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Computer Industry Mergers and Acquisitions: Determinants of Short-Term Value Creation

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We examine cumulative abnormal returns of mergers and acquisitions in the computer industry over a twenty-day event window surrounding merger announcement. Our findings indicate that acquirers, on average, are generally not able to capture statistically significant cumulative abnormal returns over this event window, while targets are able to capture large, positive statistically significant cumulative abnormal returns. We find that the premium paid by acquirers and in turn received by targets possesses explanatory merit with regards to both acquirer and target cumulative abnormal returns. Additionally, our results reveal that when improvement of marketing capabilities is a stated rationale for pursuing a merger, it has statistically significantly explanatory power of target cumulative abnormal returns.

Keywords
mergers, acquisitions, computer

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Comments
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Computer Industry Mergers and Acquisitions

Determinants of Short-Term Value Creation

By Vaibhav Vish

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Abstract

We examine cumulative abnormal returns of mergers and acquisitions in the computer industry over a twenty-day event window surrounding merger announcement. Our findings indicate that acquirers, on average, are generally not able to capture statistically significant cumulative abnormal returns over this event window, while targets are able to capture large, positive statistically significant cumulative abnormal returns. We find that the premium paid by acquirers and in turn received by targets possesses explanatory merit with regards to both acquirer and target cumulative abnormal returns. Additionally, our results reveal that when improvement of marketing capabilities is a stated rationale for pursuing a merger, it has statistically significantly explanatory power of target cumulative abnormal returns.

Table of Contents

I. Introduction

Our study attempts to answer the question – what ex-ante characteristics of mergers and acquisitions in the computer industry lead to the greatest short-run increases in equity values? A couple of research findings make this question interesting for study and may provide unique rationales that motivate merger and acquisition activity in the computer industry. Specifically, Bothner's finding (2005) that "…relative size has a strong positive effect on future growth…" implies that firms in the computer industry that enhance their relative size, on average, may be able to augment their sales growth. Additionally, Bayus, Erickson, and Jacobson's (2003) finding that new product introductions in the personal computer industry enhance firm profitability by increasing firm profit rates and size provides a possible explanation for the industry's comparatively high rate of technological innovation.

A firm seeking to capitalize on the sales growth benefit it derives from increasing its relative size or the profitability benefit it gains from introducing new products may find a merger or acquisition to be the optimal means of achieving its ends. Although organic growth may also serve as a means of attaining these benefits, and may be especially attractive to both those firms which have reservations about their capacity to effectively integrate new businesses within their existing management structures and to those that are generally skeptical of structuring an M&A transaction, it typically has features which some firms may find unattractive. In particular, a given firm may find the time required to organically grow prohibitive and/or simply lack the expertise needed to organically grow.

For example, a US hardware producer which seeks to increase its relative size and product offerings by launching a new software product in Asian markets will likely need to open new Asian offices, secure new avenues of distribution, hire new staff, develop a branding and

4

positioning strategy, et cetera, processes which will likely take a few years. Further, the US hardware producer must also develop the expertise to produce software products targeted at Asian consumers, something the firm may find to be exceptionally difficult because it does not fall within the realm of its core competency. In the meantime, a competitor with the same desire as the US hardware producer who completes a timely acquisition of an Asian software maker may be able to preempt the hardware producer's entry into the Asian software market, since an acquisition will neither require time to secure distribution in Asian markets, open new regional offices, hire new staff, et cetera nor require development of software expertise. Through preemption the rival becomes the first to capture the relative size and new product introduction benefits present in the industry, placing the hardware producer at a competitive disadvantage.

The industry may also provide acquirers with another unique benefit to engaging in a merger or acquisition. That is, by making a given acquisition, acquirers may be able to adversely affect the stock prices of their rivals. Akhigbe and Martin (2002) find for example that acquisitions by Microsoft in the Internet/online-services segment of the computer industry negatively impacted the rival Internet/online-services portfolio's stock prices. Because of this and the aforedescribed potential benefits that may be derived through a merger or acquisition, the computer industry is rife with merger and acquisition activity, providing us with rich data for analysis but limiting our study to the short-term. The statistical problem with performing a long-run analysis of equity values is that there is generally a succession of merger and acquisition transactions for each acquirer, making it difficult to untangle the long-run effects of each particular merger or acquisition.

To examine the question motivating our study based on the above research findings we develop various hypotheses which are grounded in the notion that certain characteristics of

mergers and acquisitions in the computer industry will, on balance, be statistically significant generators of short term value. The data used to test our hypothesis mostly comes from press releases, internet sources, SEC filings, Wharton Research Data Services, and Yahoo Finance. Our study makes use of twenty-seven mergers and acquisitions in the hardware, software, and networking sectors of the computer industry. For our procedure, we employ the event study methodology over a twenty-day event window to compute cumulative abnormal returns for targets and acquirers. Not only do we test these cumulative abnormal returns for statistical significance from zero but we also attempt to identify those features of computer industry mergers and acquisitions that generate value in the short-term. We do the latter by regressing cumulative abnormal returns against various independent variables that are hypothesized to be value creators.

Our findings indicate that acquirers, on balance, do not earn statistically significant cumulative abnormal returns, while targets do. The premium paid/received seems to have marginally significant explanatory merit for both acquirer and target cumulative abnormal returns while announcing marketing as a stated rationale for pursuing a merger seems to have statistically significant explanatory merit for target cumulative abnormal returns. Further, pursuing a merger in the 1997-1998 time period seems to be a marginally significant creator of short-term value for targets. We interpret our results to be in correspondence with existing cross-industry studies on the subject, implying that short-term merger and acquisition value creation in the computer industry is generally not unique. Nevertheless, the statistical significance of pursuing marketing as a rationale in target acquisitions may be stem from how shareholders uniquely view computer industry targets. Future analysis may focus on explaining the

motivations for the statistical significance of some of our variables and extending our study to the long-run.

II. Existing Literature

It is generally a well know result that, on balance, mergers and acquisitions create positive, statistically significant short-term abnormal returns for targets and slightly negative abnormal returns for acquirers which are not statistically significant. For example, Andrade, Mitchell, and Stafford (2001) find large, statistically significant abnormal returns at the 5% significance level for targets when they use both one day event windows around merger announcement and event windows from twenty-days before announcement to merger closing. For acquirers, they find slightly negative abnormal returns that are not statistically significant under each of these event windows. These results, they explain, are consistent with earlier results from Jensen and Ruback (1983) and Jarrell, Brickley, and Netter (1988).

