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Telecom Mergers & Acquisitions: Economical & Technological Effects

Verizon & Alltel as a Case Study

This report contains the problems and results in a non-technical form to assist in the logic and management behind the decision-making process for this case-study. Also provided is the technical detail necessary to support the results and conclusions of the Verizon-Alltel Merger.

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# Project Summary

To analyze the history of mergers and acquisitions among different industries using event-study regression models but with an emphasis on the effects in the telecommunications industry by using the Verizon and Alltel merger as a case study.

## Objectives

Why are telecom companies so interested in merging with or acquiring other telecom companies? How can one predict if a merger or acquisition is going to be successful? The objective of this study has been to analyze how the stock market reacts to the large United States telecommunications companies in the recent stream of mergers and acquisitions by analyzing the acquiring and target company’s stock price reactions to the merger announcements. The goal is to show valuation effects of the merger announcements on the price of acquiring companies, by calculating event period cumulative average returns. This case-study will examine the trends in past mergers and acquisitions, provide informative economic models, and identify key points of successes and failures. Through the use of this information and the event study regression models, Verizon will be provided with an answer to whether or not the Verizon-Alltel merger was a good idea.

## Parameters

The economic event-study model primarily uses the telecommunication company's daily stock prices for 112 days prior to the merger and 30 days after the merger.  In addition to these basic stock values, the regression model incorporates various returns' values that are eventually used in the statistical modeling.  The time frame for the statistical model and abnormal returns calculations is {two days prior to the announcement date: two days after the announcement date}.

One concern that complicates event studies arises from leakage of information. Leakage occurs when information regarding a relevant event is released to a small group of investors before official public release. In this case, the stock price might start to increase days before the official announcement date. Any abnormal return on the announcement date is then a poor indicator of the total impact of the information release. A better indicator would be the cumulative abnormal return (CAR), which captures the total firm-specific stock movement for an entire period when the market might be responding to new information. Leakage of information is also why we do not use 100 days before the announcement to the actual announcement date for our OLS regression analysis.

Over the event period these parameters are considered as constant and form the basis to calculate the expected normal and, consequently, the abnormal returns for each day surrounding the announcement date. To capture the full effect of the announcement the cumulative abnormal return (CAR) is calculated over a 3-day event window from one day before to one day after the announcement date t0, and over a 5-day event window from two days before to two days after the announcement date (t0).

## Method of Analysis

The foundation of the methodology in this event-study model is the combination of the history, category and returns of each company 112 days before the announcement date of the merger and 30 days after the announcement date of the merger. The situational analysis provides us with categories regarding company commonalities, which are then used as data sets for calculations. These calculations result in the format of cumulative abnormal returns (CAR) and abnormal returns (AR). Both the CAR and AR values are then used in comparison to those values of Verizon.

## Findings

The primary benefits provided by the mergers and acquisitions in the telecommunications industry are as follows:

* Building of infrastructure in a more convenient way.
* Licensing options for mergers and acquisitions are often found to be easier.
* Mergers and acquisitions offer extensive networking advantages.
* Brand value.
* Bigger client base.
* Wide array of products and services.

There are also specific motives behind mergers and acquisitions that are assumed to be consistent with owner wealth maximization, they are as follows:

* To cut down on their expenses.
* Achieve greater market share and accomplish market control.
* Diversification.
* Increased managerial skill or technology.
* Tax considerations.
* Fund raising.
* Increased ownership liquidity.
* Defense against takeover.

Over the past decade or so, incredible growth has been witnessed in the number of mergers and acquisitions taking place in the telecommunications industry. The reasons behind this development include the following:

* Deregulation
* Introduction of sophisticated technologies (Wireless land phone services)
* Innovative products and services (Internet, broadband and cable services)

(Cummings)

# Mergers & Acquisitions: Background and Description

Telecommunications industry is one of the most profitable and rapidly developing industries in the world and it is regarded as an indispensable component of the worldwide utility and services sector. Telecommunication industry deals with various forms of communication mediums, for example mobile phones, fixed line phones, as well as Internet and broadband services

The number of mergers and acquisitions in Telecom Sector has been increasing significantly, and for the purposes of this event study, top mergers and acquisitions in the United States within the telecommunications industry. This study analyzes the history of mergers and acquisitions in the telecommunications industry using market and event study modeling while using the Verizon and Alltel merger as the case study.

The telecommunications industry is one of the most profitable and rapidly developing industries in the world and it is regarded as an indispensable component of the worldwide utility and services sector. The telecommunication industry deals with various forms of communication mediums, for example mobile phones, fixed line phones, as well as Internet and broadband services. The aim behind such mergers is to attain competitive benefits in the telecommunications industry.

