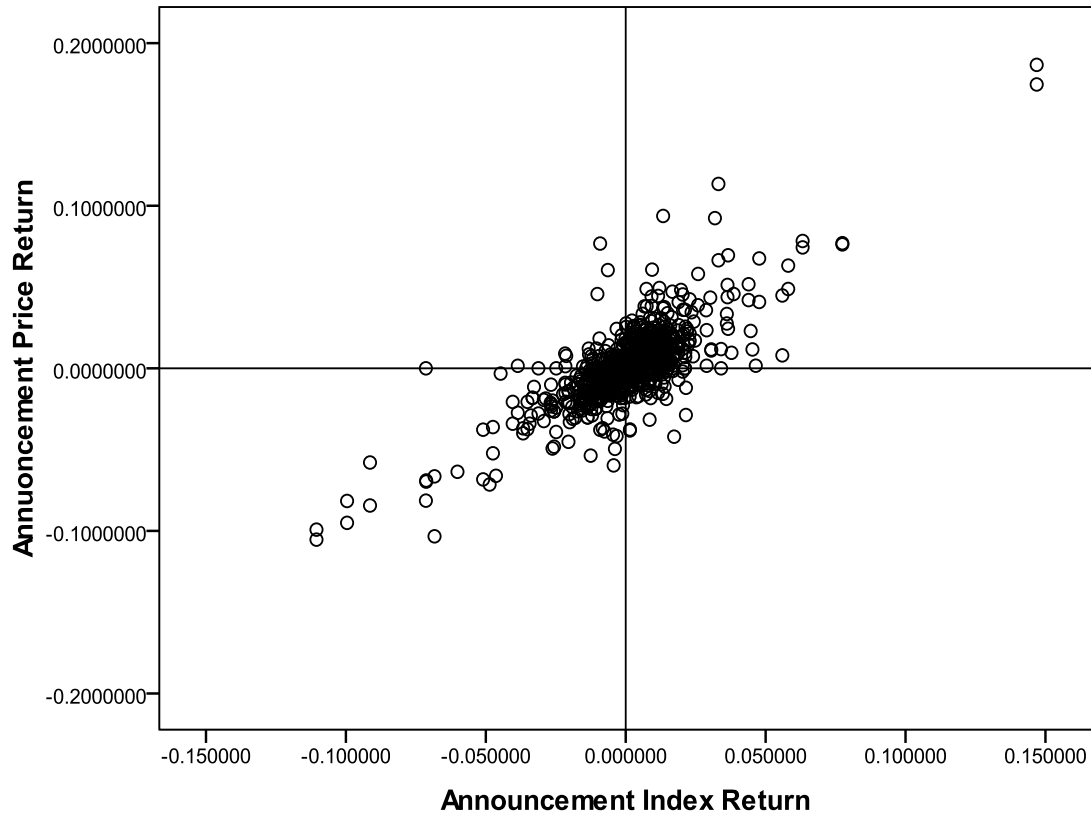
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.030444561	.026237933	.001955642	.0091257303	78
Residual	-.0404812805	.0466986969	.00000000000	.0146421379	78
Std. Predicted Value	-3.550	2.661	.000	1.000	78
Std. Residual	-2.747	3.169	.000	.993	78

a. Dependent Variable: Completion Price Return

### 1. Announcement Event Window [-30,30]

#### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.791 <sup>a</sup>	.625	.625	.0135568547

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.298	1	.298	1623.800	.000 <sup>a</sup>
Residual	.179	974	.000		
Total	.477	975			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.000		1.242	.215
Announcement Index Return	.945	.023	.791	40.296	.000

a. Dependent Variable: Announcement Price Return

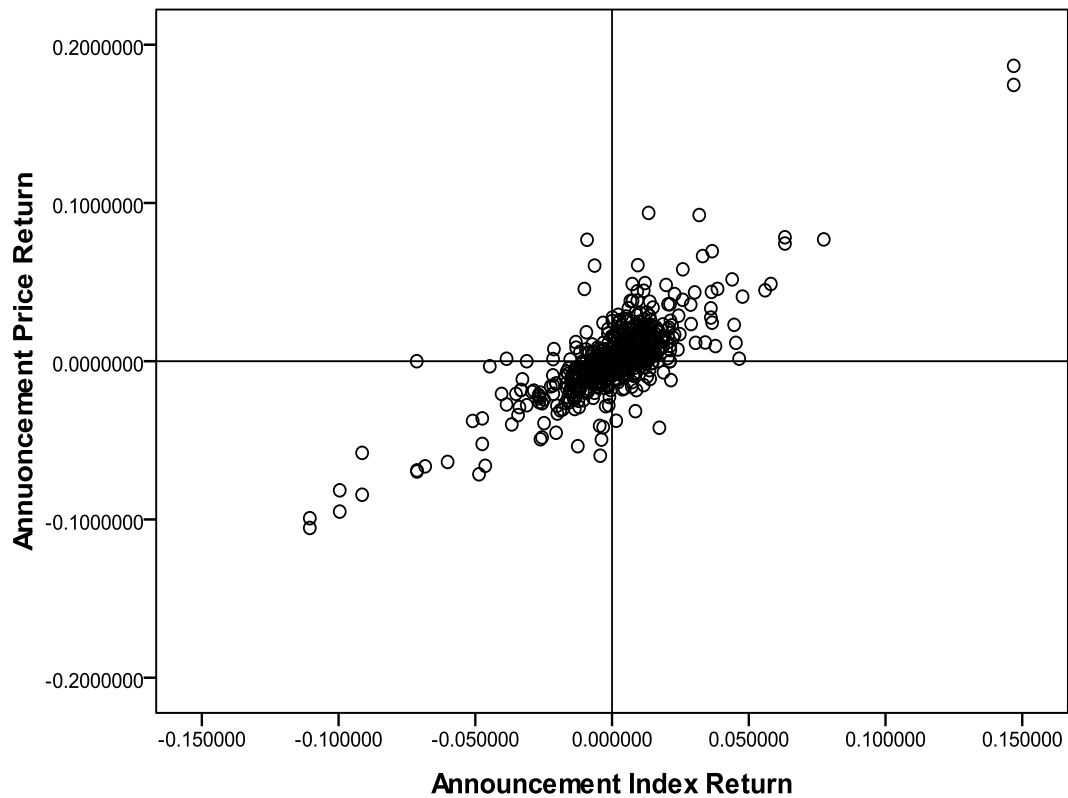
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.103847153	.139269188	.001511626	.0174953613	976
Residual	-.0589254424	.0848401412	.0000000000	.0135499007	976
Std. Predicted Value	-6.022	7.874	.000	1.000	976
Std. Residual	-4.347	6.258	.000	.999	976

a. Dependent Variable: Announcement Price Return

## 2. Announcement Event Window [-20,20]

### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.802 <sup>a</sup>	.643	.642	.0142188938

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.238	1	.238	1175.426	.000 <sup>a</sup>
Residual	.132	654	.000		
Total	.370	655			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