By examining all targets and acquirers in the University of Chicago Center for Research in Security Prices mergers and acquisitions database from 1973 to 1998, Andrade et al do not focus their study results upon a single industry. As a result, to our knowledge, it remains an open question whether Andrade et al's general results are applicable to the context of specific industries. Both Bayus, Erickson, and Jacobson's and Bothner's respective findings cited earlier imply that there are benefits to firm profitability in the personal computer industry from new product introductions and to sales growth from relative size increases, implying that acquirers may be able derive distinctive benefits from mergers and acquisitions in the computer industry pursued for these purposes. If this were to be the case, and if acquirers did not, on balance, overpay for these added benefits, then they may capture statistically significant, positive value from mergers and acquisitions in the computer industry, which Andrade et al show is not the

case for mergers at large. Our results, discussed in more detail below, are consistent with Andrade et al's findings given we find that acquirers on balance do not have statistically significant cumulative abnormal returns while targets do. A further component of our study is to use regression analysis to identify features of mergers that explain acquirer and target cumulative abnormal returns.

III. Hypothesis

After examining relevant press releases and other articles for twenty-seven select mergers and acquisitions in the computer industry, we identified six rationales firms state for merging. These rationales are product expansion or enhancement, cost synergies or economies of scale, increase in size or capabilities of the firm, value chain enhancement, improvement of marketing capabilities, and new market entry. Because product expansion or enhancement and increase is the size or capabilities of the firm are the only rationales for merging which respectively yield enhanced profitability and sales growth benefits in accordance with Bayus et al's and Bothner's previously cited findings, we hypothesize that these merger rationales, *ceteris paribus*, will drive the highest increases in acquirer and target equity values over a short event window around merger announcement, relative to each of the other rationales. We expect that the four other stated rationales for merging will not lead to as great of an increase in short term equity values because we have not found evidence showing that they have the potential to yield enhanced benefits in the computer industry. Importantly, the failure of the product development and increase in size/capabilities rationales to yield statistically significant short-term value would not necessarily contradict previous findings that new product introductions and relative size increases generate benefits. Rather, it might simply indicate that the market is not aware of these

findings and as such does not anticipate potential benefits that may accrue from mergers with these rationales and price them into short-term equity valuations.

Additionally, we expect mergers where lower premiums (by premium we mean the difference between offer price and target equity value) are anticipated to create relatively higher increases in acquirer equity values and relatively lower increases in target equity values, with the opposite holding true as well. The logic motivating this is that, *ceteris paribus*, the lower the premium paid by the acquirer, the lower the value paid out of the firm, and the lower the value paid out of the firm, the higher the equity value retained within the firm. Analogously, the lower the premium received by the target, the lower value paid into the firm, and the lower the value paid into the firm, the lower the equity value infused into the firm.

We examine three different sectors of the computer industry – hardware, networking, and software and hypothesize that mergers which are undertaken for diversification purposes (i.e. which have the purpose of diversifying by introducing new products or entering new markets) in the software segment of the computer industry will generate the greatest short-term value since software firms generally can diversify at the lowest cost. For example, if a software firm seeks to diversify its product line by launching a new product, it may acquire another, smaller software firm that is particularly adept at research and development to assist in this endeavor. After the combined firm develops a new product, the marginal cost of producing that product is negligible as it essentially comprises the value of the disk on which the software is produced. Further, should the firm wish to geographically diversify by selling its new product in new markets, it faces relatively low product transport costs as it is only required to transport several small disks for sale in its new market.

Conversely, hardware and networking firms which make acquisitions for similar purposes face higher costs in diversifying. A hardware firm that acquires another hardware producer with particular research and development expertise to design a new line of computers faces higher marginal costs as it must assemble the new computer's keyboard, screen, CPU, circuitry, et cetera. Further, transporting several computers to new markets will certainly come at greater cost than transporting several small disks. Consequently, we expect product and geographic diversification to generally come at greater cost for hardware firms than they do for software firms.

Similarly, a networking firm that acquires another networking firm to design a new line of network switches faces higher marginal costs, as it must engineer the switch's mechanics, circuitry, et cetera. Moreover, in addition to traditional transportation costs to new markets the networking firm may face costs to overcome lack of infrastructural development in rural areas or undeveloped nations. For example, a rural area or undeveloped nation may have plenty of computer and software users though lack the infrastructural development to support a network or the internet, meaning network switches will have little value in such a market unless the networking firm invests in facilitating the development of the necessary infrastructure. Thus, we anticipate that product and geographic diversification will generally come at greater cost for networking firms than they do for software firms.

IV. Data

Our data largely stems from company press releases, internet sources, and SEC filings which provide details on merger announcement dates, closing dates, transaction amounts, and rationales for merging. To find historical equity valuations we used Yahoo Finance and Wharton

Research Data Services. We compiled relevant data from these sources for twenty-seven mergers and acquisitions in the computer industry.

V. Procedure and Methodology

To test our hypothesis we employ the event study methodology to define the dependent variable in our statistical analysis, define our independent variables from the data, then proceed with a multiple regression statistical procedure. Our single dependent variable shall be cumulative abnormal returns of equity values twenty days prior to and twenty days after our event, the announcement of each of our identified mergers. Cumulative abnormal returns refer to the difference between the real ex-post equity return before or after the occurrence of the event and the normal return which is anticipated in the absence of the event's occurrence, aggregated over the window of the event study. To illustrate, the cumulative abnormal return on day positive two of our event window for a given merger announcement (signifying two days after the merger announcement) is the actual return on that day minus the expected return on that day in the case that the event did not occur, plus the sum of each of the values calculated in the same way for days negative twenty to positive one. Because the normal return calculation is a hypothetical estimation of what the actual return would have been absent the merger announcement, and hence unobservable, it has been estimated using four different techniques. This then gives us four different sets of cumulative abnormal returns for targets and for acquirers, each of which we regress against our sets of dependent variables, searching for statistical significance. Those variables that are statistically significant and invariant to the normal return estimation methodology are robust.