The mergers and acquisitions in the telecom sector are regarded as horizontal mergers because of the reason that the companies going for merger or acquisition are operating in the same industry, the telecommunications industry.

## Problem Scenario

The combination of Verizon, based in Basking Ridge, New Jersey, and Alltel, based in Little Rock, Ark., will create a company with more than 80 million subscribers, and this will create an enhanced platform of network coverage (German).

Verizon’s argument in support of the merger is that this merger will give them a better spectrum and therefore improve customer service. This would enable Verizon the ability to better serve the growing needs of both Alltel and Verizon Wireless customers for reliable basic and advanced broadband wireless services. This also helps Verizon get closer to its goal of reinventing itself as a wireless company rather than a wireline company. Regionally, with fewer operators, Verizon’s negotiating position with mobile infrastructure suppliers and device vendors will be improved with the merger. And most importantly, the deal catapults Verizon’s wireless business ahead of [AT&T](http://topics.nytimes.com/top/news/business/companies/at_and_t/index.html?inline=nyt-org) Wireless, which falls to number two. Verizon would become the nation’s largest cellular telephone provider, a huge feat for any company in the industry (Elstrom and Mandel).

More reasons include the technological compatibilities between the two companies. Verizon and Alltel share the same cell phone technology, called CDMA. Furthermore, they operate on the same EV-DO 3G network. The merger would have been much more difficult logistically if this compatibility did not exist.

Alltel had no hesitation in merging. This was because Alltel had concerns on whether it could continue to grow, given its buyout-related debt. The company reported nearly a tenfold increase in interest expense (higher debt interest payments when companies go private) in its first quarter, to $496.5 million, from $46.7 million last year. Therefore, Alltel was in the hole and their only option would be to merge. Alltel customers should not have any objection either. The transaction puts the Alltel markets and customers on a path to advanced 4th generation services as Verizon Wireless deploys LTE technology throughout its network over the next several years. Alltel's customers also benefit from Verizon Wireless' Open Development initiative, which welcomes third-party devices and services to use the Verizon Wireless network.

The decision by TPG and Goldman to sell their share in Alltel suggests what is in store as smaller, independent players find it harder to go it alone. As Craig Moffett suggested, a communications analyst at Sanford C. Bernstein & Company, “In the wireless industry there is no place for independence. It is the land of the giants.”

Stifel Nicolaus Telecom Equity Research’s Christopher C. King estimates that the *annual cost savings* between the two companies will be around *$1 billion*, with a majority coming from the elimination of roaming charges.

## Key Questions to Answer

* 1. Which types of M&A’s can be identified as the most successful, using the event-study?
	2. What are the key success factors, and how do they apply to Verizon?

## Decision-Making

Figure : Flow-Chart describing Research Approach & Data Evaluation

## Organizational Considerations

### Competitors

In terms of competitors, when two firms in an industry merge (i.e., there is a horizontal combination) and the stock prices of the *n* remaining competitors consequently *increase*, it may be a reasonable assumption to conclude that the observed anticipation of increased industry profitability is tied to the price-raising effect of an anticompetitive combination. Where, conversely, competitor stock prices *fall* on announcement of a merger between two rivals, financial investors likely have the expectation that competition will intensify, driving output prices down.

### External Entities Involved

Through the statistical evaluation of the Top-10 telecommunications mergers and acquisitions, the Verizon-Alltel merger can be directly compared to these historical economic models of mergers in companies with commonalities .



Table : Top 10 Mergers. Acquiring company, targeting company, deal value, announcement date.

These telecommunications mergers and acquisitions will be used in this event study to find correlations between large-scale mergers and the Verizon-Alltel merger. Abnormal return will determine the significance levels for successful or unsuccessful mergers in relation to Verizon.

* AT&T Inc. took over BellSouth- $86 billion dollar deal that occurred in 2007.
* Southwestern Bell Corporation (SBC) Communications acquisition of Ameritech Corporation for $56 billion occurred in 1999. The second fellow Baby Bell acquired by SBC, giving it the Midwest territory it now owns.
* The merger of GTE (General Telephone and Electronics) with Bell Atlantic. Bell Atlantic acquired GTE in this $53 billion deal that occurred in 2000. This megadeal formed Verizon.
* AT&T Wireless merged with Cingular in 2004 for $41 billion. This deal made AT&T the largest wireless operator in terms of subscribers.
* Sprint (FON) acquired Nextel in this $35 billion deal that occurred in 2005. This was Sprint’s response to the AT&T Wireless/Cingular merger.
* SBC acquired AT&T in this $16 billion deal that occurred in 2005. This was the Baby Bell swallowing the historically known Ma Bell. It was supposed to be like this but it actually resurrected and strengthened the target, AT&T. This M&A kicked off the current megamerger wave.
* The acquisition of USWest by Qwest Communications was a $35 billion deal that closed in 2000.
* The merger of MCI Communications Corporation with WorldCom. WorldCom acquired MCI for a $30 billion price tag in 1998.