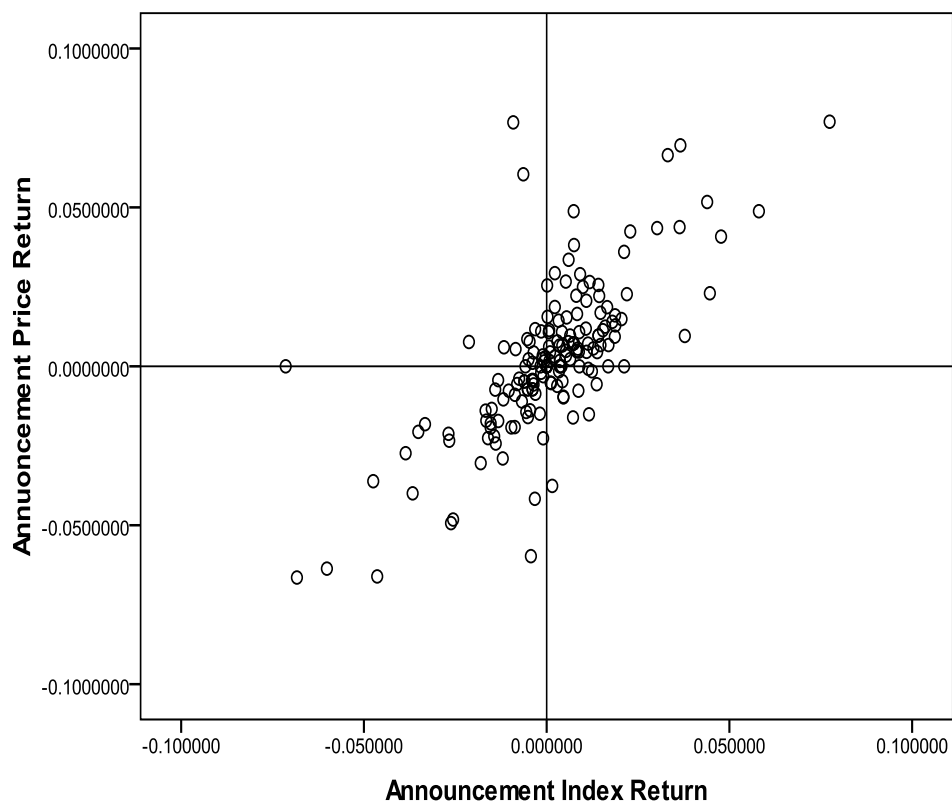
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.001		1.892	.059
Announcement Index Return	.937	.027	.802	34.284	.000

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.102554269	.138742447	.001780984	.0190477140	656
Residual	-.0593147576	.0842639357	.0000000000	.0142080355	656
Std. Predicted Value	-5.478	7.190	.000	1.000	656
Std. Residual	-4.172	5.926	.000	.999	656

a. Dependent Variable: Announcement Price Return

**3. Announcement Event Window [-5,5]****Announcement Price Return Versus Announcement Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.720 <sup>a</sup>	.518	.516	.0161325274

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.049	1	.049	187.357	.000 <sup>a</sup>
Residual	.045	174	.000		
Total	.094	175			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.001		1.032	.303
Announcement Index Return	.890	.065	.720	13.688	.000

a. Dependent Variable: Announcement Price Return

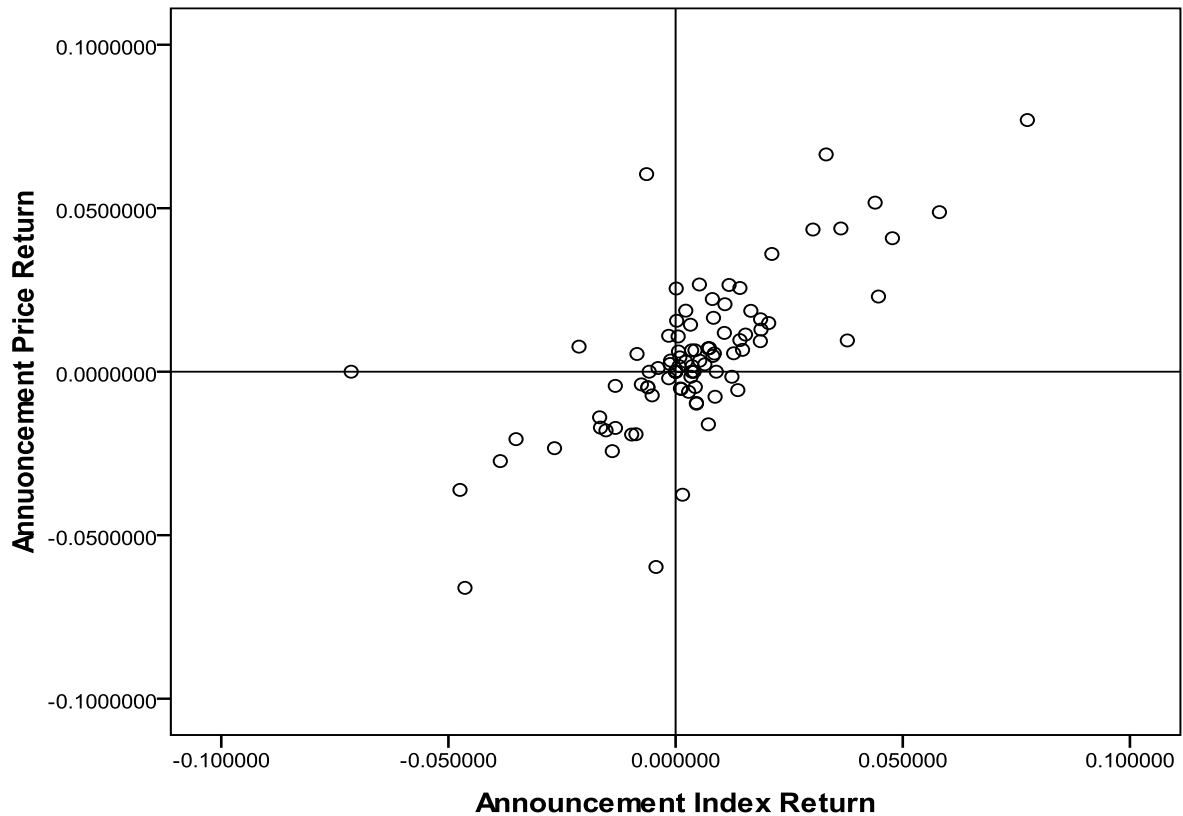
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.062284384	.070147879	.002311169	.0166923981	176
Residual	-.0571415685	.0836222395	.0000000000	.0160863684	176
Std. Predicted Value	-3.870	4.064	.000	1.000	176
Std. Residual	-3.542	5.183	.000	.997	176

a. Dependent Variable: Announcement Price Return

#### 4. Announcement Event Window [0, 5]

**Announcement Price Return Versus Announcement Index Return**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.714 <sup>a</sup>	.510	.505	.0156397717

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.024	1	.024	98.019	.000 <sup>a</sup>
Residual	.023	94	.000		
Total	.047	95			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.002	.002		1.037	.302
Announcement Index Return	.783	.079	.714	9.900	.000