Specifically, the four techniques we use to compute normal returns involve an approximate one-year mean daily return from approximately one year prior to the announcement

date, an approximate three-year daily mean return from approximately one year prior to the announcement date, a daily return predicted by the capital asset pricing model for approximately one year prior to the year of announcement, and an index daily return. The approximate one-year mean return from approximately one year prior to the announcement date was computed by taking the mean of all of the daily returns from approximately two years prior to the announcement date to approximately one year prior to the announcement date for a given target or acquirer. This number was then used as the normal return for each day in our twenty-day event window. Similarly, to compute an approximate three-year mean return from approximately one year prior to the announcement date, the mean of all the daily returns from approximately four years prior to the announcement date to approximately one year prior to the announcement date was taken for a given target or acquirer. This value was then utilized as the normal return for each day in our twenty-day event window.

To approximate the normal return using the capital asset pricing model, the beta one year prior to the year of announcement was found for a given target or acquirer from Wharton Research Data Services. The annual market risk premium and risk free rate for that year were then found from the data library on Kenneth R. French's website.[1] Using this data and the capital asset pricing model equation: $R_I = R_f + B_i(R_m\text{-}R_f)$ normal annual returns were derived. To convert these normal returns from annual form to daily form the number of trading days in each of the years prior to the year of announcement for each target and acquirer were found and used to de-annualize the annual normal returns into daily normal returns. This number was then respectively used for each target and acquirer as the normal return for each day in the twenty-day event window surrounding merger announcement. Finally, to estimate the normal return using the index method, the actual daily return from the AMEX Computer Technology Index for each

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[1] It can be accessed at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

day in our twenty day event window was used as the normal return for that day, for each of our targets and acquirers. Using the actual daily return for each of the days in the twenty-day event window for each target and acquirer, we computed four sets of cumulative abnormal returns over the event window for each target and acquirer pursuant to the cumulative abnormal return calculation method described earlier.

Next, we identified the various independent variables that we anticipated would influence cumulative abnormal returns. Using the press releases and other articles we compiled in our dataset, we classified the rational or rationales motivating each merger into six categories – product expansion or enhancement, cost synergies or economies of scale, increase in size or capabilities of firm, value chain enhancement, improvement of marketing capabilities, or new market entry. Based on the products and services offered by the acquirer, we also classified each merger as occurring in the hardware, software, or networking segments of the computer industry. Further, given that we anticipated the premium expected to be paid in each transaction to influence the short-term value created by that transaction, we approximated the premium expected by the market upon announcement.

To make this calculation, using data from Wharton Research Data Services, we took the number of shares outstanding of each target firm on day minus one of its event window (the day before merger announcement), multiplied the number of shares outstanding by the closing price on day minus one, then subtracted the result from the approximate transaction value for the merger listed in press releases and other articles. We used this method because we expect shareholders of a given acquirer or target to take note of the numerical being paid premium paid, as opposed to making a more complex premium calculation that involves normalizing the premium for size of the target being acquired. Nevertheless, to test the robustness of our

regression results we also ran each of our regressions with the premium value calculated above being normalized by the size of the target. It must be noted however that the focus of our analysis shall be on the regressions where premiums were not normalized by size of target.

Further, given the mercurial nature of mergers and acquisitions markets over periods of time, we expected that time period might play an important role in the short-term value created by a merger or acquisition. As such, given that our dataset of merger announcements spans from 1995 to 2007 we computed years since 1995 for each transaction and further segmented each transaction into two-year time-intervals (1996-1996, 1997-1998, etc.). This allowed us to run two different sets of regressions under each of the four methods of calculating cumulative abnormal returns for both targets and acquirers (for a total of sixteen regressions). As mentioned, we ran these regressions again using an alternate (and in our opinion less correct) method of calculating premiums to check for robustness. Thus, we have a total of thirty-two regressions. For clarification, when we refer to the results of our regressions in the following sections we mean the results of the first sixteen regressions where premium is not normalized by size of target. Any references to the latter sixteen regressions will be made explicit. Further, the previous references to the results in earlier sections refer to the results of the first sixteen regressions.

In the first set of regressions, each of the acquirer and target cumulative abnormal returns were regressed against the following independent variables: a variable for premium paid, a dummy variable for merger rationale 1 (0 if product expansion or enhancement was not a rationale for the merger, 1 if otherwise), similar dummy variables for merger rationales 3-6, dummy variables for industry segment (software, networking), and dummy variables for two-year time intervals (1997-1998, 1999-2000, etc.). Notably, given that dummy variables are

relative, we omitted merger rationale 2 from the first set of dummy variables, hardware from the

second set, and 1995-1996 from the third set.

In the second set of regressions we replaced the dummy variables for two-year time

intervals with numerical variables that account for time. Each of the acquirer and target

cumulative abnormal returns were regressed against the following independent variables: a

variable for premium paid, a dummy variable for merger rationale 1(0 if product expansion or

enhancement was not a rationale for the merger, 1 if otherwise), similar dummy variables for

merger rationales 3-6, dummy variables for industry segment (software, networking), a

numerical variable for years since 1995, and a numerical variable for years since 1995^2. Again,

because dummy variables are relative, we omitted merger rationale 2 from the first set of dummy

variables and hardware from the second set.

VI. Results

A. Cumulative Abnormal Return Significance and Variability

Table 1. Cumulative Abnormal Return Summary Statistics (rounded to three decimal places)

	Acquirer CARS					Target CARS			
	CAR 1yr Mean	CAR 3yr Mean	CAR CAPM	CAR INDEX		CAR 1yr Mean	CAR 3yr Mean	CAR CAPM	CAR INDEX
MEAN	-0.058	-0.082	-0.059	-0.088	MEAN	0.248	0.272	0.302	0.275
VAR	0.083	0.053	0.048	0.044	VAR	0.083	0.081	0.080	0.058
STDEV	0.288	0.231	0.220	0.211	STDEV	0.289	0.284	0.282	0.240
VAR/AVG	-1.438	-0.648	-0.818	-0.505	VAR/AVG	0.336	0.296	0.263	0.210
STDEV/AVG	-4.998	-2.804	-3.719	-2.398	STDEV/AVG	1.164	1.043	0.933	0.874

Like Andrade et al who find slightly negative abnormal returns for acquirers that are not

statistically significant, we find slightly a slightly negative average cumulative abnormal return

for acquirers in the computer industry. Further, under three of the four techniques used to

compute cumulative abnormal returns for acquirers we find these cumulative abnormal returns in

our dataset are not statistically significant at the five percent level (see appendix 1). Importantly,

though the index method of computing cumulative abnormal returns gives us a statistically

significant result at the five percent level, it is only barely statistically significant, having a p-

value of nearly four percent. Further, we find that targets in our dataset have relatively high cumulative abnormal returns and that these returns are highly statistically significant under each of the four techniques of computing cumulative abnormal returns (see appendix 1). This result is also consistent with Andrade et al's. The cumulative abnormal return variances for both acquirers and targets are low under each of the four calculation techniques and similar to each other, illustrating that there is not much variation from the mean in our dataset that needs to be explained.

