



Gaining a competitive edge through acquisitions: Evidence from the telecommunications industry ☆

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ABSTRACT

I study the announcement effects of all acquisitions in the recent telecom wave on both the acquirers and their industry competitors. I find evidence of negative rival returns (-0.55% , $t\text{-stat}=2.47$) by focusing on non-horizontal acquisitions where rivals are less susceptible to experience positive returns due to increased market power or expectation that some will become future targets themselves. I find that this effect is worse for closer rivals defined as having similar size and being in the same primary service area as the acquirer. Competitor returns are positively correlated with those of the acquirers suggesting that the negative impact experienced by competitors is driven by acquisitions in which the acquirer itself is earning negative abnormal returns. Results are broadly consistent with the Competitive Advantage Hypothesis that posits acquisitions are a means of corporate restructuring in a changing environment, awarding the acquirer a competitive edge and thereby making these acquisitions costly for their non-merging competitors.

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1. Introduction

A recent trend in the empirical takeover literature ties M&A activity to industry-wide shocks, finding evidence consistent with the notion that acquisitions may be an efficient reaction to economic change (Andrade and Stafford, 2004; Mitchell and Mulherin, 1996; Mulherin and Boone 2000; Weston et al., 2004; and Harford 2005). Implied is the possibility that acquisitions may be strategic investments and restructuring tools that arise in response to an industry shock. The very nature of a merger wave and its possible role as a response to an industry-wide shock emphasizes the need to focus on an industry as a whole in order to understand the overall impact of and possible motives behind acquisitions, particularly those that occur during a merger wave. The primary goal of this paper is to study rival returns as a guide to causes and effects of takeovers, particularly to those that come after an industry shock and during a high period of M&A activity.

A body of analysis studies rivals as a means to address the causes and effects of takeovers with no direct link to industry shocks. Starting with Eckbo (1983) and Stillman (1983), several studies test the collusion theory by examining the impact of an acquisition announcement on the industry counterparts of the acquirer in horizontal acquisitions. They find mixed results. By studying the impact to the rivals of the target firm, Song and Walkling (2000) show that targets' rivals experience positive returns both in horizontal and non-horizontal acquisitions due to the expectation of them becoming future targets themselves. More recently, Song and Walkling (2005) investigate bidder rivals' returns at the announcement of the first acquisition within an industry that experienced a long period of M&A inactivity ("dormant" period). They find that rivals earn small returns that are positively correlated with that of the acquirer, finding support for anticipation effects at such acquisition announcements.

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A variety of theories are proposed for observed rival returns at the announcement of acquisitions. One such theory suggests that merging of two firms in an already concentrated industry can be beneficial for the rival firms through increased market power for all parties, resulting in positive returns for both the acquirer and the rivals (Eckbo, 1983; Eckbo and Wier, 1985). Alternatively, the target firm might give the acquirer a competitive advantage resulting in negative abnormal returns for its competitors whether that occurs when the acquirer is earning positive returns (Eckbo, 1983; Eckbo and Wier, 1985) or negative returns itself (Akdoğu, 2008; Molnar, 2000). Information spillovers can also affect rival firms. An acquirer may earn negative returns since that signals a weaker competitor (McCardle and Viswanathan, 1994) or poor internal growth opportunities for the acquirer (Braguinsky and Jovanovic, 2004). If the latter is extended to the acquirer's industry as a whole, that results in a negative reaction for its rivals as well. Anticipation of some of the rivals becoming future targets (Song and Walkling, 2000) or future acquirers (Song and Walkling, 2005) themselves can also be the cause of non-zero rival returns.

I study acquisitions in the Telecommunications industry after the Telecom Act of 1996 investigating primarily the effects on the acquirer's rivals. Instead of multiple industries, I choose to focus on a specific one in order to engage in an in-depth study of all firms belonging to that particular industry. The primary benefit of this approach is that it allows me to choose an industry that has experienced an easily identifiable exogenous shock which precedes a high period of M&A activity. The telecommunications industry, particularly after 1996, provides a unique platform to investigate the impact of acquisitions on rivals after an industry shock; Acquisitions were a response to an exogenous shock that came in the form of deregulation and were perceived to be a survival mechanism in these changing conditions. The severity of the conditions are best iterated by a practitioner describing the competitive environment in the telecommunications post-Telecom Act as largely consisting of two options: To merge or die ("Telcos merge for survival", 1998).¹

My main findings are threefold. First, I show that acquisitions have an adverse impact on the industry competitors by focusing on non-horizontal acquisitions. Second, those rivals that are more direct competitors of the acquirer defined as having similar size or providing primarily the same service as the acquirer experience a worse impact than an average competitor. This evidence is consistent with these acquisitions having the worst impact on the closer competitors of the acquirer. Third, this negative effect is attenuated for competitors that made prior acquisitions. In addition, competitors that become future acquirers are significantly better off than those that remain unmerged at the announcement of their rivals' acquisitions. Combined, these results suggest that in this environment being an acquirer was considered to be a more viable alternative than staying unmerged.

The rest of the paper is structured as follows. Section 2 delineates the hypotheses. Section 3 summarizes the research design. Section 4 describes the data selection process and the methodology. Section 5 documents basic summary statistics of the sample and reports univariate statistics. Section 6 reports multivariate results, discusses possible theories for the initial results and attempts to identify the driving theory(ies) behind them. Section 7 concludes.

2. Hypotheses

Several theories have implications on rival returns at the announcement of mergers. In the next two sections, I discuss the various predictions resulting from these theories and the specific tests designed to differentiate between various reasons behind rival returns. I summarize these under three main headings: market power, information-based and competitive advantage hypotheses.

2.1. The market power hypotheses

As initially argued by Eckbo (1983, 1985) and Eckbo and Wier (1985), the market power hypothesis suggests that a horizontal merger can result in a more concentrated industry and increased monopoly power for firms within the industry. The rivals of the merging firms benefit from the merger because successful collusion among rivals limits output and possibly raise prices. This collusion would result in positive abnormal returns for both the bidder and rival firms in horizontal mergers but not be a strong factor in non-horizontal acquisitions.

A vertical merger can similarly have effects on rivals due to increased market power of the combined firm. A vertically integrated firm might engineer an increase in rivals' costs by driving up the price of a scarce input (Riordan, 1998) or through vertical foreclosure, i.e. by increasing market power at the upstream market (Ordover et al., 1990). This outcome can lead to negative returns for the rivals at the downstream market and can be a factor in acquisitions that are classified (based purely on SIC codes) as either horizontal or non-horizontal depending on the particular target industry, i.e., if the target firm is a supplier of the telecom industry.

2.2. The information-based hypotheses

Informational stories suggest that the rival or bidder returns at merger announcements do not necessarily represent the value impact of that particular acquisition but the impact of the information revealed by it. A merger announcement may reveal extra information about the bidder itself, its industry as a whole or the prospects of future acquisitions within the industry. I consider two versions of such stories: signalling and anticipation.

¹ Another article published in *Business Week*, entitled "It's merge, buy or die in Telecom", emphasizes this point. Several other industries, including Internet, Pharmaceuticals and Petroleum, exhibit similar characteristics with respect to their competitive environment and perceived survival strategies in this environment. The article published in April 2002 in *Wireless Week* entitled "Smaller Players in 'Merge-Or-Die' Frenzy" describes the internet industry conditions. The 2003 article in *Graduating Engineer* (Industry Focus: Petroleum), claims that "at first glance, the motto of the petroleum industry would appear to be 'merge or die'".

2.2.1. Signalling hypothesis

Signalling hypothesis suggests that returns are reactions to the information revealed by the merger announcement about either the bidder industry's conditions or the bidder itself. Jovanovic and Braguinsky (2004) develop a model in which firms that make acquisitions do so when they have exhausted their internal growth opportunities, therefore, they signal poor internal growth opportunities by the announcements of their acquisitions. McCardle and Viswanathan (1994) argue that an acquirer signals that he is a weaker competitor as it was not strong enough to enter the market directly and therefore experiences a downward-adjustment in its stock price. If the information is bidder-specific then we expect asymmetric reaction to the bidder and its rivals: bidders lose and rivals gain since it is revealed that they face a weaker competitor with limited internal growth opportunities.