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

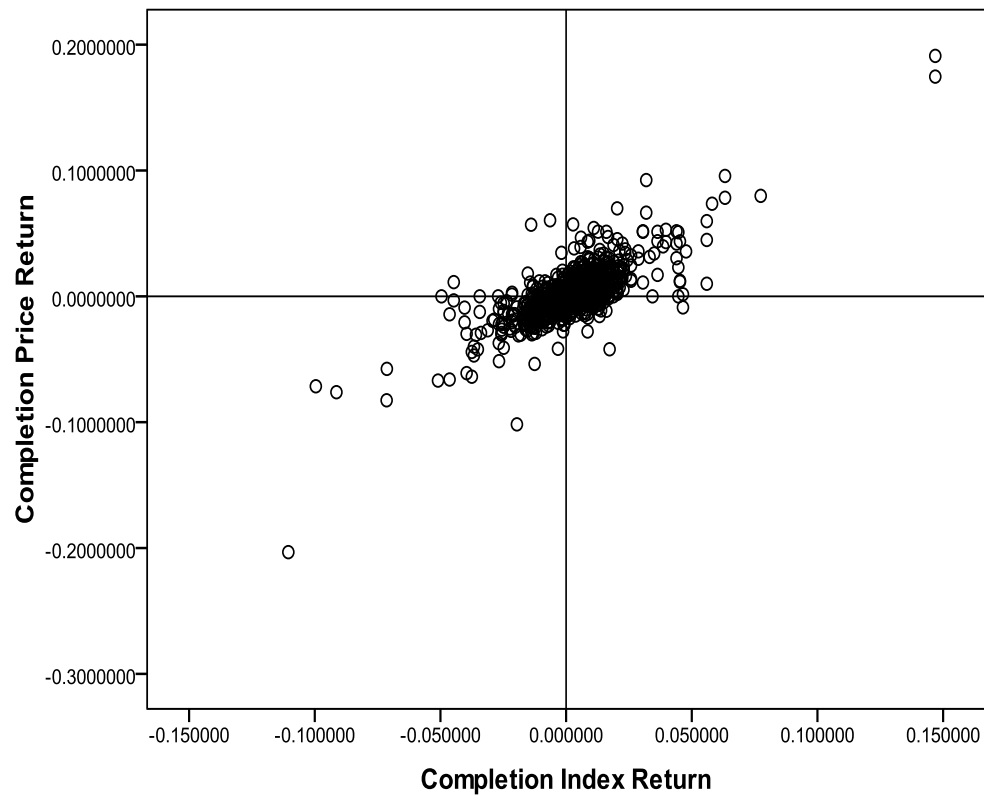
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.054229021	.062301680	.004581241	.0158863181	96
Residual	-.0580277592	.0637450144	.00000000000	.0155572393	96
Std. Predicted Value	-3.702	3.633	.000	1.000	96
Std. Residual	-3.710	4.076	.000	.995	96

a. Dependent Variable: Announcement Price Return



## 5. Completion Event Window [-30,30]

**Completion Price Return Versus Completion Index Return**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.780 <sup>a</sup>	.608	.608	.0130267337

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.256	1	.256	1511.423	.000 <sup>a</sup>
Residual	.165	974	.000		
Total	.422	975			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.425E-5	.000		.153	.878
Completion Index Return	.950	.024	.780	38.877	.000

a. Dependent Variable: Completion Price Return

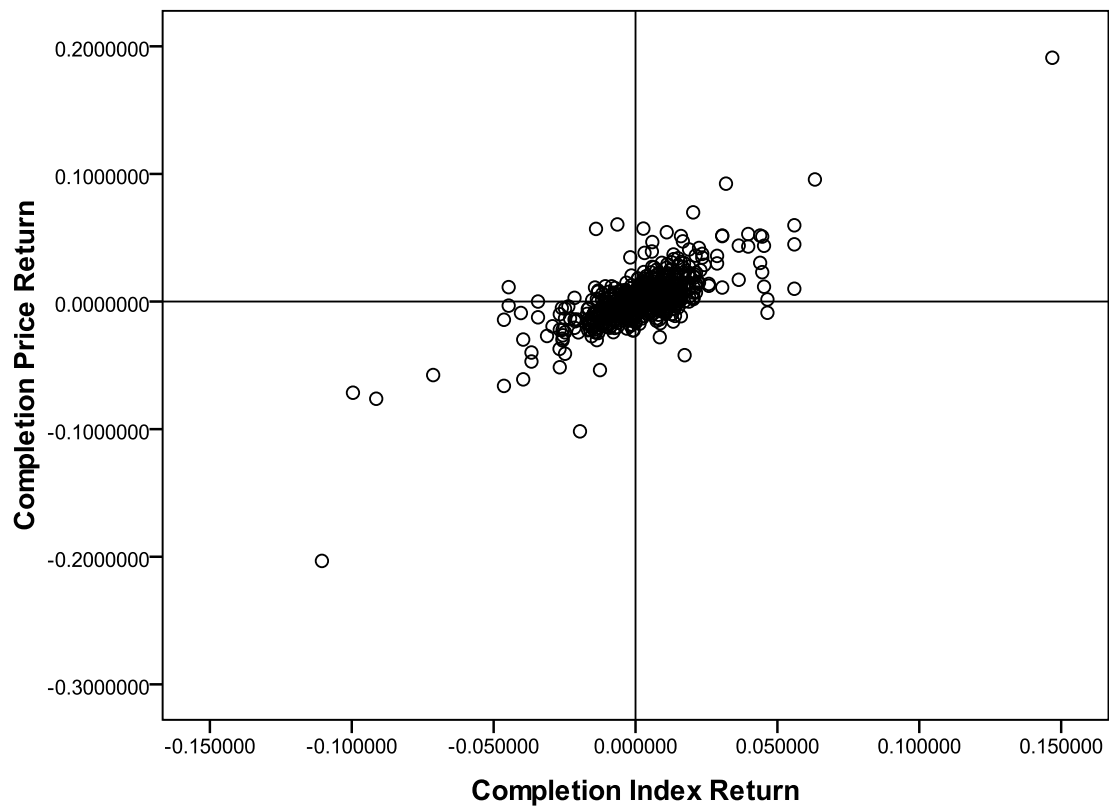
#### Residuals Statistics<sup>a</sup>

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.104952320	.139630884	.002003695	.0162190835	976
Residual	-.0983170494	.0700967908	.0000000000	.0130200516	976
Std. Predicted Value	-6.594	8.486	.000	1.000	976
Std. Residual	-7.547	5.381	.000	.999	976

a. Dependent Variable: Completion Price Return

### 6. Completion Event Window [-20,20]

#### Completion Price Return Versus Completion Index Return



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.747 <sup>a</sup>	.558	.557	.0139311875