B. Acquirer Regression Results

See appendix 2. In general, none of the regression variables we selected have statistically significant explanatory power under each of the two sets of regressions. The one exception is premium paid, which is marginally significant. It is close to being statistically significant in the regressions where we use two-year time interval dummy variables when we compute cumulative abnormal returns using an approximate one-year mean return from approximately one year prior to the announcement date as our normal return (p-value of approximately 0.10) and when we when we compute cumulative abnormal returns using an approximate three-year mean return from approximately one year prior to the announcement date (p-value of approximately 0.051). It is statistically significant in the regression using two-year time interval dummy variables where the cumulative abnormal return is computed using a normal return approximated by the capital asset pricing model.

The premium is also statistically significant in regressions where time is accounted for using years since 1995 and years since 1995^2 as dependant variables when the independent variable, cumulate abnormal return, is computed using an approximate three-year mean return from approximately one year prior to the announcement date as the normal return and when it is

computed using a capital asset pricing model normal return. In each case the slope of the premium is negative, though very close to zero, indicating that the higher the premium paid, the lower the short-term value captured by the acquirer. Further, the regression results show very low adjusted r-squared values, with r-squared often times being negative. The results for the eight acquirer regressions where premium is computed differently do not deviate much from these results (see appendix 4). No variables are statistically significant, including premiums in all of the regressions. Premiums not being statistically significant under the second calculation method was a result we expected given we anticipated that shareholders are more likely to calculate premiums using the first method.

C. Target Regression Results

See appendix 3. In all eight regressions for targets we find that the marketing dummy variable is statistically significant. Further, in the regressions with two-year time interval dummy variables we find that the premium received is statistically significant when the cumulative abnormal return is computed using an approximate one-year mean return from approximately one year prior to the announcement date as the normal return and when it is computed using the capital asset pricing model. In the regressions using years since 1995 and years since 1995^2 as numerical variables to account for time, the premium received is statistically significant only when the cumulative abnormal return is computed using the capital asset pricing model to derive normal returns. In each of the other cases the premium appears to be close to being significant at the five percent level (p-values close to 0.05 but not under it). Additionally, though the coefficient of the premium is close zero in each of the regressions, it is slightly negative illustrating that the higher the premium received by the target, the lower the resulting cumulative abnormal return.

Further, the 1997-1998 dummy variable is statistically significant in the set of regressions with two-year time interval dummy variables when cumulative abnormal returns are computed using an approximate one-year mean return from approximately one year prior to the announcement date as the normal return. In the others cases within this regression set, this variable is close to being statistically significant (p-values close to 0.05 but not under it). None of the other variables are statistically significant. Further, the regressions seem to have fairly strong explanatory power in certain cases, with adjusted r-squared values reaching as high as 0.59.

The regressions where premiums were computed according to the second method, where they were normalized by the target equity value, do not yield substantially different results (see appendix 5). The premium is statistically significant or close to being so in some cases but in most it is not. Also the marketing variable is statistically significant in some cases and in virtually all of the remaining cases it is close to being so (p-values close to 0.05).

VIII. Interpretation of Results

Generally, we do not find evidence to support any of our various hypotheses. That is, the variables that were hypothesized to be contributors to short-term value are generally not statistically significant, indicating that these variables are likely not viewed by the market at large, at least in the short-term, to be significant generators of value. It must be stressed that this does not indicate that these variables are not actual creators of value or profits in the short or long-term, only that they are not *viewed* by the market to be value creators or destroyers in the short-term.

A. Acquirers

The results, which are generally invariant to the technique used to compute cumulative abnormal returns, show that acquirers in computer industry mergers do not earn statistically

significant cumulative abnormal returns in the short-term. Given that this corresponds with Andrade et al's results, we can interpret that, on balance, acquirers in the computer industry are not viewed to be able to capture any industry specific benefits we hypothesized may exist to create significant positive short-term value for their equity holders. It is not surprising then that our regressions yield low adjusted r-squared values and that only a single variable has any iota of explanatory merit. In fact, the dearth of variables with statistically significant explanatory power can be accounted for by the fact that there are no statistically significant cumulative abnormal returns to explain for acquirers in the first place (except in the case where cumulative abnormal returns are computed using index returns for normal returns).

In certain cases the premium paid by the acquirer is statistically significant or close to being so, suggesting that the premium paid by the acquirer is taken into consideration by the market to explain short term return variability. However, because the variable is neither statistically significant in all cases nor highly statistically significant, it does not seem to have major explanatory merit (though it clearly has some). The negative coefficient of the premium also follows basic intuition, as acquirers pay more for the firm they are acquiring, they retain less value for themselves. Further, the lack of statistical significance among the remaining variables is a likely indicator that they are not viewed by the market to be contributors to short-term value in mergers and acquisitions undertaken by acquirers.

B. Targets

Happily, the results for targets are also generally invariant to the technique used to compute cumulative abnormal returns, indicating their robustness. Average cumulative abnormal returns are very high, ranging from approximately 25% to approximately 30% (see table 1) depending on the technique used and are highly statistically significant under all of the

techniques used to compute cumulative abnormal returns (see appendix 1). This finding, in addition to the fact that these returns have low variances, indicates that targets in the computer industry, on average, earn large statistically significant positive returns with little variation.

Our regression results regarding the significance of the marketing variable, indicate that when marketing is one of the reasons stated by the acquirer for pursing a merger, short-term equity value is created (i.e. marketing has statistically significant explanatory merit with regards to explaining cumulative abnormal returns). Product enhancement, increases in size, value chain improvement, and new market entry are traditional rationales for engaging in mergers and given that they are not statistically significant relative to cost synergies (the omitted dummy variable), they are apparently not viewed by the market in the short-term to be significant creators of value. One possible explanation of marketing's statistical significance may have to do with the nature of firms in the industry. Firms in the hardware, software, and networking spaces of the computer industry may possess various technical competencies in product development, cost cutting, size, value chain, and new markets that allow them to create products for which there is demand. However, given their devotion to technical competency, such firms may be perceived by the market to lack marketing expertise. When an acquirer states that it is acquiring such a firm for its marketing capabilities, this information may serve as evidence to the market that the target firm possesses marketing capabilities, which other firms like it are perceived to lack. This may serve as a signal that the target has a source of unique competitive advantage, leading to positive short-term cumulative abnormal returns.