More broadly interpreted in the context of this study, mergers can also signal poor investments opportunities for the whole industry. The announcement of a non-horizontal acquisition is then interpreted as deteriorating industry conditions which force its participants to look outside for investment opportunities. This interpretation is bad news both for the bidder and its rivals within that industry resulting in negative returns for both parties.

2.2.2. Anticipation/herding hypotheses

Anticipation Hypothesis argues that the adjustment to rivals' stock prices represents the market's expectations about whether or not rivals will also make similar acquisitions (Malatesta and Thompson, 1985; Song and Walkling, 2005). If the merger is a good investment and the rivals are expected to follow suit by making similar acquisitions themselves, then this is incorporated at the announcement of the initial acquisition by positive abnormal returns for the rivals. If the merger is instead value-destroying and the managers of the rival firms are expected to mimic or 'herd', then we should observe negative abnormal returns for the rivals at such an announcement. Managerial herding in corporate investment settings is usually attributed to agency problems. Scharfstein and Stein (1990) and Zwiebel (1995) show how managers with reputational concerns can rationally herd in their investment decisions to protect their reputation as a "good" manager in the presence of asymmetric information between their employers and themselves.

Song and Walkling (2000) show that anticipation effects exist for the rivals of the target firm as well. They document positive returns for target's rivals and tie this to the market's expectation of the high premia they may receive by being future targets. Even though the focus of this study is the rivals of the acquiring firm, in horizontal acquisitions where the rivals of the bidder are also the rivals of the target, this line is blurred. Unless one can cleanly isolate the rivals of the acquirer and the target at the announcement of a horizontal acquisition, this theory predicts positive abnormal returns for rivals.

2.3. Competitive advantage hypothesis

Competitive advantage hypotheses suggest that the combined resources of the acquirer and the target firm create a more efficient competitor and unless rivals can replicate the investment, they will be at a competitive disadvantage. I consider two

Table 1
Summary of hypotheses

Hypotheses	Horizontal		Non-horizontal	
	Bidder	Rival	Bidder	Rival
Market power				
(Pure) Horizontal integration	+	+	0	0
Eckbo (1983), Eckbo and Wier (1985)				
Vertical integration	+	–	+	–
Ordover, Salop and Saloner (1990) Riordan (1998)				
Information-based				
Signalling (bidder-specific)	–	+	–	+
Jovanovic and Braguinsky (2004), McCardle and Viswanathan (1994)				
Signalling (industry-wide)	–	–	–	–
Jovanovic and Braguinsky (2004)				
Anticipation (future acquirer)	+	+	+	+
Song and Walkling (2005)				
Anticipation (future acquirer—herding)	–	–	–	–
Song and Walkling (2005) Scharfstein and Stein (1990) Zwiebel (1995)				
Anticipation (future target)	+/-	+	+/-	0
Song and Walkling (2000)				
Competitive advantage				
Tough competitor	+	–	+	–
Eckbo (1983), Eckbo and Wier (1985)				
Rational overpayment	–	–	–	–
Akdoğan (2008), Molnar (2000)				

Several theories have implications on rival and bidder returns at the announcement of mergers. Few of these also have different predictions based on whether the merger was horizontal or non-horizontal. I summarize these under three main headings: market power, information-based and competitive advantage hypotheses. In Table 1, +, – and 0 represent positive, negative and no impact on abnormal returns respectively from a horizontal/non-horizontal deal for a bidder/rival according to the theory stated in that row. In Section 2, I discuss the various predictions resulting from these theories and the specific tests designed to identify the driving force behind rival returns in detail.

versions of this theory: efficient (tough) competitor and rational overpayment. Both versions predict negative abnormal returns for the rivals. The difference is whether the acquirer is earning positive or negative returns itself.

One version (tough competitor) is that the new firm becomes a more efficient competitor in its merged form creating value for the acquirer and the target firms while hurting their rivals (Eckbo, 1983, and Eckbo and Wier, 1985). This version predicts positive abnormal returns for the acquirer and negative abnormal returns for its rivals. Second version (rational overpayment) suggests that acquirers rationally overpay for the target firm to avoid a negative payoff externality which they would incur in case the target is acquired by another competitor based on a theory of product-market competition (Akdoğru, 2008; Molnar, 2000). Any potential overpayment by the acquirers might be justified since the alternative state, where the target is lost to the competitor, brings worse returns. The prediction is that negative returns to rivals should occur particularly when the acquirer itself is experiencing negative returns. Table 1 presents a summary of the results predicted by the hypotheses.

3. Research design

A straightforward way to measure the impact of acquisitions on the industry rivals is to test the effect on all competitors that operate in the same 4-digit SIC code as the acquirer. However, it is often difficult to distinguish among many theories when we study returns as a whole. As a result, I use subsamples of acquisition characteristics as well as rival characteristics to achieve this goal.

First, I separate the sample into horizontal and non-horizontal acquisitions. This separation allows me to isolate any potential negative impact to rivals, for example, from having lost a competitive edge to the acquirer. In horizontal acquisitions, multiple issues are present that predict positive rival returns making it difficult to identify theories that predict negative rival returns. One such effect is the positive returns experienced by the rivals of the *target* due to the possibility of them becoming future targets themselves. In horizontal acquisitions, the rivals of the acquirer and the target coincide making it difficult to identify any negative effects to the rivals of the acquirer. Increased monopoly power from a horizontal merger can also create positive returns, not only for the rivals of the target but also of the acquirer. By focusing on non-horizontal acquisitions, I can better isolate any negative impact on rivals since both of these effects should be minimized when the target firm is outside of the bidder's industry.

Second, I use rival characteristics to differentiate between theories that predict negative rival returns such as competitive advantage and information-based stories. To do this, I refine the set of competitors to those that resemble the acquirer the most with respect to certain characteristics, i.e., I focus on the "closer", more direct rivals of the acquirer. If in fact the rivals are getting hurt due to the acquirer gaining a competitive edge, then the closer rivals of the acquirer should be affected even worse. To test this prediction I refine the initial definition to isolate the more "direct" competitors of the acquirers within the same industry by utilizing two firm-specific measures: firm size and the type of services provided. The intuition behind these refinements is straightforward. To the extent that similar size firms or firms with same primary service areas are closer rivals of the acquirer, they should be affected the most by the announcement of these acquisitions.

Third, I dissect further into the competitive advantage and information-based theories. Within competitive advantage hypotheses, two distinct structures may predict negative returns to rivals in their reduced form: efficient competitor and rational overpayment. To test whether rivals experience negative returns when the acquirer is doing well or when it is losing money, I check the correlation between these two returns. Efficient competitor version suggests that negative returns to rivals come when bidders are earning positive returns and predicts negative correlation between acquirer and rival returns. Rational overpayment version claims that rivals can be hurt when acquirers are losing money and would be consistent with positive correlation between acquirer and rival returns.

Within information-based hypotheses, signalling and anticipation effects can produce rival returns. Signalling can contain information that is specific to the acquirer itself or its industry as a whole. Correlation between rival and acquirer returns can also help disentangle these two basic stories: A bidder-specific signalling story where rivals lose when bidders gain and vice versa predicts a negative correlation between these returns. An industry-wide signalling of poor growth opportunities on the other hand would hurt both the bidder and the rivals and predict a positive correlation. However, an industry-specific signalling story is likely to manifest itself earlier than later during a high period of M&A activity. To test whether this is true, I use two variables that track the time-series properties of the rival returns throughout the ten years; one that tracks the number of acquisitions that occurred previously and another that uses a deal-value weighted version of that measure. If most of the negative information is incorporated earlier, then we expect to see a positive coefficient on these variables.