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.160	1	.160	825.138	.000 <sup>a</sup>
Residual	.127	654	.000		
Total	.287	655			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	7.882E-5	.001		.144	.886
Completion Index Return	.930	.032	.747	28.725	.000

a. Dependent Variable: Completion Price Return

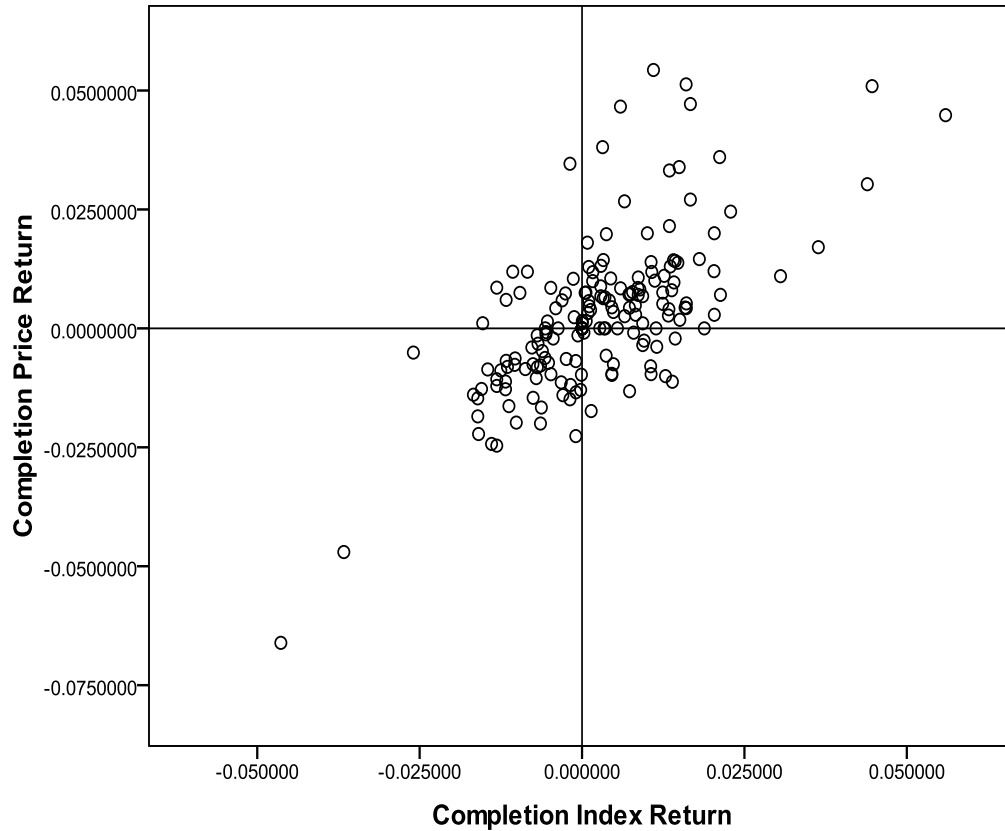
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.102757722	.136748224	.001893704	.0156361804	656
Residual	-.1005116478	.0698074698	.0000000000	.0139205490	656
Std. Predicted Value	-6.693	8.625	.000	1.000	656
Std. Residual	-7.215	5.011	.000	.999	656

a. Dependent Variable: Completion Price Return

## 7. Completion Event Window [-5,5]

**Completion Price Return Versus Completion Index Return**



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.675 <sup>a</sup>	.456	.452	.0118518223

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.020	1	.020	145.595	.000 <sup>a</sup>
Residual	.024	174	.000		
Total	.045	175			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

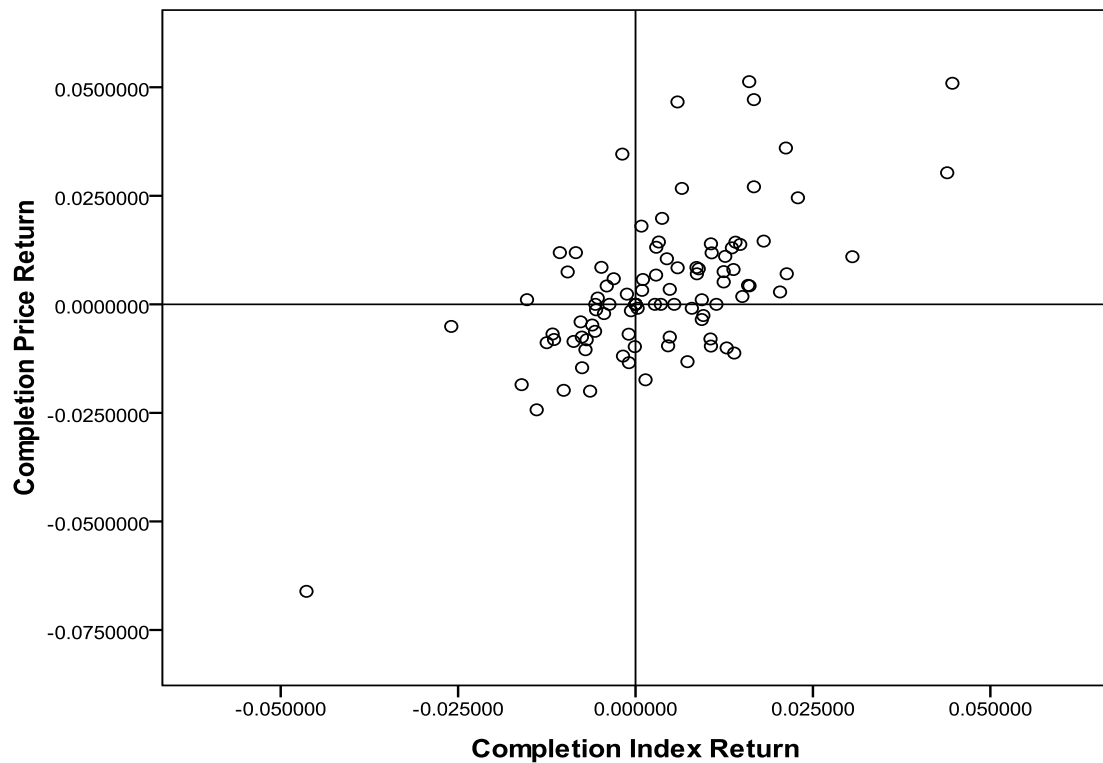
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.001		.421	.674
Completion Index Return	.850	.070	.675	12.066	.000

a. Dependent Variable: Completion Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.039022628	.047953427	.002668873	.0108103214	176
Residual	-.0270771738	.0445789173	.0000000000	.0118179114	176
Std. Predicted Value	-3.857	4.189	.000	1.000	176
Std. Residual	-2.285	3.761	.000	.997	176

a. Dependent Variable: Completion Price Return

**8. Completion Event Window [0, 5]****Completion Price Return Versus Completion Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.641 <sup>a</sup>	.410	.404	.0127865890