Conversely, an acquirer who acquires a target for marketing reasons may not find the marketing variable to be statistically significant for two reasons. First, acquirers generally do not earn statistically significant cumulative abnormal returns so there is little for the marketing

rationale to explain. Second, even if stating marketing as a rationale for pursuing a merger signals to the target firm shareholders that it has a unique competitive advantage, acquirer firm shareholders may have doubts about their firm's ability to effectively integrate that competitive advantage into their own firm to create value.

Our results also show that premium received in certain cases has statistically significant explanatory power and in virtually all the remaining cases is close to being statistically significant. This indicates that the premium received by the target is an indicator of short term value to the market though only a marginal indicator. One interesting result is that in all cases the premium received by the target is slightly negative but very close to zero. This means that on average, the higher the premium received by the target, the lower the resulting cumulative abnormal return for the target. While this result may seem perplexing at first, high premiums received may be indicative of something else. Perhaps high premiums are paid for targets that have greater competitive advantages and value (i.e. superior management, better product development, et cetera). As such, in the event that they do not get any ownership of the merged firm (all cash deal), target firm shareholders may prefer not to merge and to rather reap the rewards of such competitive advantages well into the future. Alternatively, in the event that they do attain ownership in the merged firm, they may be skeptical about the merged firm's ability to uphold the target's competitive advantage(s). These potential detriments that may be associated with a higher premium received may outweigh the benefit of receiving a higher premium.

Further, in the regressions with two-year time intervals, the 1997-1998 time interval is statistically significant when cumulative abnormal returns are computed using normal returns that involve taking the mean daily return from approximately two years before the announcement date to approximately one year before the announcement date. In all of the other cases in this

regression set the 1997-1998 time interval was not statistically significant though it came close to being so (p-values close to 0.05). This may signal that the boom years of 1997 and 1998 positively impacted mergers and acquisitions cumulative abnormal returns, given that the slope is positive in each case, though that impact was not large. Additionally, the fact that none of the other variables were statistically significant indicates that they do not have statistically significant explanatory power over cumulative abnormal returns in targets.

IX. Motivations for Future Analysis

Many of the variables that we hypothesized would have explanatory merit, did not end up doing so. As such, future analysis may attempt to identify variables that explain some of the variation that we have left unexplained. Additionally, for the variables that we have found to have explanatory merit, future analysis may attempt to diagnose the sources of that merit. For example, we have speculated why the marketing variable may have a high degree of statistical significance. Future research may find evidentiary justification for the possible explanations we have offered. Finally, we have explained the statistical complexities of performing a long-term analysis of value due to the succession of merger and acquisition activity that persists in the industry. Future researchers may attempt to perform such an analysis.

X. Conclusion

Prior researchers have found that mergers and acquisitions, on balance, do not create statistically significant abnormal returns over the short term for acquirers while they do create statistically significant positive abnormal returns for targets. In our analysis we hypothesized that this result may not hold for acquirers in the computer industry, given the industry's unique features that we thought may provide acquirers with additional sources of value in mergers and acquisitions that they pursue. Additionally, after identifying certain value creating attributes

present in the computer industry based on previous research, we hypothesized that mergers that are pursued with a desire to attain or enhance these attributes would on balance create greater short-term value than mergers that are not aimed at taking advantage of such attributes. We also hypothesized that mergers undertaken for diversification purposes in the software sector of the computer industry would create more short-term value, on average, than mergers undertaken for these purposes in other segments.

To test these hypotheses we began by defining our dependent variable, cumulative abnormal returns with a twenty-day event window (the event being the announcement of each merger in our dataset) pursuant to the event study methodology. For robustness, we approximated normal returns, or hypothetical returns that would have persisted in the absence of the merger using four different techniques. Given that the normal return is an input into the cumulative abnormal return calculation, this gave us four sets of cumulative abnormal returns for targets and for acquirers. We then ran two sets of regressions with various independent variables against each cumulative abnormal return set for targets and for acquirers. Also for robustness sake we ran each set of regressions again using an alternate method of computing premiums paid by acquirers and received by targets and found that this did not materially affect our results. We focused our analysis on the sixteen regressions using the primary method for calculating premiums, given we believe that it is the more academically correct method for the purposes of this study.

Given this focus, our results revealed that acquirers generally do not earn statistically significant cumulative abnormal returns while targets do earn large, positive, statistically significant cumulative abnormal returns. This result is consistent with the aforementioned findings of prior researchers. As such, it seems that acquirers in the computer industry, on

23

balance, are not able to attain greater short-term value from mergers and acquisitions than are acquirers across a basket of industries. Targets, on the other hand, are able to capture significant short-term value from mergers and acquisitions in the computer industry as are targets across a basket of industries. Additionally, our regression results are generally invariant to the cumulative abnormal return calculation technique used and hence generally robust.

For acquirers we find that the only variable that has serious explanatory merit is the premium they pay for targets, given that it is either statistically significant or close to being so in some of the regressions. None of the other variables are statistically significant. This result is not surprising for acquirers given the finding that there generally are no statistically significant cumulative abnormal returns to explain in the first place. For targets, which do have statistically significant cumulative abnormal returns to explain, we find that the premium plays a similar explanatory role to the role it played in explaining acquirer cumulative abnormal returns. Further, the dummy variable for marketing is generally statistically significant for targets, illustrating that when the acquirer states that marketing is one of the rationales for undertaking a given merger, that rationale is viewed by the market to be a significant short-term creator of value. In the regressions with two-year time interval dummies the 1997-1998 variable seems to have marginal statistical significance for targets, perhaps reflecting the positive economic conditions persisting at the time. Future analysis may attempt to discover factors that better explain cumulative abnormal returns, provide explanations for why the variables we identified as having explanatory merit do have this merit, and extend our analysis to the long run.