Anticipated herding behavior by the rivals can also cause the market to adjust the firm values downward. This effect may be present and even be more prevalent during the later stages of a merger wave. If distortionary behavior is the driving force behind the acquisition decisions, then non-herding firms that have remained unmerged should fare better than those that have made acquisitions themselves. So the question is whether own restructuring efforts of the competitors help eliminate or attenuate the negative strategic impact of their rivals' acquisitions. By focusing on acquisitions as the particular form of restructuring, I create variables that identify the rivals as past or future acquirers and as those that remain unmerged. The prediction is that if herding is the source of negative returns for the rivals then those rivals that choose to do nothing should be affected less negatively than those that choose to restructure themselves.

4. Data and methodology

I examine the performance of select firms using standard event-study methodology within the telecommunications industry in the years after the Telecommunications Act of 1996; a regulatory change that ultimately led to an era of intense M&A activity.

Table 2
Characteristics of the deals and firms in the sample

Panel A					
Deal characteristics	Mean	Median	Sd	Max	Min
Private Target	0.75	0	0.43	1	0
Non-Horizontal	0.35	0	0.48	1	0
Unsuccessful	0.08	0	0.29	1	0
% Toehold	0.92	0	5.92	50	0
% Owned After	84.22	100	35.73	100	0
All Cash	0.41	0	0.49	1	0
Deal Value (in millions)	\$2176.07	\$55	\$8101.57	\$62592.54	\$0.05
Challenged	0.04	0	0.19	1	0
Hostile	0.02	0	0.11	1	0
Panel B					
Firm characteristics	Mean	Median	Sd	Max	Min
<i>Acquirer characteristics</i>					
Size (in millions)	\$19,130.49	\$1278.11	\$38,028.46	\$176,559.3	\$9.29
Leverage	0.21	0.13	0.21	0.86	0
Tobin's <i>q</i>	2.17	1.84	1.35	12.25	0.39
Local Exchange	0.38	0	0.49	1	0
Long Distance	0.38	0	0.49	1	0
Telecom Services	0.12	0	0.33	1	0
Filed for Bankruptcy	0.22	0	0.41	1	0
<i>Rival characteristics</i>					
Size (in millions)	\$9767.01	\$605.79	\$24,983.85	\$176,559.3	\$1.13
Leverage	0.22	0.14	0.22	1.60	0
Tobin's <i>q</i>	2.15	1.76	2.00	30.4	0.2
Local Exchange	0.44	0	0.50	1	0
Long Distance	0.28	0	0.45	1	0
Telecom Services	0.10	0	0.29	1	0
Filed for Bankruptcy	0.16	0	0.37	1	0
Past Acquirer	0.38	0	0.48	1	0
Future Acquirer	0.22	0	0.35	1	0

The first panel shows the characteristics of the deals (announcements) and the second panel documents the characteristics of the acquirers and their rivals over the sample period. *Private Target* represents the status (non-public) of the target firm. *Non-Horizontal* is equal to 1 if the target firm SIC code does not match with the acquirer's SIC code at the first 2-digits. *Unsuccessful* is a dummy variable for all unconsummated deals. *% Toehold* is the percentage of the target's shares owned by the bidding firm prior to the acquisition announcement. *% Owned After* represents the percentage of target's shares owned by the bidding firm after the successful consummation of the acquisition. *All Cash* is a dummy variable for when the acquirer paid for the target entirely in cash. *Deal Value* is the transaction value reported in millions of dollars. *Challenged* represents the ratio of deals for which there was a competing bid. *Hostile* is all deals that were not defined as 'friendly'. *Size* is the market value of equity and *Leverage* is long-term debt divided by the book value of assets. Tobin's *q* is the market value of assets divided by the book value of assets. *Local Exchange*, *Long Distance* and *Telecom Services* are the classifications for the three primary service areas of the firms if the firm can be identified as belonging to any of the three areas. *Filed for Bankruptcy* is a dummy variable capturing all firms that have filed for bankruptcy. *Past Acquirer* are those firms that announced an acquisition prior to the particular announcement. *Future Acquirer* are those firms that announce an acquisition after the particular announcement but none prior to it. Sd, max and min represent the standard deviation, maximum and minimum values of the corresponding variable respectively.

Specifically, I study the announcement effect on the industry rivals, defined as having the same 4-digit SIC code as the acquirer, of acquisitions made by firms with the SIC code of 4813 during the years 1996–2005. The event window is defined to be one day before the announcement through the announcement day, (−1,0). I use the market model relying on the S&P 500 index as the market benchmark. The estimation window is 255 trading days before the event to 46 days before the event.²

In multivariate tests I use the average two-day CAR of the rivals as the dependent variable. To account for cross-correlation, I use the clustering option for standard errors that is pre-programmed in Stata Statistical Package. In particular, I use firm-level clustering coupled with time dummies which is motivated by the recent work of Petersen (in press) who shows this is the preferred approach in a panel setting. The cumulative abnormal returns of both the rivals and the acquirers are reported as percentages. All variables are winsorized at the 1st and 99th percentiles.

The study utilizes three databases: Securities Data Corporation (SDC) to identify the announced deals; Center for Research in Security Prices (CRSP) for the stock price information; and COMPUSTAT for financial information. The acquisitions are gathered from Securities Data Corporation's (SDC) US Mergers and Acquisitions database for domestic mergers (target company is US-based) with initial bids announced between January 1, 1996 and December 31, 2005. The sample is drawn using the following criteria:

- The bidder firm is restricted to be from the Telecommunications industry, specifically with the 4-digit SIC code of 4813 (SDC definition: Phone Communications except Radiotelephone).

² Results are robust to using a three-day event window (−1,0,+1).

These include the announcement of intended acquisitions by the firms with the SIC code of 4813 either in the COMPUSTAT or in the SDC databases. For example, if a firm has the SIC code of 4813 in the COMPUSTAT but 4812 in the SDC database, then the announcements made by that firm are searched separately (by company name) in the SDC database and included in the sample.

- All deals have a disclosed dollar value and the acquirer is obtaining a controlling stake in a target, raising its interest from below 50% to above 50%.

As a first cut, the competitors of the acquirers are picked to also be the publicly traded companies with the SIC code of 4813 and available data during the period of 1996–2005. More specifically, I collect all US-based firms with the SIC code of 4813 which had closing stock price and shares outstanding information in any year between 1995 and 2005 in the COMPUSTAT database and cross-check to ensure the existence of their stock price information in the CRSP database. For completeness, I also add the firms whose SIC codes are 4813 in the SDC database, but not in the COMPUSTAT database. The sample of rival firms studied for each particular acquisition announcement differs as I include all firms with stock price information in the CRSP database for a period of 255 days before the deal until the day of the announcement. This is required to estimate each firm's market model parameters necessary for the calculation of the abnormal returns.

5. Univariate results

5.1. Descriptive statistics

After removing the same-day announcements, 275 total acquisition announcements remain. Some characteristics of these acquisitions are summarized in Panel A of Table 2. Most deals in the sample are *horizontal* as both the acquirer and the target firms belong to the telecommunications industry. 178 deals involve targets with the same 2-digit SIC code as the bidder and 115 of these involve the merging of two firms with the same 4-digit SIC code (targets had the SIC code of 4813). The most common “unrelated” industry for the targets is the computer industry (with the 2-digit SIC code of 73), which involve 67 acquisitions. The remaining 30 acquisition announcements involve targets that belong to industries other than telecommunications and computer.