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.011	1	.011	65.418	.000 <sup>a</sup>
Residual	.015	94	.000		
Total	.026	95			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.001		.354	.724
Completion Index Return	.831	.103	.641	8.088	.000

a. Dependent Variable: Completion Price Return

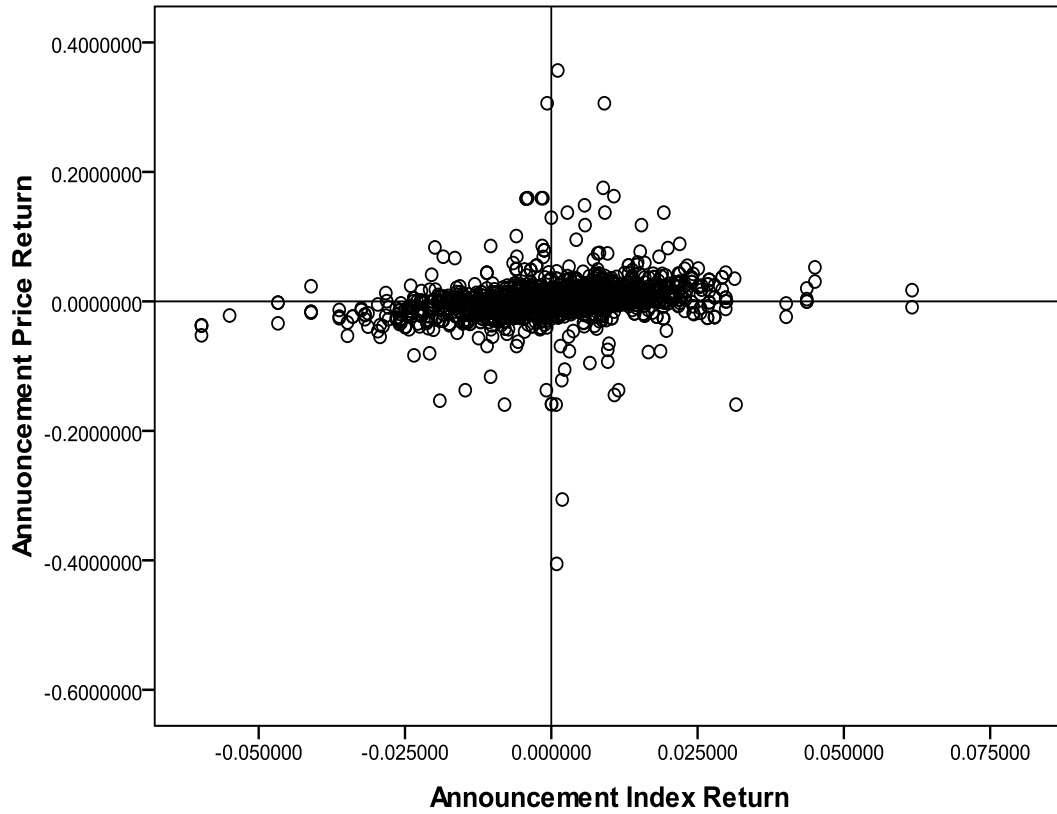
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.038034737	.037567593	.003330991	.0106106565	96
Residual	-.0280650649	.0412258618	.0000000000	.0127191131	96
Std. Predicted Value	-3.899	3.227	.000	1.000	96
Std. Residual	-2.195	3.224	.000	.995	96

a. Dependent Variable: Completion Price Return

### 1. Announcement Event Window [-30,30]

#### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.230 <sup>a</sup>	.053	.053	.0297465540

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.100	1	.100	112.526	.000 <sup>a</sup>
Residual	1.779	2011	.001		
Total	1.879	2012			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

### Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.001		2.161	.031
Announcement Index Return	.578	.054	.230	10.608	.000

a. Dependent Variable: Announcement Price Return

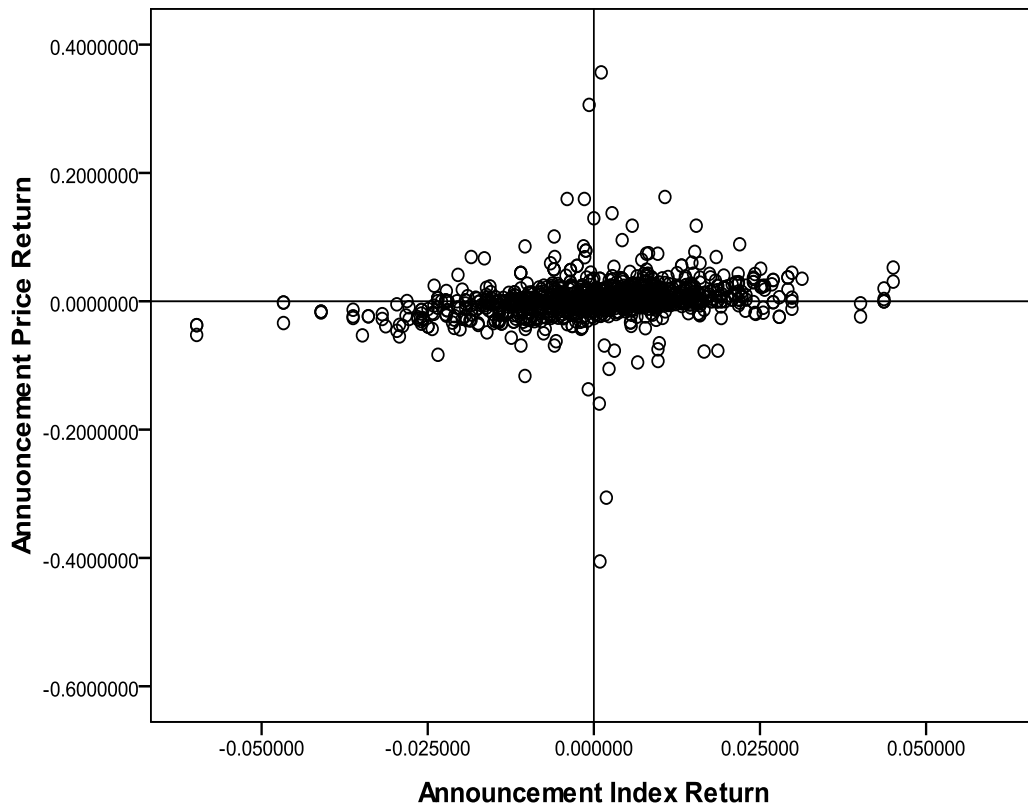
### Residuals Statistics<sup>a</sup>

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.033108614	.037064780	.001966703	.0070347442	2013
Residual	-.4074340463	.3545970619	.0000000000	.0297391608	2013
Std. Predicted Value	-4.986	4.989	.000	1.000	2013
Std. Residual	-13.697	11.921	.000	1.000	2013

a. Dependent Variable: Announcement Price Return

## 2. Announcement Event Window [-20,20]

### Announcement Price Return Versus Announcement Index Return





**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.240 <sup>a</sup>	.057	.057	.0293890051

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.071	1	.071	82.308	.000 <sup>a</sup>
Residual	1.167	1351	.001		
Total	1.238	1352			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.002	.001		2.390	.017
Announcement Index Return	.594	.066	.240	9.072	.000