XII. Appendices

Appendix 1. Cumulative Abnormal Return Tests of Statistical Significance

<u>Acquirer CAR Significance Tests</u>

Acquirer	Target	CAR 1yr Mean	CAR 3yr Mean	CAR CAPM	CAR INDEX	E(No Impact)
Hewlett-Packard	Compaq	-0.449120536	-0.426980844	-0.326275341	-0.1375287	0
Hewlett-Packard	Convex Computer	0.103229761	0.116776738	0.162404115	0.140536782	0
IBM	Informix	0.232756213	0.191098653	0.265914402	0.110844566	0
Compaq	Digital Equipment Corporation	-0.396037244	-0.365410994	-0.363798312	-0.493351396	0
IBM	Lotus	0.011917175	0.015979354	0.045543496	-0.074851505	0
IBM	Rational Software	0.01199451	0.024969844	0.081412282	0.034810529	0
Compaq	Microcom	0.125208206	0.116281932	0.146771966	0.063904445	0
IBM	Micromuse	-0.077112225	-0.062230065	-0.084661133	-0.044638362	0
Hewlett-Packard	Verifone	-0.124776159	-0.09939056	-0.072129418	-0.251304947	0
Cisco	Webex	0.79021979	-0.046804946	-0.040333756	-0.017853917	0
CSC	MYND	-0.358012401	-0.258120978	-0.245104975	-0.362004276	0
CSC	Covansys	0.01768555	0.033681536	0.053516305	0.004018507	0
Cisco	Scientific Atlanta	0.044859821	0.017122448	0.004757726	-0.031330283	0
Cisco	Latitude Communications	0.163566697	0.155047292	0.19786704	0.126953591	0
Symantec	Bindview	0.042743757	0.025934788	0.122554766	0.148631192	0
Adobe	Macromedia	-0.099408103	-0.076781642	-0.067303552	-0.0586324	0
Symantec	On Technology	-0.534421021	-0.561332461	-0.415389615	-0.533027145	0
CA	Netegrity	-0.070623476	0.121598633	0.082993642	0.059378955	0
BMC Software	Marimba	-0.152840888	-0.117847416	-0.196349942	-0.105862014	0
Oracle	Hyperion Solutions	0.062252247	0.017112579	0.042663891	0.097810327	0
Symantec	Veritas Software	-0.779402086	-0.800717437	-0.740322119	-0.684270315	0
Oracle	Siebel Systems	-0.09646633	-0.122211317	-0.124104889	-0.046344084	0
CA	Sterling Software	-0.015641005	-0.042715027	-0.048035781	-0.083186365	0
Oracle	Metasolv	0.098844256	0.085710837	0.098345972	-0.002409059	0
Microsoft	aQuantive	0.08436685	0.069656163	0.04707242	-0.018501926	0
Symantec	Altiris	-0.183586854	-0.247000683	-0.229212495	-0.178856598	0
Oracle	Agile Software	-0.005635383	0.012325636	0.00465489	-0.036327252	0
Ttest p-val		0.308123288	0.075227747	0.174178053	0.039581328	
Result		No	No	No	Sig	

We test for significance using a paired, two-tailed t-test. We use each of the cumulative abnormal returns as the first dataset and compare the against the expected cumulative abnormal return which would have persisted had the merger had no abnormal return impact (hence E[No Impact] is zero). For acquirers cumulative abnormal returns are statistically significant only under the index method of computing cumulative abnormal returns. For targets, cumulative abnormal returns are all highly statistically significant and invariant to the cumulative abnormal return calculation technique used (see target results on next page).

Target CAR Significance Tests

Acquirer	Target	CAR 1yr Mean	CAR 3yr Mean	CAR CAPM	CAR INDEX	E(No Impact)
Hewlett-Packard	Compaq	-0.601849613	-0.545760271	-0.500907488	-0.299159942	0
Hewlett-Packard	Convex Computer	-0.230106806	-0.114220017	-0.099076345	-0.121268182	0
IBM	Informix	0.025680644	0.050743997	0.151343555	-0.027626058	0
Compaq	Digital Equipment Corporation	0.61687463	0.501419795	0.471571699	0.327250059	0
IBM	Lotus	0.86416628	0.916666269	0.981620607	0.846880332	0
IBM	Rational Software	0.358368773	0.27954603	0.436696947	0.354674409	0
Compaq	Microcom	0.301196916	0.330162472	0.433830985	0.362510757	0
IBM	Micromuse	0.341951678	0.336896909	0.306450662	0.365705343	0
Hewlett-Packard	Verifone	0.468573422	0.532399556	0.531126966	0.358426305	0
Cisco	Webex	0.160620117	0.159394182	0.211147655	0.235188414	0
CSC	MYND	0.510721118	0.465890794	0.451770358	0.335853559	0
CSC	Covansys	0.171864264	0.117443642	0.228608902	0.18380245	0
Cisco	Scientific Atlanta	0.198956703	0.194288212	0.189675352	0.167839374	0
Cisco	Latitude Communications	0.26053623	0.396263648	0.347014991	0.322555187	0
Symantec	Bindview	0.065187654	0.037281893	0.138390747	0.162994347	0
Adobe	Macromedia	0.073284017	0.119985601	0.149054692	0.166545229	0
Symantec	On Technology	0.185073637	0.351736047	0.463299563	0.358732335	0
CA	Netegrity	0.239833123	0.578584575	0.527829536	0.506151857	0
BMC Software	Marimba	0.482462504	0.485451624	0.483468005	0.529460986	0
Oracle	Hyperion Solutions	0.221778684	0.181707806	0.208301056	0.266816029	0
Symantec	Veritas Software	0.082726403	0.209482917	0.155798189	0.226667297	0
Oracle	Siebel Systems	0.24913376	0.217029486	0.191935778	0.280743777	0
CA	Sterling Software	0.114310996	0.107296352	0.129345532	0.075225795	0
Oracle	Metasolv	0.260950358	0.241742086	0.321021907	0.217070747	0
Microsoft	aQuantive	0.803427191	0.827387166	0.891332024	0.837020352	0
Symantec	Altiris	0.32080318	0.208280213	0.226404772	0.284028959	0
Oracle	Agile Software	0.146779915	0.163570702	0.139676124	0.108105523	0
Ttest p-val		0.000138933	3.53918E-05	7.50187E-06	2.81697E-06	
Result		Sig	Sig	Sig	Sig	