The total number of rival firms whose stock price information is utilized at one time or another in the study is 176. Panel B of Table 2 documents some of the firm-specific characteristics of the rivals and the acquirers such as size, leverage and their book-to-market ratios. The average number of rivals in the sample whose return information has been included in the calculations is 80, this number being the highest in the year 2000 where the average number of rivals in the industry for each announcement was 93. The seemingly high number of rivals included in calculations are possibly a result of two main factors: Inclusion of firms with SIC code of 4813 in *either* of the two databases (SDC and COMPUSTAT), and the removal of entry barriers (by the Telecom Act) that led to a high rate of entry into the industry post-1996.

5.2. Cumulative abnormal returns and dollar gains

Panel A of Table 3 documents cumulative abnormal returns (-1.0) for acquirers, public targets and rivals of the acquirer based on the subsamples of horizontal and non-horizontal acquisitions. Consistent with prior literature (Jensen and Ruback, 1983; Jarrell et al., 1988; Andrade et al., 2001), targets earn positive returns of 10.40% (t -stat=8.00) and acquirers break even (0.29%, t -stat=0.54) on average. Results also show that the average effect of all acquisitions on the rivals of the acquirer is zero. Horizontal acquisitions result in small positive returns to non-merging competitors with a mean of 0.26%; evidence of future target premia or increased monopoly power dominating in these types of transactions. These effects do not seem to dominate in non-horizontal acquisitions. Here, competitors earn small but negative returns with a mean of -0.55% . In fact, when we look at the acquisitions where the target is in the computer industry, which is the most common “unrelated” industry pursued by the acquirers (and arguably a cleaner measure for non-horizontal acquisitions), we observe that the non-merging competitors experience a statistically significant loss of 0.85% on average.

It may also be useful to investigate the value impact of these acquisitions on industry rivals by using dollar returns. Dollar returns are calculated as the market value of the bidder multiplied with abnormal returns (Malatesta, 1983). Panel A of Table 3 shows that this measure paints a clearer picture about the total impact of these acquisitions on all firms within this industry; merging firms as well the non-merging competitors. Summed up over all acquisitions, the industry competitors lost over \$25 billion over a period of ten years while the acquirers' aggregate dollar gain amounted to about \$2 billion. Not surprisingly, the biggest dollar gain of over \$16 billion went to the target firms of these acquisitions.

To refine the initial definition and to isolate the more “direct” competitors of the acquirers within the same industry I utilize two firm-specific measures: firm size and the type of services provided. As a first cut, I use the size restriction. *Same Size Quintile* is a dummy variable that restricts the set of competitors to those that are in the same size quintile (either in the year prior to or in the year of the announcement of each deal) as the acquiring firms, where firm size is measured by the year-end market value of equity of the firms. For example, for any announcement made by an acquirer in the top quintile, *Same Size Quintile* is equal to 1 for those competitors that are also in the top quintile in the current fiscal year or the year prior to the announcement of the acquisition in our portfolio.

Panel B of Table 3 shows that competitors that are in the same size quintile as the acquirer experience more negative returns on average than competitors that are in a *different* size quintile. Competitors with similar size earn -0.22% (t -stat=2.07) on average, ranging from statistically insignificant returns of 0.08% (t -stat=0.71) from horizontal deals to -0.71% (t -stat=3.71) from non-horizontal deals. For comparison purposes, note that the competitors that are in the different size quintiles than the acquirer earn 0.10% (t -stat=1.60) on

Table 3

CARs and dollar returns to targets, acquirers and rivals

Type	All types		Horizontal		Non-horizontal			
Target SIC			48		#48	73		
Panel A								
Target	\$16,364	(76) 10.40%*** (8.00)	\$14,836	(55) 8.67%*** (6.12)	\$2045	(21) 14.93%*** (5.51)	\$1744	(10) 16.16%*** (3.75)
Acquirer	\$1939	(275) 0.29% (0.54)	-\$4947	(176) 0.39% (0.60)	\$7493	(99) 0.10% (0.10)	\$6324	(67) -0.42% (0.33)
Rivals	-\$25,519	(22,369) -0.05% (0.87)	\$133,501	(13,815) 0.26%*** (2.28)	-\$159,070	(8554) -0.55%*** (2.47)	-\$189,003	(6025) -0.85%*** (3.01)
Panel B								
Similar Size		(6095) -0.22%** (2.07)		(3798) 0.08% (0.71)		(2297) -0.71%*** (3.71)		(1705) -0.96%*** (4.22)
Different Size		(13,000) 0.10% (1.60)		(8006) 0.43%*** (3.46)		(4994) -0.43%*** (3.25)		(3384) -0.76%*** (3.90)
Similar-Different		(2.91)***		(2.57)***		(1.74)*		(0.97)
Same Service		(4499) -0.20%** (2.03)		(2815) 0.29%*** (2.41)		(1684) -1.03%*** (3.06)		(1144) -1.52%*** (4.30)
Different Service		(13,935) 0.03% (0.47)		(8580) 0.23%** (2.29)		(5355) -0.31%** (2.22)		(3757) -0.46%*** (2.85)
Same-Different		(1.98)**		(0.40)		(3.71)***		(4.34)***

Panel A displays the aggregate dollar returns (in millions of dollars) and mean cumulative abnormal returns [CARs (-1,0)] to targets, acquirers and rival firms. Panel B displays mean CARs to rivals with specified size and service characteristics. In Panel B, the first column displays the mean CARs to the corresponding firms from all announcements. The second column (48) shows the returns from *horizontal* deals in which the targets had the SIC codes 4812, 4813, 4822, 4841 and 4899. The third column (#48) documents the returns to the firms from *non-horizontal* deals in which the targets were not in the acquirers' 2-digit industry. Finally, the last column displays the abnormal returns due to the deals that involved targets with the 2-digit SIC codes of 73 which was the most common unrelated industry for the acquirers to pursue. In Panel A, to the left of each CAR is also the corresponding aggregate dollar returns reported in italics. *Similar Size* is equal to 1 if the competitor is in the same size quintile as the acquirer (either in the year prior to or during the current year of the announcement) and 0 otherwise. Size is measured as the market value of equity for each firm. *Same Service* is a dummy for competitors that are in the primary service area as the acquirer. The abnormal returns are documented in percentages, while their corresponding *t*-stats are reported in parenthesis below. As is common *, ** and *** represent statistical significance at 10%, 5% and 1% levels, respectively.

average, 0.43% (*t*-stat=3.46) from horizontal deals, and - 0.43% (*t*-stat=3.25) from non-horizontal deals. The difference in returns between the same size and the different size samples as a whole is - 0.32% and statistically significant (*t*-stat=2.91).

As another refinement, I use the primary service area. The heterogeneous nature of the telecom industry (especially post-Telecom Act) causes a significant number of these firms to provide multiple services. The goal is to identify the “primary” service area of the firms in the sample. To achieve this, I look at several different sources including the official site of FCC, CRSP and yahoo finance, that enlist most of the active firms in the telecom industry and a description of the type of services they provide. I create lists that classify the firms as the primary provider of three basic services: long distance, local exchange and telecom services.

For example, if any of the sources clearly identifies an acquirer or a competitor as “primarily” providing long distance or local exchange services and no other source contradicts it, then I classify it as the primary provider of long distance or local exchange services, respectively. I classify all other acquirers or competitors that can similarly be identified as primarily providing services other than long distance or local exchange (such as Toll Reseller, Local Reseller, Cellular Services, Paging Services, etc.) under a general title of “telecom service” providers. Any other classification involving further refinement on these three main service areas are too restrictive for the purpose of this study as it greatly reduces the number of deals that can be included under each heading. The dummy variable *Same Service* is equal to one whenever the competitor is in the same primary service area as the acquirer defined under these three main headings and zero otherwise.

Panel B of Table 3 documents that the *Same Service* restriction also results in more negative returns to competitors, especially in non-horizontal deals. In such acquisitions, rivals of the acquirer that are in the same primary service area earn statistically significant negative returns of - 1.03% (*t*-stat=3.06) whereas those that provide primarily a different service than the acquirer earn - 0.31% (*t*-stat=2.22). The difference between these two groups is - 0.72% and significant at 1% level (*t*-stat=3.71). A worse effect is observed when I limit the sample to include only those announcements in which the target belongs to the computer industry (SIC code of 73). Here, the competitors that provide similar services as the acquirer lose - 1.06% (*t*-stat=4.34) more than the ones that provide different services.