a. Dependent Variable: Announcement Price Return

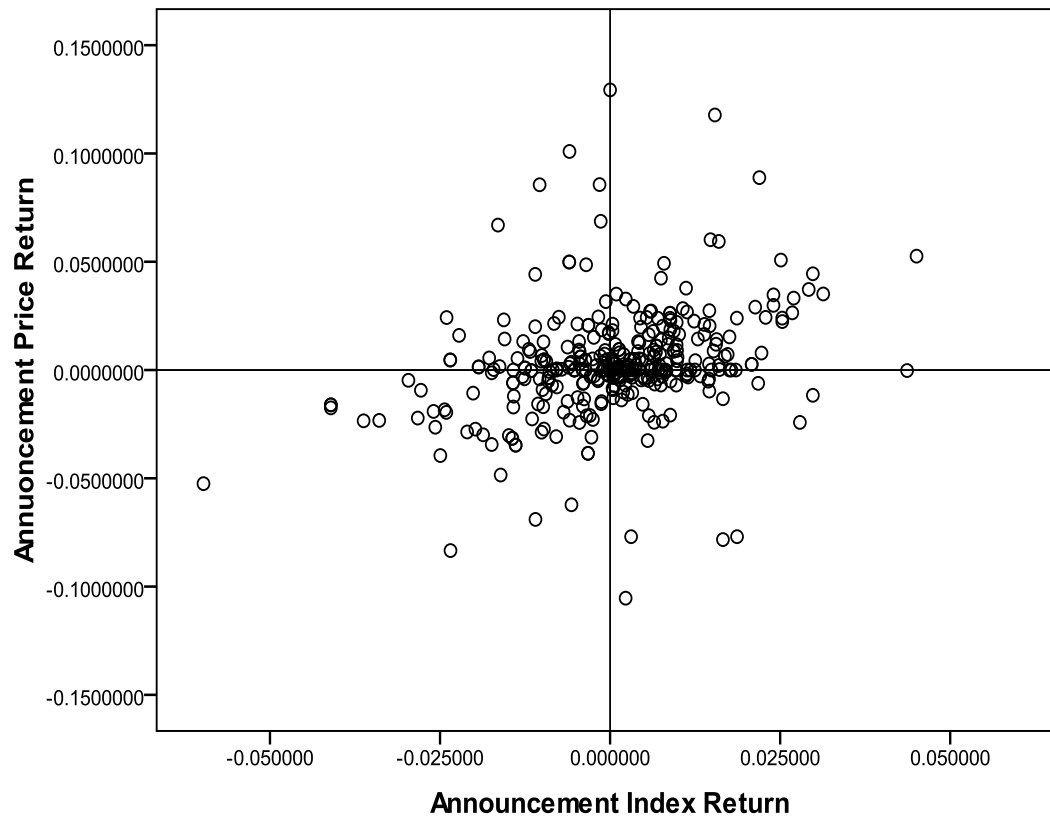
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.033611860	.028692398	.002498489	.0072513242	1353
Residual	-.4079280794	.3540999293	.0000000000	.0293781344	1353
Std. Predicted Value	-4.980	3.612	.000	1.000	1353
Std. Residual	-13.880	12.049	.000	1.000	1353

a. Dependent Variable: Announcement Price Return

### 3. Announcement Event Window [-5,5]

#### Announcement Price Return Versus Announcement Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.316 <sup>a</sup>	.100	.098	.0234347318

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.022	1	.022	40.173	.000 <sup>a</sup>
Residual	.198	361	.001		
Total	.220	362			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

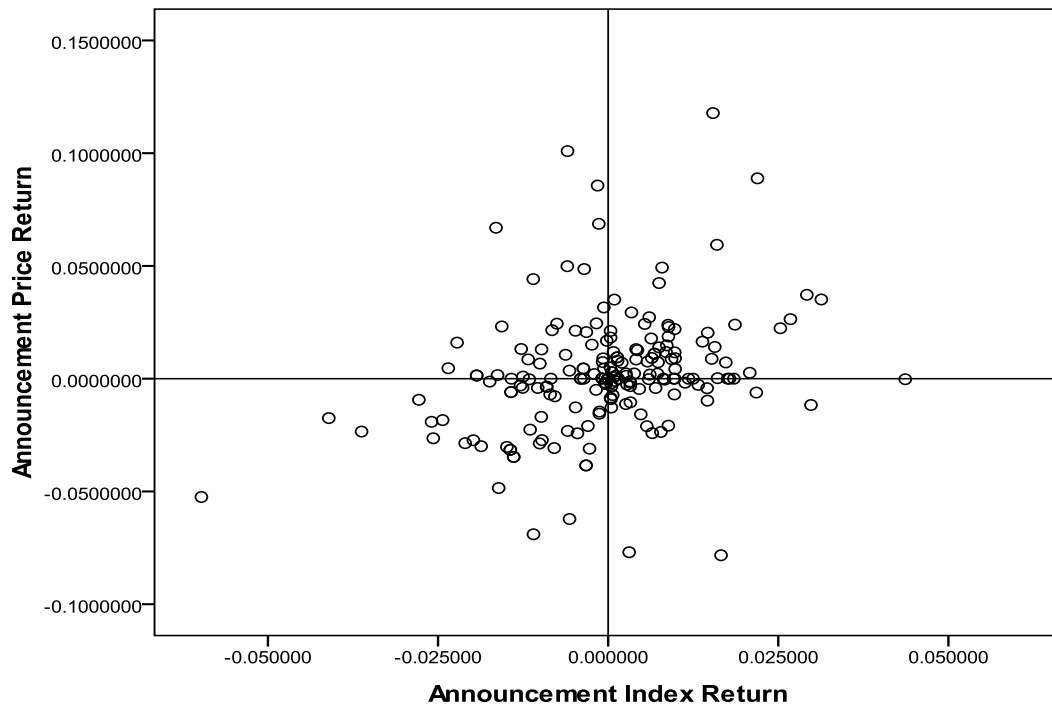
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.003	.001		2.178	.030
Announcement Index Return	.603	.095	.316	6.338	.000

a. Dependent Variable: Announcement Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.033385355	.029863585	.002947560	.0078067998	363
Residual	-.1094196066	.1266753227	.0000000000	.0234023410	363
Std. Predicted Value	-4.654	3.448	.000	1.000	363
Std. Residual	-4.669	5.405	.000	.999	363

a. Dependent Variable: Announcement Price Return

**4. Announcement Event Window [0, 5]****Announcement Price Return Versus Announcement Index Return**

**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.304 <sup>a</sup>	.092	.088	.0245989191

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.012	1	.012	19.913	.000 <sup>a</sup>
Residual	.119	196	.001		
Total	.131	197			

a. Predictors: (Constant), Announcement Index Return

b. Dependent Variable: Announcement Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.002	.002		1.362	.175
Announcement Index Return	.610	.137	.304	4.462	.000