Regressions with Two-Year Time Intervals

One-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.747585501
R Square	0.558884082
Adjusted R Square	0.044248844
Standard Error	0.2811526
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.201806266	0.085843305	1.085980984	0.447949154
Residual	12	0.948561413	0.079046784		
Total	26	2.150367679			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.213098843	0.34678457	-0.614499206	0.550359341	-0.968677514	0.54248	-0.968677514	0.54248
Premium Paid	-1.33023E-10	7.42164E-11	-1.792368512	0.0983013	-2.94727E-10	2.87E-11	-2.94727E-10	2.87E-11
Prodev	0.089539281	0.148891341	0.601373327	0.55878102	-0.234867082	0.413946	-0.234867082	0.413946
Increase	0.194596497	0.164601753	1.182226151	0.260012684	-0.164039914	0.553233	-0.164039914	0.553233
VC	-0.161294251	0.233928358	-0.689502769	0.503622401	-0.670980358	0.348392	-0.670980358	0.348392
Marketing	0.428662476	0.315400979	1.359103187	0.19910914	-0.258537223	1.115862	-0.258537223	1.115862
New Market	-0.196235829	0.203029945	-0.966536386	0.352852044	-0.638600077	0.246128	-0.638600077	0.246128
Software	-0.17176021	0.356938682	-0.481203686	0.639027001	-0.949462788	0.605942	-0.949462788	0.605942
Networking	0.187596636	0.383935808	0.488614586	0.633922027	-0.648927627	1.024121	-0.648927627	1.024121
1997-1998	0.405326776	0.429930832	0.942772059	0.364391568	-0.531412036	1.342066	-0.531412036	1.342066
1999-2000	-0.172794729	0.495335964	-0.348843496	0.733251129	-1.252039082	0.90645	-1.252039082	0.90645
2001-2002	0.200730046	0.33123598	0.606003145	0.555802431	-0.520971156	0.922431	-0.520971156	0.922431
2002-2003	-0.119818046	0.504387935	-0.237551372	0.816236448	-1.218784948	0.979149	-1.218784948	0.979149
2004-2005	0.141322785	0.464296739	0.304380309	0.76605206	-0.870292907	1.152938	-0.870292907	1.152938
2006-2007	0.414910684	0.495764283	0.836911205	0.418997716	-0.665266895	1.495088	-0.665266895	1.495088

Three-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.711069568
R Square	0.50561993
Adjusted R Square	-0.071156818
Standard Error	0.239052233
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	0.701342386	0.050096	0.876630224	0.597497375
Residual	12	0.685751643	0.057146		
Total	26	1.387094029			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.079801188	0.294856338	-0.27064	0.791263472	-0.722237959	0.562635584	-0.722237959	0.562635584
Premium Paid	-1.37029E-10	6.31031E-11	-2.17151	0.050667851	-2.74519E-10	4.60832E-13	-2.74519E-10	4.60832E-13
Prodev	0.04760658	0.126596046	0.376051	0.713442921	-0.228222509	0.32343567	-0.228222509	0.32343567
Increase	0.012812595	0.139953949	0.091549	0.928567159	-0.292120864	0.317746054	-0.292120864	0.317746054
VC	0.104552675	0.198899446	0.525656	0.608704095	-0.32881199	0.53791734	-0.32881199	0.53791734
Marketing	0.453185125	0.26817219	1.689904	0.116835055	-0.131111883	1.037482132	-0.131111883	1.037482132
New Market	0.090252502	0.172627825	0.522815	0.610619971	-0.285871217	0.466376221	-0.285871217	0.466376221
Software	0.007862551	0.303489952	0.025907	0.979757266	-0.65338525	0.669110351	-0.65338525	0.669110351
Networking	0.147781468	0.326444473	0.4527	0.658840299	-0.563479937	0.859042873	-0.563479937	0.859042873
1997-1998	0.019962709	0.365552108	0.05461	0.957348034	-0.776506912	0.816432331	-0.776506912	0.816432331
1999-2000	-0.135385215	0.421163342	-0.32146	0.753395408	-1.053021307	0.782250876	-1.053021307	0.782250876
2001-2002	0.083872877	0.281636025	0.297806	0.770944333	-0.529759308	0.697505062	-0.529759308	0.697505062
2002-2003	-0.228801444	0.428859851	-0.53351	0.60342166	-1.16320679	0.705603901	-1.16320679	0.705603901
2004-2005	-0.059992184	0.394771994	-0.15197	0.88173829	-0.920126469	0.8001421	-0.920126469	0.8001421
2006-2007	-0.028966506	0.421527523	-0.06872	0.946345925	-0.94739608	0.889463068	-0.94739608	0.889463068

28

Capital Asset Pricing Model Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.716545624
R Square	0.513437631
Adjusted R Square	-0.054218467
Standard Error	0.225798532
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	0.645613572	0.046115	0.904487	0.575972708
Residual	12	0.611819723	0.050985		
Total	26	1.257433295			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.020560361	0.278508706	0.073823	0.942367	-0.586257981	0.627379	-0.586257981	0.627378703
Premium Paid	-1.35322E-10	5.96045E-11	-2.27033	0.042413	-2.65189E-10	-5.5E-12	-2.65189E-10	-5.45488E-12
Prodev	0.013186633	0.11957722	0.110277	0.914012	-0.247349747	0.273723	-0.247349747	0.273723012
Increase	0.008812586	0.132194524	0.066664	0.947947	-0.279214538	0.29684	-0.279214538	0.29683971
VC	0.07329598	0.187871924	0.390138	0.703271	-0.336041778	0.482634	-0.336041778	0.482633737
Marketing	0.397144122	0.253303999	1.567856	0.142894	-0.154757881	0.949046	-0.154757881	0.949046125
New Market	0.103990873	0.163056872	0.637758	0.535611	-0.251279531	0.459261	-0.251279531	0.459261277
Software	0.033968541	0.286663649	0.118496	0.907635	-0.590617896	0.658555	-0.590617896	0.658554977
Networking	0.137442786	0.308345509	0.445743	0.663719	-0.534384365	0.80927	-0.534384365	0.809269937
1997-1998	-0.064899799	0.345284912	-0.18796	0.854049	-0.817210993	0.687411	-0.817210993	0.687411396
1999-2000	-0.219191586	0.397812908	-0.55099	0.59175	-1.085951454	0.647568	-1.085951454	0.647568282
2001-2002	0.104997727	0.266021363	0.394697	0.699992	-0.474613032	0.684608	-0.474613032	0.684608486
2002-2003	-0.223487407	0.405082703	-0.55171	0.591274	-1.106086796	0.659112	-1.106086796	0.659111982
2004-2005	-0.148023943	0.372884768	-0.39697	0.698359	-0.96047006	0.664422	-0.96047006	0.664422173
2006-2007	-0.110879708	0.398156898	-0.27848	0.785383	-0.978389066	0.75663	-0.978389066	0.75662965