6. Multivariate results

The results of the multivariate tests are documented in detail in Tables 4, 5 and 6. Control variables include firm-specific financial characteristics of the rivals such as size, Tobin's *q* and the leverage as well as those characteristics of the transaction that

have been previously proposed as possibly having predictive power over acquirer returns around their own acquisition announcements. More specifically, these include firm size (Moeller et al., 2004), the method of financing (Travlos, 1987), the attitude of the bidding firm as hostile or friendly (Schwert, 2000), the status of the target firm as public or private (Fuller et al.

Table 4
Multivariate regressions of rival CARs

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Competitor Size	0.025 [1.33]	0.025 [1.32]	0.038* [1.88]	0.038* [1.86]		
Larger than Acquirer					0.018* [1.74]	0.021* [1.82]
Smaller than Acquirer					−0.125*** [3.18]	−0.127*** [3.21]
Vertical1		0.042 [0.27]				
Vertical2		−0.305 [1.43]				
Non-Horizontal	−0.603*** [4.33]		−0.611*** [4.35]	−0.613*** [4.36]	−0.588*** [4.29]	−0.595*** [4.34]
Pure Non-Horizontal		−0.714*** [4.48]				
Same Size Quintile			−0.301** [2.28]	−0.297** [2.26]		
Same Service				−0.180** [1.96]	−0.217** [2.23]	
Local Exchange						−0.002 [0.01]
Long Distance						−0.675*** [2.74]
Telecom Services						0.487 [0.46]
Controls						
Competitor Tobin's <i>q</i>	−0.270** [2.08]	−0.269** [2.07]	−0.297** [2.32]	−0.297** [2.32]	−0.416*** [3.02]	−0.412*** [3.00]
Competitor Leverage	0.058 [1.18]	0.058 [1.18]	0.056 [1.15]	0.056 [1.15]	0.048 [1.12]	0.049 [1.16]
Private Target	−0.267** [2.14]	−0.275** [2.20]	−0.275** [2.21]	−0.282** [2.25]	−0.079 [0.58]	−0.107 [0.79]
All Cash	−0.149 [1.24]	−0.134 [1.10]	−0.161 [1.34]	−0.158 [1.32]	−0.309** [2.19]	−0.311** [2.20]
Toehold	−0.014 [1.36]	−0.015 [1.42]	−0.014 [1.39]	−0.014 [1.35]	−0.015 [1.47]	−0.016 [1.59]
Relative Target Size	0.013 [0.52]	0.007 [0.24]	0.007 [0.27]	0.003 [0.12]	0.003 [0.09]	0.001 [0.01]
Unsuccessful	−0.332 [1.55]	−0.300 [1.52]	−0.344 [1.62]	−0.360* [1.69]	−0.621*** [2.96]	−0.602*** [2.88]
Hostile	−0.266 [0.57]	−0.279 [0.60]	−0.260 [0.56]	−0.262 [0.56]	0.062 [0.13]	−0.008 [0.02]
Challenged	−0.553** [2.25]	−0.612** [2.20]	−0.539** [2.40]	−0.515** [2.01]	−0.486* [1.90]	−0.460* [1.82]
Ann. year dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Service area dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.855*** [3.01]	0.855*** [3.03]	0.857*** [3.02]	0.856*** [3.01]	0.596** [2.15]	0.621** [2.23]
Observations	16,181	16,181	16,181	16,181	13,388	13,388
Adjusted <i>R</i> -squared	0.01	0.01	0.01	0.01	0.01	0.01

Table 4 regresses the average two-day CARs (reported as percentages) of the competitors on the following independent variables: *Smaller than Acquirer* (*Larger than Acquirer*) is equal to log of the ratio of the market value (equity) of the competitor to the market value of the acquirer when that ratio is less (greater) than 1. *Vertical1* includes all deals whose targets had the SIC codes of 4812, 4822, 4841, 4899. *Vertical2* includes all deals whose targets had the SIC codes of 3661, 3663, 7372, 7373, 8742. *Non-Horizontal* includes all deals which involved targets outside of the acquirer's two-digit SIC code of 48. *Pure Non-Horizontal* includes all deals which involved targets outside of the acquirer's two-digit SIC code of 48 but excludes all targets whose SIC codes are included in *Vertical2*. *Same Size Quintile* is equal to 1 if the competitor is in the same size quintile as the acquirer (either in the year prior to or during the current year of the announcement) and 0 otherwise. *Same Service* is a dummy for competitors that are in the primary service area as the acquirer. *Local Exchange*, *Long Distance* and *Telecom Services* are the classifications for the three primary service areas of the firms. Controls: Size is the log of the current market value of equity (COMPUSTAT data item 24*data item 25) of the rival firm. Tobin's *q* is the ratio of the market value of assets to the book value of assets. *Leverage* is defined as the ratio of the long-term debt (COMPUSTAT data item 9) to book value of assets from the year prior to the announcement of the acquisition, where book value of assets is the book value of equity (COMPUSTAT data item 60) and the book value of debt (COMPUSTAT data item 9 + data item 34). *Private Target* is a dummy variable capturing the status (non-public) of the target firm. *All Cash* is a dummy variable for when the acquirer paid for the target entirely in cash. *Toehold* is the percentage of the target's shares owned by the bidding firm prior to the acquisition announcement. *Relative Target Size* equals to the log of the deal value divided by the market value of equity of the acquiring firm. *Unsuccessful* is a dummy for unconsummated deals. *Hostile* is all deals that were not defined as 'friendly'. *Challenged* is a dummy for deals with a competing bid. To account for cross-correlation, I use the clustering option (firm-level) for standard errors that is pre-programmed in Stata Statistical Package coupled with time dummies (Rogers, 1993).

Stegemoller, 2002), the existence of a competing bid and the ultimate success of the acquisition (Bradley et al., 1988), the relative size of the target (Asquith et al., 1983) and the percentage of target shares owned by the acquirer prior to the announcement or the toehold (Betton and Eckbo, 2000). In addition, regressions control for announcement years and service areas of the competitors.

6.1. Are the acquirers gaining a competitive edge over their rivals?

Regression results reported in Model 1 of Table 4 confirm that the announcement of non-horizontal deals has a negative and significant impact on competitors (-0.603% , $t\text{-stat}=4.33$). Coupled with the univariate results, this provides support for the hypothesis that on average the rivals of the acquirer are affected negatively and that this negative impact is hard to identify in a sample of all horizontal acquisitions. However, a possible concern is that in some deals that are classified as being non-horizontal, the target firms may actually be suppliers of the telecommunications industry and these acquisitions may effectively be vertical integration of the two firms. For example, SDC reports the full business description of a target firm with an SIC code of 3661 as “manufactur[ing] telecommunications equipment”, 7373 as “develop[ing] telecommunications software”, 7375 as “internet service provider”, etc.

Given that the market hypothesis predicts negative rival returns from vertical mergers, I do a robustness check to make sure that the negative returns are due to purely non-horizontal acquisitions and not due to the types of acquisitions described above. To separate the possibly vertical acquisitions that are classified as non-horizontal from the purely non-vertical, non-horizontal acquisitions I create three new variables: *Vertical1* includes all deals whose target SIC codes match with that of the acquirer at the two-digit but not at the four-digit level (i.e., 4812, 4822, 4841, 4899), *Vertical2* includes all deals whose targets had the SIC codes removed from the original non-horizontal variable (i.e., 3661, 3663, 7372, 7373, 8742) and finally *Pure Non-Horizontal* includes all non-horizontal deals except for those that are included in *Vertical2*. Results show that the negative impact persists when we use a more refined grouping for the non-horizontal variable. This also shows that the negative returns are not due to the vertical mergers and helps provide evidence against the “vertical integration” version of the market hypothesis being the source of the negative impact for rivals.