# Analysis of the Verizon-Alltel Merger

## General Approach

Telecommunications industry is one of the most profitable and rapidly developing industries in the world and it is regarded as an indispensable component of the worldwide utility and services sector. Telecommunication industry deals with various forms of communication mediums, for example mobile phones, fixed line phones, as well as Internet and broadband services

The number of mergers and acquisitions in Telecom Sector has been increasing significantly, and for the purposes of this event study, top mergers and acquisitions in the United States within the telecommunications industry. U.S. mergers are generally driven by consolidation of local, long-distance, and cable television markets. This study analyzes the success or failure of mergers and acquisitions in the history of the telecommunications industry using market and event study modeling while using the Verizon and Alltel merger as the case study.

According to mergers-and-acquisitions specialist Peter Cummings of Opera Solutions, growths through mergers have both pros and cons. On one hand, it gives access to a larger customer base, stimulates economies of scale and scope. On the other hand it increases complexity, duplication of people, processes and technology. There are various aspects, which if not managed carefully during a merger, can become major pitfalls. These pitfalls include- issues of managing Intellectual Property, human resources encompassing cultural diversity and perspectives, technology platforms, supply chain management, product/service delivery channels, etc. (Cummings).

The telecommunications industry is one of the most profitable and rapidly developing industries in the world and it is regarded as an indispensable component of the worldwide utility and services sector. The telecommunication industry deals with various forms of communication mediums, for example mobile phones, fixed line phones, as well as Internet and broadband services. The aim behind such mergers is to attain competitive benefits in the telecommunications industry.

The mergers and acquisitions in the telecom sector are regarded as horizontal mergers because of the reason that the companies going for merger or acquisition are operating in the same industry, the telecommunications industry.

## Parameters Involved

Figure : Sample of Raw Data for Statistical Analysis. (Verizon, VZ)

This data is directly from the Wharton Business School website (Services). Through the use of this website, raw data for all companies were acquired. This raw data was put into a format that is later used for regression models, and abnormal return calculations. See next section, “Input Variables” part for further explanation of raw data variables.

# Technical Description of the Model

## Mathematical Statement

 The event-study variables and formulas for the model of abnormal returns uses the same methodology as Financial Industry Studies:*Bank Mergers and Shareholder Wealth: Evidence from 1995’s Megamerger Deals* (Siems, Robinson and Klemme).

## Regression and Event-Study Inputs

### Input Variables

**PRC:** Stock price or bid. This stock price is formulated through the average of the ask prices. **SPRTRN:** Return on the S&P 500 index.

**RETURN:** General returns.

**SXRET:** Standard Deviation on excess return.

**BXRET:** Beta Excess Return.

**RETX:** General returns without dividends.

**VWRETX**:  This value is the return, excluding dividends, for the value-weighted index.

**VWRETD**:  This value is the return, including all distributions, for the value-weighted index.

**EWRETX**:  This value is the return, excluding dividends, for the equal-weighted index.

**EWRETD**:  This value is the return, including all distributions, for the equal-weighted index.

### Calculated Variables

**Alpha**: Alpha (α) is the ordinary least squares (OLS) estimate of the intercept of the market model regression.

**Beta**: Beta (β) is the ordinary least squares (OLS) estimate of the slope of the coefficient in the market model regression.

**Market Return:** Market return is the return to the market at time=t as approximated by the NYSE Composite Index. In other words, this is the same as the value of return for the value-weighted index, including all distributions (*VWRETD*).

**Stock Return:** Stock return (*RETURN*) is the actual return for the telecommunications stock at time=t.

**Abnormal Returns**: Abnormal returns are actual returns adjusted for the return of the market portfolio (here, the S&P 500). If, for example, an individual stock exhibits a return of 8% over some period, which is exactly equal to the S&P 500 return over the same period, then the abnormal return for the individual stock is zero.

$$AR=\left(Return\right)-\left(Predicted\right)$$

  The basic idea is to observe abnormal stock returns around the time a public announcement takes place, seeing what investor behavior (driving securities prices up or down) says about expected effects of the announcement. Since investors have strong incentives to carefully judge future changes in firm profitability from current information, and because capital markets are relatively efficient in rewarding good predictions while punishing inaccurate ones, stock price movements are thought to embody sophisticated and unbiased projections.