a. Dependent Variable: Announcement Price Return

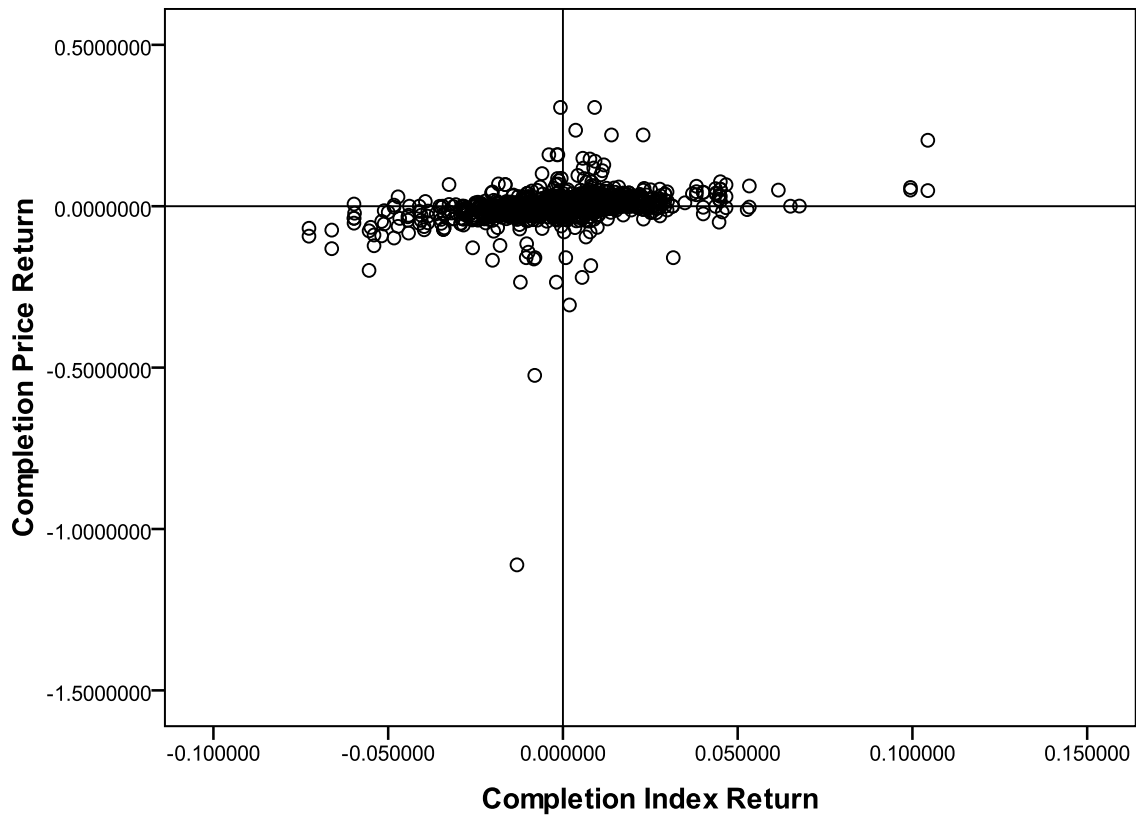
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.034078121	.029012667	.002258345	.0078208322	198
Residual	-.0907997191	.1060044095	.0000000000	.0245364059	198
Std. Predicted Value	-4.646	3.421	.000	1.000	198
Std. Residual	-3.691	4.309	.000	.997	198

a. Dependent Variable: Announcement Price Return

## 5. Completion Event Window [-30,30]

### Completion Price Return Versus Completion Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.298 <sup>a</sup>	.089	.088	.0397786529

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.309	1	.309	195.544	.000 <sup>a</sup>
Residual	3.182	2011	.002		
Total	3.492	2012			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

### Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.001		-.289	.773
Completion Index Return	.818	.059	.298	13.984	.000

a. Dependent Variable: Completion Price Return

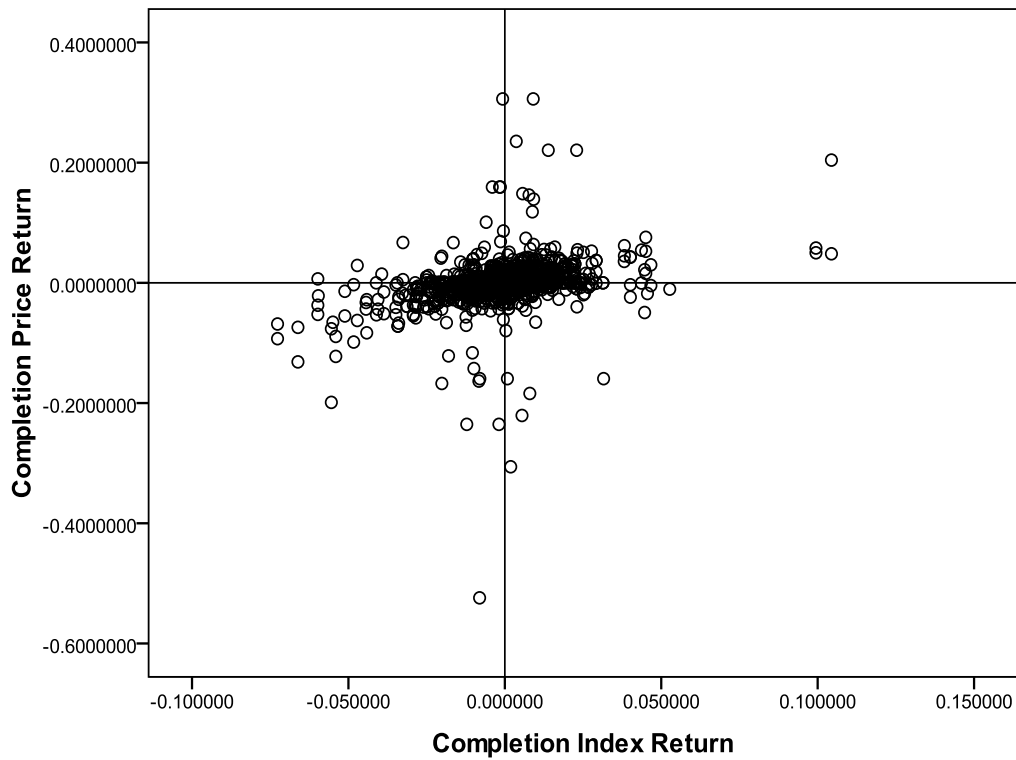
### Residuals Statistics<sup>a</sup>

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.059721578	.085190579	-.000331874	.0124010463	2013
Residual	-1.1001132727E0	.3068671823	.0000000000	.0397687663	2013
Std. Predicted Value	-4.789	6.896	.000	1.000	2013
Std. Residual	-27.656	7.714	.000	1.000	2013

a. Dependent Variable: Completion Price Return

## 6. Completion Event Window [-20,20]

### Completion Price Return Versus Completion Index Return



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.351 <sup>a</sup>	.123	.123	.0350677645

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.234	1	.234	190.143	.000 <sup>a</sup>
Residual	1.661	1351	.001		
Total	1.895	1352			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-6.688E-5	.001		-.070	.944
Completion Index Return	.840	.061	.351	13.789	.000