Similarly, as Model 3 of Table 4 shows, being in the same size quintile as the acquirer has a negative and significant impact on competitor returns (-0.301% , $t\text{-stat}=2.28$). To provide a more continuous measure of similar size, I split the firms according to whether they are relatively *Smaller than Acquirer* or *Larger than Acquirer* where size is measured as log of the market value of equity. More specifically, this relative measure is defined as the ratio of the competitor's size to that of the acquirer's. When it is exactly equal to one, the competitor is of equal size as the acquirer. When it is smaller (greater) than one, *Smaller than Acquirer* (*Larger than Acquirer*) is simply equal to this ratio.

The intuition is that competitors whose relative size measure is closest to one are the more “direct” rivals of the acquirer and should be affected the worst by the acquisitions. Then, the expectation is to see a negative coefficient for the rivals that are smaller than the acquirer and a positive coefficient for those that are larger than the acquirer: Within the group of small (large) competitors, the larger (smaller) ones are closer in size to the acquirer. Regression results are consistent with this intuition. Model 5 of Table 4 shows that the coefficient of this ratio for relatively smaller competitors is -0.125% ($t\text{-stat}=3.18$) and for relatively larger competitors it is 0.018% ($t\text{-stat}=1.74$). Combined, these results suggest that competitors that are closer in size to the acquirer experience worse returns than the average competitor in the industry. The positive impact on larger competitors is not as strong as the negative impact on smaller competitors in various regressions. However, the negative impact on smaller competitors is very robust.

Model 5 also shows that being in the same primary service area as the acquirer also has a negative and significant impact on competitor returns (-0.188% , $t\text{-stat}=1.96$). However, in Model 6 we observe that most of this effect is being driven by the long-distance providers. When a long-distance service provider, for example AT&T, intends to acquire another company (no service restrictions on the service area of the target firm), competitors that are also primarily long-distance service providers, such as Sprint, MCI or Worldcom, are adversely affected at the announcement of such an acquisition (-0.675% , $t\text{-stat}=2.74$).

A similar effect does not exist for rivals providing primarily local exchange or telecom services. This is not surprising for the rivals that are classified as primarily providing telecom services. By the nature of this general definition, a toll reseller and a cell phone provider falls into the same category. It would be difficult to identify a significant strategic impact (if any) within such a broad category. The absence of this effect at the announcement of local-exchange providers may also be due to an inadequate grouping of service areas. Alternatively, it could be that the geographical specialization of the local-exchange providers, such as RBOCs (Regional Bell Operating Companies), protects the firms from an adverse impact at the announcement of their rival's acquisition announcements.

6.1.1. Tough competitor or rational overpayment?

Even within the stories relying on the negative externality imposed by an acquirer on its rivals, two distinct structures may predict negative returns to rivals in their reduced form based on the acquirer returns itself. Rivals could be losing money when acquirer is earning positive returns (tough competitor) or when the acquirer is losing money as well (rational overpayment). The first scenario predicts that the abnormal returns to acquirers and competitors are *negatively* correlated. The latter predicts a *positive* correlation, particularly when the returns to the acquirer are *negative*. To check this, I include the acquirer returns as an independent variable in regressions. In particular, I check to see how positive and negative acquirer CARs affect competitor returns.

Model 1 of Table 5 shows that the competitor abnormal returns are positively correlated with the acquirer's abnormal returns around the announcements (0.057% , $t\text{-stat}=6.20$). When the acquirer returns are negative, however, the impact is slightly stronger with a positive and significant coefficient of 0.033% ($t\text{-stat}=2.49$), whereas for positive acquirer returns, the coefficient is 0.009% ($t\text{-stat}=5.23$) as shown in Model 2. Interpreting the results in light of the two possible scenarios, negative returns to competitors appear to be driven by the acquisition announcements in which the acquirer is earning negative returns itself. More specifically, for every 1% lost by the acquirer its rivals also lose 3.3 basis points on average. This provides support for the rational overpayment version of the competitive advantage hypothesis.

Table 5

Correlation of acquirer/rival returns and the effect of prior (industry) acquisition activity

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Larger than Acquirer	0.004 [1.33]	0.003 [1.33]	0.019* [1.74]	0.022* [1.86]	0.011 [1.50]	0.018* [1.69]
Smaller than Acquirer	-0.126*** [3.23]	-0.115*** [2.97]	-0.119*** [3.05]	-0.122*** [3.11]	-0.130*** [3.28]	-0.123*** [3.13]
Acquirer CAR	0.057*** [6.20]					
Acquirer Negative CAR		0.033** [2.49]				
Acquirer Positive CAR		0.009*** [5.23]				
Prior Acq EW			-0.018** [2.44]			
Prior Acq EW*NH					-0.007*** [3.92]	
Prior Acq VW				-0.109* [1.87]		
Prior Acq VW*NH						-0.388*** [4.11]
Non-Horizontal	-0.593*** [4.40]	-0.635*** [4.57]	-0.556*** [4.16]	-0.590** [4.30]	0.392* [1.84]	4.200*** [3.80]
Same Service	-0.221* [1.78]	-0.219* [1.73]	-0.254* [1.97]	-0.255** [2.00]	-0.252* [1.96]	-0.258** [2.02]
<i>Controls</i>						
Competitor Tobin's <i>q</i>	-0.409*** [2.97]	-0.411*** [2.98]	-0.419*** [3.03]	-0.418*** [3.01]	-0.411*** [2.99]	-0.415*** [3.00]
Competitor Leverage	0.049 [1.16]	0.048 [1.13]	0.048 [1.13]	0.047 [1.13]	0.049 [1.15]	0.048 [1.14]
Private Target	-0.299** [2.11]	-0.173 [1.28]	-0.046 [0.34]	-0.079 [0.58]	-0.100 [0.73]	-0.089 [0.66]
All Cash	-0.265* [1.90]	-0.280* [1.95]	-0.279** [2.00]	-0.288** [2.01]	-0.272* [1.93]	-0.263* [1.84]
Toehold	-0.018* [1.73]	-0.017* [1.68]	-0.013 [1.28]	-0.014 [1.33]	-0.013 [1.29]	-0.013 [1.28]
Relative Target Size	0.010 [0.28]	0.005 [0.17]	0.006 [0.19]	-0.001 [0.03]	0.007 [0.23]	0.001 [0.02]
Unsuccessful	-0.864*** [3.32]	-0.842*** [3.21]	-0.595** [2.16]	-0.613** [2.22]	-0.585** [2.10]	-0.600** [2.16]
Hostile	0.114 [0.24]	0.099 [0.21]	0.065 [0.14]	0.085 [0.18]	0.036 [0.08]	0.112 [0.24]
Challenged	-0.474* [1.89]	-0.408* [1.65]	-0.457* [1.81]	-0.435* [1.89]	-0.482** [2.06]	-0.500** [2.08]
Ann. year dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Service area dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.773*** [2.77]	0.774*** [2.82]	0.807*** [2.64]	1.647** [2.53]	0.411 [1.51]	0.380 [1.40]
Observations	13,388	13,388	13,388	13,337	13,388	13,337
Adjusted R-squared	0.02	0.02	0.01	0.01	0.01	0.01

Table 5 regresses the average two-day CARs (reported as percentages) of the competitors on the following independent variables: *Negative Acquirer CAR* is the cumulative abnormal returns to the acquirer when they are negative and *Positive Acquirer CAR* is the CAR to the acquirer when they are positive. Prior ACQ EW is the number of acquisitions that occurred in the industry previously. Prior ACQ EW*NH and Prior ACQ VW*NH are the interactions of these variables with Non-Horizontal variable respectively. For all other variables please refer to the definitions provided in the caption of Table 4.