**Predicted**: This represents the stochastic process model’s abnormal return as a percentage.

$$Predicted =α – β\*(vwretd)$$

**Sjt:** This is the estimated standard deviation of the abnormal returns for telecommunications stocks “j” in the event period “t”.

$$S\_{jt}=\sqrt{s\_{j}^{2}\*(1+\frac{1}{T}+\frac{(R\_{mt}-\overbar{R}\_{m})^{2}}{\sum\_{k=1}^{T}\left(R\_{mk}-\overbar{R}\_{m}\right)^{2}})}$$

**SARt:** This is the average standardized abnormal return that is estimated in order to test the significance of the mean abnormal return (MAR) for each day.

$$SAR\_{t}= \frac{1}{n}\sum\_{j=1}^{n}\frac{AR\_{jt}}{S\_{jt}}$$

**Cumulative Abnormal Returns:**  CAR is the cumulative average abnormal returns for the sample of “*n”* telecommunications stocks over the event period interval. The expected value of *CAR* is zero in the absence of abnormal performance.

$$CAR\left(-1,t\_{1}\right)= \sum\_{t= -1}^{t\_{1}}MAR\_{t}$$

**T-Stat:** This is the test statistic used to challenge the hypothesis that the CAR’s are significantly different from zero. This statistic must be modified to its relevant time period.

$$t stat= \sqrt{\frac{n}{(t\_{1}+2)}} \sum\_{t= -1}^{t\_{1}}SAR\_{t}$$

The following formula is used to test whether or not the abnormal returns between two different groups of stocks are statistically different from each other.

$$t stat= \frac{(CAR\_{1}-CAR\_{2})}{\sqrt{\frac{1}{t-2}\sum\_{t=1}^{T}(Z\_{t}-Z)^{2}}}$$

**Probability:** The probability is formulated through a normal distribution algorithm for each of the following; Abnormal Returns and Cumulative Abnormal Returns. This probability is used to determine the significance level of the return on a specific day in the event study.

## Outputs



## Solution Methods

See Appendix.

# Analysis & Managerial Interpretation

## Pertinent Constraints

The only constraints one should understand and apply when observing this event-study model are; all mergers and acquisitions are in the United States, and when stock splits occur, the RETURN is appropriately re-calculated for the split.

## Discoveries

The effects of the announcement become weaker over a longer event period window for most of the companies and nearly disappears in three months after the announcement. Therefore, it can be concluded that the market takes in information efficiently, and an announcement valuation effect can be found.

The announcement valuation effect is found to be, on average, negative for the acquirers. The average cumulative abnormal returns for the acquirers during the 3-day and 5-day event period are negative.

Firms on average appear to beat the S&P500, which indicates that the telecommunications shares exhibited relatively strong growth in equity value during the studied period. The best performing firm through this period is MCI which, being acquired by cumulative abnormal returns calculated over the three days event window are found significant at the 1%, 5%, or 10% level for most acquiring companies.

CAR is calculated for the event period allows the companies to be ranked with regard to the stock market perception of their merger strategies. Bell Atlantic is at the top with positive CARs. SBC is next, with its CARs holding at the level of the decline on the announcement day. AT&T follows SBC and leads the long distance companies, while MCI WorldCom and Qwest share the last place. Their CARs oscillate but have a strong decreasing trend.

Qwest has CAR at (-19.65%) over the (-1 to 1) period. This could be expected, because its announced merger with US West had very negative forecasts and the premium paid was high; Qwest’s offer was 18% higher than the offer of its competitor, Global Crossing. The result produced for AT&T showed that it had a less negative performance than MCI WorldCom, which is rather unexpected by market analysts. In the prevailing analysts’ views, AT&T’s $110 billion investment in cable companies was risky since the technology “voice-over-cable”, which AT&T bet on, was not stable yet (Elstrom, 1999). Also, WorldCom’s stock tripled its value since January 1998 while AT&T’s stock grew only 30% over the same period. The reaction after the announcement can be explained by the large premiums WorldCom paid in the competitive bid for MCI and then later on for Sprint.

## Justification & Validity

In order to give a good valuation prediction of the Verizon Alltel merger, we must compare their CARs with mergers that had similar motivations to merge.

Reasons For Event Study Mergers

* *SBC and Ameritech*: They merged to geographically extend SBC’s operations to the western part of the U.S.
* *WorldCom and MCI*: They merged to compete with AT&T in the long-distance market.
* *Bell Atlantic and GTE*: They merged to become largest provider of local telephone service in the country with 95 million phone lines and service in more than 30 states (Sbeit, 30).