a. Dependent Variable: Completion Price Return

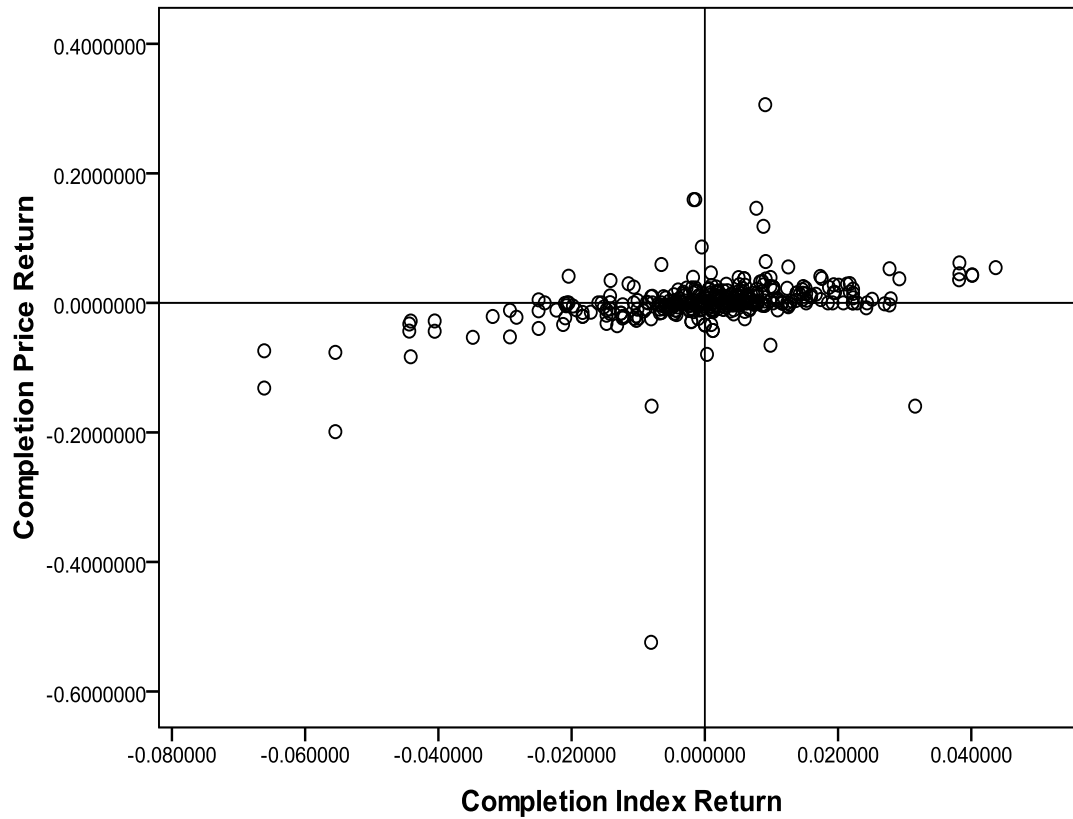
**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.061129153	.087673657	-.000321381	.0131510377	1353
Residual	-.5172464252	.3066937923	.0000000000	.0350547932	1353
Std. Predicted Value	-4.624	6.691	.000	1.000	1353
Std. Residual	-14.750	8.746	.000	1.000	1353

a. Dependent Variable: Completion Price Return

## 7. Completion Event Window [-5,5]

### Completion Price Return Versus Completion Index Return



#### Model Summary<sup>b</sup>

R	R Square	Adjusted R Square	Std. Error of the Estimate
.357 <sup>a</sup>	.128	.125	.0416301537

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

#### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.092	1	.092	52.817	.000 <sup>a</sup>
Residual	.626	361	.002		
Total	.717	362			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return



### Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.002		.136	.892
Completion Index Return	1.075	.148	.357	7.268	.000

a. Dependent Variable: Completion Price Return

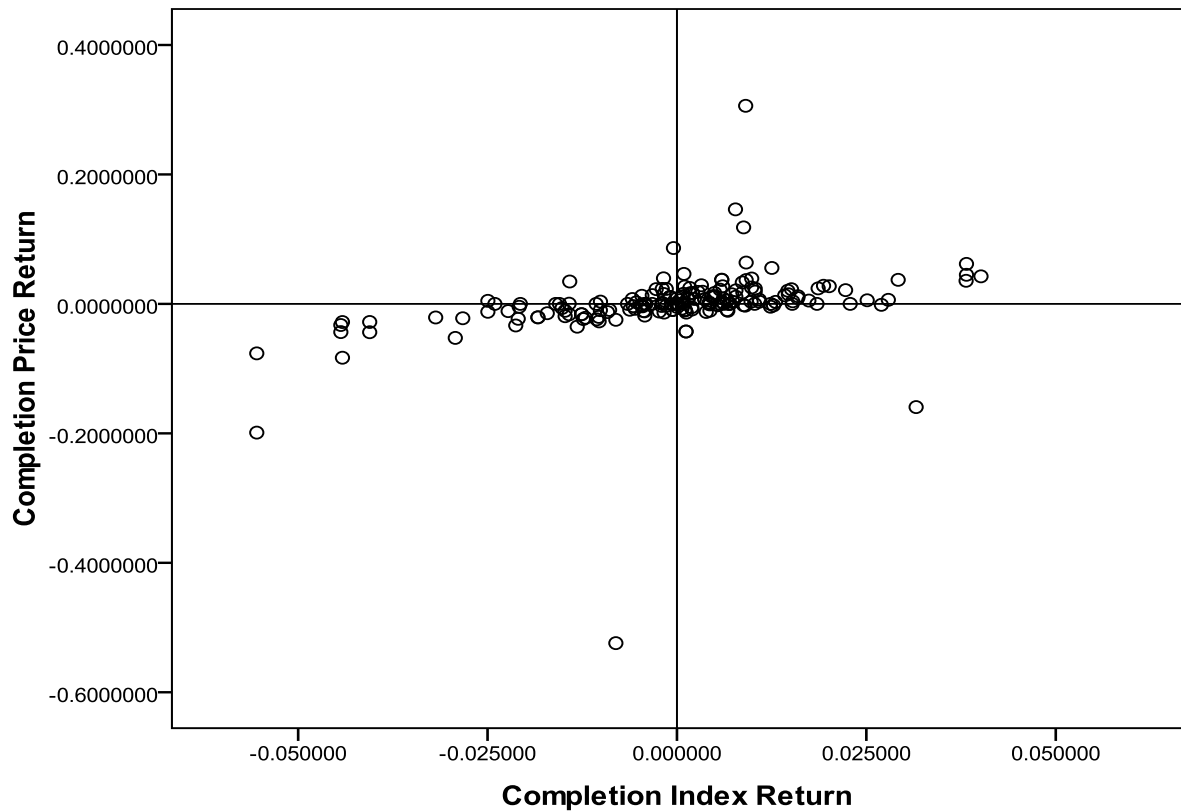
### Residuals Statistics<sup>a</sup>

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.070808314	.047234725	.001028348	.0159015654	363
Residual	-.5157179236	.2959851027	.0000000000	.0415726137	363
Std. Predicted Value	-4.518	2.906	.000	1.000	363
Std. Residual	-12.388	7.110	.000	.999	363

a. Dependent Variable: Completion Price Return

## 8. Completion Event Window [0, 5]

### Completion Price Return Versus Completion Index Return



**Model Summary<sup>b</sup>**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.345 <sup>a</sup>	.119	.114	.0501383462

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.067	1	.067	26.463	.000 <sup>a</sup>
Residual	.493	196	.003		
Total	.559	197			

a. Predictors: (Constant), Completion Index Return

b. Dependent Variable: Completion Price Return

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.001	.004		.310	.757
Completion Index Return	1.190	.231	.345	5.144	.000

a. Dependent Variable: Completion Price Return

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.064892165	.048858646	.000638770	.0183762474	198
Residual	-.5155980587	.2941370904	.0000000000	.0500109296	198
Std. Predicted Value	-3.566	2.624	.000	1.000	198
Std. Residual	-10.284	5.867	.000	.997	198

a. Dependent Variable: Completion Price Return