Positive correlation rules out the “tough competition” version of the competitive advantage story suggesting that rivals are losing money not when the acquirers are earning positive returns but when they are earning negative returns themselves. However, it also helps eliminate the “vertical integration” version of the market power hypothesis. This version hypothesizes that while acquirers earn positive returns rivals earn negative returns predicting negative correlation between acquirer and rival returns. Even if we believe that some of the non-horizontal acquisitions are in fact vertical integration, positive correlation of returns contradicts this prediction. Among those that are originally introduced, “rational overpayment” version of the competitive advantage story as well as two remaining theories (“industry-wide signalling” and “managerial herding”) are still consistent with this result since they predict that rivals should earn negative returns when the acquirers are losing money as well. I investigate these next.

6.2. Signalling poor industry prospects?

Another potential source of the negative returns to both the acquirers and competitors from the announcements of acquisitions are the market's reaction to a “signal” that there are diminishing investment opportunities within that specific industry. One way

to determine whether the negative returns from non-horizontal acquisitions are a result of this alternative story, is to compare the performance of the acquirers during the earlier and the later stages of the “wave”.

The competitive advantage story predicts that acquirers and rivals would earn lower (or more negative) returns during the second part of the sample period due to the decreasing number of available targets. According to the industry-wide Signalling story, however, the acquirers and competitors should be experiencing negative returns at the announcement of non-horizontal deals *both* at the earlier and the later stages of the wave. In fact, we should expect the negative returns to be more pronounced at the *earlier* stages as that's when the information about the lack of investment alternatives for the industry would be revealed.

To test this, I use two variables that track the time-series properties of the rival returns throughout the ten years. One measure, *Prior Acq EW*, simply tracks the number of acquisitions that occurred prior to the particular announcement. This takes an ‘equal-weighted’ approach to how far we are within the wave by assigning a weight of one to all acquisitions regardless of their size and potential impact in the industry. The other measure incorporates the size and potential impact of the acquisitions as a value-weighted version of the first measure where the weights equal the deal values. Specifically, *Prior Acq VW* is the sum of deal values of all acquisitions that occurred prior to the particular announcement. These help me capture the evolution of the returns throughout the wave.

Models 2 and 3 of Table 5 document that both of these variables have a negative and significant coefficient reinforcing the notion that rival returns are worse during the later stages of the M&A activity. When interacted with the non-horizontal acquisitions where the lack of growth opportunities could be signalled, there is a strong negative effect (Models 4 and 5). This suggests that the negative impact on competitors at non-horizontal acquisitions is driven strongly by those that are announced during the later years of the wave.³

6.3. Anticipation of future bad acquisitions (managerial herding)?

Another reason for positive correlation between acquirer and competitor returns especially when acquirers are losing money could be that the market is simply expecting the rivals of the acquirer to make similar “bad investment” decisions based on a theory of managerial herding. If, in fact, “herding” or distortionary behavior is the driving force behind the acquisition decisions, we should see the non-herding firms that never merged to fare better than the firms that have made acquisitions themselves. If instead rivals are trying to choose the lesser of the two evils in a changing environment, we should see those rivals that restructure themselves to perform better than their non-merging counterparts. The question to answer then is whether own restructuring efforts of the competitors help eliminate or attenuate the negative strategic impact of their rivals' acquisitions.

6.3.1. Past acquirer, future acquirer and unmerged

I focus on acquisitions as the particular form of restructuring and use two main approaches. The first approach is to create a set of backward- and forward-looking variables that identify a competitor as having made an acquisition of its own in the past or as making an acquisition in the future. *Past Acquirer* is equal to one whenever a competitor has already announced an intention to merge prior to the announcement in question. *Future Acquirer* captures those competitors that have made at least one acquisition after the announcement in question but none prior to it, and *Unmerged* which represents all competitors that have not made an acquisition at all throughout the entire wave.

Model 1 of Table 6 documents that competitors with prior acquisitions are significantly better off at the announcement of a rival's acquisition (0.359%, t -stat=2.45). This is consistent with the intuition that the market is rewarding the acquirers over time despite their potential losses at the announcement of their own acquisitions. The coefficients of the forward-looking variables are not significant, however, tests of differences in coefficients in Model 2 show that future acquirers are significantly better off at the announcement of their rival's acquisition than those that remain unmerged: the difference in the coefficients of *Future Acquirer* and *Unmerged* is significant at 1% level (t -stat=3.16).

Two main points emerge from the analysis in this section: 1. Being a past acquirer attenuates the negative impact on competitors' announcement returns and 2. Future acquirers seem to be anticipated early on by the market resulting in a significantly better impact on their stock returns compared to those that remain unmerged. Putting it all together results in the following ranking of competitor returns: Past acquirers do better than future acquirers who in turn do better than the unmerged competitors; The difference between *Past Acquirer* and *Future Acquirer* is also significant at 5% level (t -stat=1.82).

6.3.2. Acquirers, targets and unmerged

The second approach compares the effect of restructuring efforts throughout the wave, regardless of its timing relative to the announcement of interest. As a benchmark in either case, I use another set of competitors that remain unmerged throughout the entire wave by not participating in the acquisition activities either as an acquirer or a target firm. First, I compare those that have been acquirers to those that remained unmerged. *Acquirers* are competitors that have made an announcement at least once during the ten years. Once again, *Unmerged* have never been involved in acquisition activities either as an acquirer or as an intended target. Here, I also add those firms that have participated in the M&A activity as targets as a control variable. I define *Targets* to be those competitors that have been the target firm of an intended acquisition at least once within the sample period. The concern is

³ As a robustness check, in unreported results I also use the interaction of *Prior Acq EW* and *Prior Acq VW* with the variable *Pure Non-Horizontal* (as described in Section 6.1) to see whether this effect exists even when we remove the possibly vertical mergers from the pool. The effect persists even with a more refined classification of the non-horizontal variable.

Table 6

Investigating CARs based on rivals' own acquisition activity

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Larger than Acquirer	0.023* [1.85]	0.020* [1.74]	0.007 [1.35]	0.007 [1.37]	0.018* [1.68]	0.017* [1.68]
Smaller than Acquirer	-0.126*** [3.19]	-0.132*** [3.29]	-0.132*** [3.34]	-0.132*** [3.34]	-0.129*** [3.19]	-0.126*** [3.16]
Non-Horizontal	-0.596*** [4.33]	-0.589*** [4.31]	-0.587*** [4.28]	-0.587*** [4.28]	-0.584*** [4.24]	-0.582*** [4.21]
Same Service	-0.238* [1.88]	-0.240* [1.90]	-0.231* [1.82]	-0.230* [1.82]	-0.242* [1.91]	-0.240* [1.90]
Past Acquirer	0.359** [2.45]	0.392** [2.57]			0.364** [2.39]	0.535* [1.86]
Future Acquirer		0.151 [1.01]			0.175 [1.19]	-0.405 [1.18]
Unmerged		-0.227 [1.20]	-0.215 [0.96]	-0.209 [0.94]	-0.236 [1.24]	-0.936* [1.76]
Acquirers			0.114 [0.63]	0.100 [0.54]		
Targets				0.135 [1.14]		
Filed For Bankruptcy					-0.306* [1.74]	-0.305* [1.74]
<i>Controls</i>						
Competitor Tobin's <i>q</i>	-0.412*** [3.01]	-0.431*** [3.10]	-0.435*** [3.02]	-0.442*** [3.05]	-0.436*** [3.15]	-0.448*** [3.25]
Competitor Leverage	0.044 [1.06]	0.047 [1.13]	0.049 [1.16]	0.049 [1.16]	0.056 [1.35]	0.053 [1.27]
Private Target	-0.094 [0.68]	-0.089 [0.64]	-0.063 [0.47]	-0.064 [0.47]	-0.075 [0.54]	-0.035 [0.26]
All Cash	-0.300** [2.12]	-0.314** [2.19]	-0.316** [2.24]	-0.315** [2.23]	-0.321** [2.23]	-0.321** [2.24]
Toehold	-0.016 [1.52]	-0.016 [1.52]	-0.015 [1.48]	-0.015 [1.48]	-0.016 [1.53]	-0.014 [1.38]
Relative Target Size	-0.003 [0.11]	-0.001 [0.02]	0.005 [0.15]	0.004 [0.15]	0.000 [0.01]	0.004 [0.13]
Unsuccessful	-0.579** [2.02]	-0.567** [1.97]	-0.614** [2.13]	-0.615** [2.13]	-0.538** [1.82]	-0.447* [1.72]
Hostile	0.014 [0.03]	-0.003 [0.01]	0.053 [0.11]	0.055 [0.12]	-0.044 [0.09]	0.038 [0.08]
Challenged	-0.567** [2.35]	-0.578** [2.37]	-0.494** [2.11]	-0.493** [2.11]	-0.556** [2.29]	-0.633** [2.02]
Ann. year dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Service area dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.515* [1.89]	0.540* [1.92]	0.646** [2.23]	0.612** [2.09]	0.599** [2.10]	0.635** [2.26]
Observations	13,388	13,388	13,388	13,388	13,287	13,287
Adjusted R-squared	0.01	0.01	0.01	0.01	0.01	0.01