The observed positive market reaction of Verizon as an acquiring firm is not as odd as you would think. In figure 7 you see the average CAR for acquirers is negative, however this could be because of Qwest’s very negative CAR pulling the average down. If you observe figure 10 you can see that 5 out of the 9 acquirers had positive CARs over the 3-day and 5-day event window. Considering that most commonly cited benefits of successful deals relate the acquisition of technology and growth in size, the results in the table below can be examined. We examined changed in revenue, operating income and net income of the acquirer. Revenue of some of the acquiring firms increased which is expected. However, the important factor is to look at the operating income. The majority of the acquiring firms experienced increased in both operation income and net income performance measures which can be warranted by the positive market reaction.

(in million dollars)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Acquiring Firm** | **Target Firm** | **Announcement Date** | **Change in Revenue** | **Change in Op. Income** | **Change in Net Income** |
| WorldCom | MCI | 10/1/1997 | 13,229.0 | -1900.0 | -1,458.0 |
| SBC  | Ameritech | 5/11/1998 | 6383.0 | 3996.0 | 4072 |
| Bell Atlantic | GTE Corp. | 7/28/1998 | 2980.0 | 3154.0 | 1747.0 |
| Qwest Communicatons | US West | 6/14/1999 | 14367.0 | 3482.2 | 763 |

Three out of the four deals exhibited positive changed in net income. This provides us with evidence of a positive impact on the acquirer’s business. We believe Verizon and Alltel merger was a good decision for Verizon. More studies should be made though by looking at how much debt each acquirer took on when they merged because this could affect the future performance.

## General Evaluation

It is quite obvious that the primary success in mergers is the acquisition of customers in order to maintain “Big-Four” Telecommunications status (Services). This customer base is important because it directly effects the investments, infrastructure, assets, and operating expenses. All of these directly affect operational efficiency and service quality, which in turn create a more stable and significant market share. Another reason for success in the telecommunications industry, based on abnormal returns, is smooth integration of newly acquired customers and leading edge technology.

# Conclusions & Critique

## Suggestions for Further Study

We suggest looking further into the progress of the Verizon Alltel merger. The past few weeks there have been growing concerns:

Verizon spent some time last week assuring the public that the Alltel acquisition was still happening, even though there has been growing speculation and criticism of the progress of the merger since its approval in January 2009. The speculation is because of the economic turmoil which has affected the nation and the world, which makes refinancing difficult. The biggest concern is that the cost of protecting Alltel's bonds from default has doubled. Credit-default swaps are now 226.8 basis points compared to 113.4 points September 25, 2008 and 91.6 points when Verizon made the agreement to buy the carrier in early June. (German)

Other than using the economic models to observe the trends of Verizon in respect to Acquirers in similar categories, it is suggested that Verizon look at the telecommunications trends for 2009 and beyond. These trends will be pivotal in Verizon’s success/failure, since the economy is no longer a completely reliable source for predicting success or failure. The categories Verizon should consider for its’ future are; equipment consolidation, fourth generation (4G) technology, fixed mobile convergence (FMC), telepresence, security, M&A, service creation environment (SCE), MVAS services, new markets, IPTV and DTH (Top 10 telecom trends for 2009).

## Summary

There are only a few surface reasons for why the merger might not have been a good idea. This deal will double Verizon’s *debt* to about $42,000,000,000, which is obviously not an easy sum to pay back. Another reason being, Verizon will have to spend even more money buying the 700 MHz spectrum. Verizon will have to spend $5.9 billion plus Alltel's projected net debt at closing, putting the total value of the transaction at $28.1 billion (Sorkin and Holson). The issue with this is, Alltel has an extremely high cost for holding all of this $22.2 billion debt, and the funding for corporate loans is scarce in today’s economy.

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# Appendix



Figure : Abnormal Returns. Day Before, VZ vs. Acquirers.



Figure : Abnormal Returns. Day Of, VZ vs Acquirers.



Figure : Abnormal Returns. Day After, VZ vs Acquirers.



Figure : Abnormal Returns. Averages for Acquirers & Targets, for each day.



Figure : CAR Averages for Acquirers and Targets.



Figure : CAR, Acquirers vs. Targets, 5-day.



Figure : CAR, Acquirers vs. Targets, 3-Day.

Figure : CAR, Acquirers vs. VERIZON, 5-Day.

Figure : CAR, Acquirers vs. VERIZON, 3-Day.