Table 6 regresses the average two-day CARs (reported as percentages) of the competitors on the following independent variables: *Past Acquirer* and *Future Acquirer* is equal to one when the competitor has been an acquirer prior to or will be an acquirer after the announcement date. *Unmerged* are those competitors that have been neither acquirers nor targets over the sample period. *Acquirers* and *Targets* are those firms that have been an acquirer or a target at least once during the entire 6-year period. *Filed for Bankruptcy* is a dummy variable capturing all firms that have filed for bankruptcy according to Lynn Lopucki's bankruptcy database. Note: In MODEL 6, variables *Past Acquirer*, *Future Acquirer* and *Unmerged* are all interacted with the dummy variable *Unsuccessful*. For all other variables please refer to the definitions provided in the caption of Table 4.

whether the difference in magnitude of the negative impact for the two groups in question comes from the subset of acquirers that eventually become targets themselves. If this was anticipated early on, then they could have enjoyed positive abnormal returns at announcement in anticipation of this future activity.

Initial results show that competitors that have been acquirers are better off than firms that never merged over the entire wave; the difference of the coefficients in Model 3 of Table 6 is significant at 1% level (t -stat=3.22). Introducing targets into the pool in Model 4 does not eliminate the initial result. Even as competitors, the *Targets* experience a better response than *Acquirers* (the difference of the coefficients is significant, t -stat=2.72). This is consistent with the results of Song and Walking (2000) who suggest that rivals of the target firms experience positive abnormal returns at the announcement of the acquisition due to the increased probability of them being future targets themselves. Between the remaining two groups, however, *Acquirers* are still significantly better off as competitors than those that remain *Unmerged* (t -stat=1.73).

Combined, these results show that competitors that make acquisitions experience a better announcement effect than those that never merge during the sample period. The results comparing the performance of those competitors who have been or will be

acquirers themselves and those that never merge are inconsistent with the notion that anticipated herding behavior is the cause of negative rival returns.

6.3.3. Competitors in financial distress

I also investigate the impact of these acquisitions on competitors that are in financial distress which I define as those firms that eventually file for bankruptcy.⁴ To the extent that those firms that end up filing for bankruptcy were the ones that also needed to merge the most but could not, they should be hurt more than an average rival as well (competitive advantage theory). This would be another way of capturing the notion that those rivals that did not restructure had to exit the industry and reinforces the claim that acquisitions in this industry were necessary for the survival of these firms. With this in mind, I create an indicator variable, *Filed for Bankruptcy*, to capture this set of firms. The expectation is that those rivals that file for bankruptcy are those that needed to restructure the most and had the most to lose from not acquiring the targets; hence a negative impact. Model 5 of Table 6 shows that the coefficient of this variable is negative and significant as expected -0.306% (t -stat = 1.74).

6.3.4. Terminated deals

Another interesting venue is the study of the unsuccessful deals that are terminated perhaps mainly due to the existence of a competing bid or regulatory issues. If the deals are terminated due to regulatory disapproval, then it would signal that future deals are more likely to go through increased scrutiny or a lengthier process. If it occurs because a competing bid emerged, then this may suggest that the acquisitions are becoming more competitive or that the target firms are becoming more scarce. In either case, an argument can be made that the acquisitions are becoming 'more costly'. To the extent that these indicate a tougher environment for future acquisition activity, it may lead to a worse impact especially on those rivals that have not yet made acquisitions themselves. To investigate that, I interact the dummy variable *Unsuccessful* with the three variables *Past Acquirer*, *Future Acquirer* and *Unmerged*. Results, which are reported in Model 6 of Table 6, are consistent with this intuition. They show that firms that are not past acquirers and those that never merge are significantly worse off. In addition, although not significant, the coefficient of the *Future Acquirer * Unsuccessful* dummy also becomes negative.

7. Conclusion

Acquisitions are strategic corporate investments of substantial magnitude. As such, they not only affect the acquirer itself but may have consequences for its rivals as well. If acquisitions are considered to be efficient responses to an industry-wide shock, this effect may be even more prevalent. Various theories predict positive rival returns at the announcement of acquisitions. These include increased monopoly power or anticipation of some of the rivals becoming future targets themselves. Other theories explain why we might observe negative returns to rivals, particularly after an industry shock. Among these are a loss of competitive edge to the rivals, signalling poor internal growth opportunities for the industry as a whole and anticipation of future bad acquisitions based on a theory of managerial herding.

To study these effects, I focus on a particular industry (Telecom) that experienced an exogenous industry shock; deregulation. Telecom Act of 1996 forced the firms in this industry to respond to changing conditions by engaging in a flurry of M&A activity as a means to survival. Naturally, each acquisition impacted not only the acquirer but also its rivals making it an interesting platform to study the impact of various forces on rival returns. The results of the study show that the competitors of the acquirer earn significant negative returns at the announcement of non-horizontal acquisitions and that this negative impact is accentuated for those competitors that are of similar size and provide primarily the same service as the acquirer. Results also suggest that the negative impact experienced by competitors is driven by acquisitions in which the acquirer itself is earning negative abnormal returns and that this adverse effect is attenuated for competitors that made prior acquisitions. In addition, competitors that become future acquirers are significantly better off than those that remain unmerged at the announcement of their rivals' acquisitions.

Results are consistent with the Competitive Advantage Hypothesis that posits acquisitions are a means of restructuring in a changing environment, yielding the acquirer a competitive edge, and thereby making their rivals' acquisitions costly for the non-merging competitors. Robustness checks determine that beyond other explanations such as signalling, anticipation and rational herding, there remains a negative strategic impact for firms in the telecom industry from the acquisitions that occur in their industry after the Telecom Act of 1996. The combined implication is that the shock and the subsequent response of firms in the form of a merger wave might be bad news for those firms that need to make acquisitions in order to compete effectively in this changing environment. However, among those that do not become targets, choosing not to make an acquisition definitely makes this effect much worse.

The findings of this study raise concerns about interpreting the "success" or "motives" of mergers by simply observing that the acquirers lose money from their acquisitions. In a dynamic corporate environment where rivals' restructuring activities in the form of acquisitions may be costly, firms may have to choose between the lesser of the two evils and ultimately, the acquisitions may be the better choice. The results also provide evidence consistent with merger waves being efficient responses to an economic shock as opposed to being driven by distortionary motives. This emphasizes the need to include rivals' fates in our analyses of merger waves or acquisitions in general, in order to obtain a complete picture of the valuation consequences and presumed motives behind these decisions.

⁴ I thank the referee for this suggestion.

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