29

Index Method Cumulative Abnormal Return

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.610240071
R Square	0.372392944
Adjusted R Square	-0.359815287
Standard Error	0.245793725
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	0.43016637	0.030726	0.508588853	0.886031773
Residual	12	0.724974661	0.060415		
Total	26	1.155141031			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.028767462	0.303171556	-0.09489	0.925969561	-0.689321537	0.631786614	-0.689321537	0.631786614
Premium Paid	-9.25707E-11	6.48826E-11	-1.42674	0.179151815	-2.33938E-10	4.87964E-11	-2.33938E-10	4.87964E-11
Prodev	0.027149555	0.130166171	0.208576	0.838277567	-0.256458167	0.310757277	-0.256458167	0.310757277
Increase	0.036723913	0.143900778	0.255203	0.802887757	-0.276808948	0.350256775	-0.276808948	0.350256775
VC	-0.008810481	0.204508592	-0.04308	0.966345341	-0.454396426	0.436775463	-0.454396426	0.436775463
Marketing	0.213822078	0.275734891	0.775463	0.453077959	-0.386952639	0.814596795	-0.386952639	0.814596795
New Market	0.03828759	0.177496087	0.215709	0.832837189	-0.348443162	0.425018341	-0.348443162	0.425018341
Software	-0.050657841	0.312048646	-0.16234	0.873740006	-0.730553434	0.629237751	-0.730553434	0.629237751
Networking	0.034444943	0.335650505	0.102621	0.919958381	-0.696874683	0.765764569	-0.696874683	0.765764569
1997-1998	-0.135739068	0.375861011	-0.36114	0.724271681	-0.954669861	0.683191725	-0.954669861	0.683191725
1999-2000	-0.202465568	0.433040533	-0.46754	0.648486962	-1.145979836	0.7410487	-1.145979836	0.7410487
2001-2002	0.103857122	0.289578419	0.358649	0.726087996	-0.527080051	0.734794295	-0.527080051	0.734794295
2002-2003	-0.196362374	0.440954091	-0.44531	0.664020851	-1.157118804	0.764394056	-1.157118804	0.764394056
2004-2005	-0.016895872	0.405904925	-0.04163	0.967482056	-0.901286729	0.867494986	-0.901286729	0.867494986
2006-2007	0.024581662	0.433414984	0.056716	0.955704683	-0.919748465	0.96891179	-0.919748465	0.96891179

30

Regressions with Years since 1995 and Years since 1995^2

One-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.693680902
R Square	0.481193193
Adjusted R Square	0.156938939
Standard Error	0.264057923
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.03474229	0.103474	1.484	0.232241541
Residual	16	1.115625389	0.069727		
Total	26	2.150367679			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.005693383	0.257128108	0.022142	0.982608	-0.539393852	0.550780618	-0.539393852	0.550780618
Premium Paid	-1.0826E-10	6.6949E-11	-1.61705	0.12541	-2.50185E-10	3.36656E-11	-2.50185E-10	3.36656E-11
Prodev	0.046597738	0.114271165	0.407782	0.688838	-0.195646308	0.288841784	-0.195646308	0.288841784
Increase	0.108176852	0.137878412	0.784582	0.444161	-0.184112322	0.400466026	-0.184112322	0.400466026
VC	-0.097277385	0.208198104	-0.46723	0.646632	-0.538637645	0.344082875	-0.538637645	0.344082875
Marketing	0.280790615	0.281012732	0.99921	0.332566	-0.314929761	0.87651099	-0.314929761	0.87651099
New Market	-0.018244942	0.138967937	-0.13129	0.897183	-0.312843807	0.276353923	-0.312843807	0.276353923
Software	-0.334609385	0.202390483	-1.65329	0.117756	-0.763658039	0.094439269	-0.763658039	0.094439269
Networking	-0.0684553	0.233175845	-0.29358	0.772854	-0.562766005	0.425855405	-0.562766005	0.425855405
Years since 95	-0.050976772	0.072555923	-0.70259	0.49241	-0.204788457	0.102834913	-0.204788457	0.102834913
(Years Since 1995)^2	0.006710526	0.004921913	1.363398	0.191635	-0.003723462	0.017144514	-0.003723462	0.017144514

Three-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.690582134
R Square	0.476903684
Adjusted R Square	0.149968487
Standard Error	0.212953014
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	0.661510252	0.066151	1.45871	0.241556826
Residual	16	0.725583776	0.045349		
Total	26	1.387094029			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.08482378	0.207364372	-0.40906	0.687921	-0.524416609	0.354769049	-0.524416609	0.354769049
Premium Paid	-1.22925E-10	5.39919E-11	-2.27673	0.036893	-2.37382E-10	-8.46716E-12	-2.37382E-10	-8.46716E-12
Prodev	0.073342927	0.092155496	0.795861	0.437762	-0.122017996	0.26870385	-0.122017996	0.26870385
Increase	0.015646178	0.111193874	0.140711	0.889855	-0.220074302	0.251366658	-0.220074302	0.251366658
VC	0.10615565	0.167904121	0.63224	0.536161	-0.249785184	0.462096484	-0.249785184	0.462096484
Marketing	0.415765504	0.226626444	1.834585	0.08523	-0.064661092	0.8961921	-0.064661092	0.8961921
New Market	0.105132422	0.112072536	0.938075	0.362152	-0.132450739	0.342715583	-0.132450739	0.342715583
Software	-0.145632014	0.163220488	-0.89224	0.385486	-0.49164399	0.200379963	-0.49164399	0.200379963
Networking	-0.024458761	0.188047752	-0.13007	0.898135	-0.423102184	0.374184662	-0.423102184	0.374184662
Years since 95	-0.012055904	0.058513686	-0.20604	0.839362	-0.136099376	0.111987569	-0.136099376	0.111987569
(Years Since 1995)^2	0.001788681	0.003969342	0.450624	0.658307	-0.006625947	0.010203309	-0.006625947	0.010203309

Capital Asset Pricing Model Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.688283912
R Square	0.473734743
Adjusted R Square	0.144818958
Standard Error	0.203369039
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	0.595689839	0.059569	1.440292	0.248568368
Residual	16	0.661743456	0.041359		
Total	26	1.257433295			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.027979129	0.198031915	-0.14129	0.889408	-0.447788032	0.391829774	-0.447788032	0.391829774
Premium Paid	-1.29621E-10	5.1562E-11	-2.51388	0.023022	-2.38927E-10	-2.03141E-11	-2.38927E-10	-2.03141E-11
Prodev	0.062839939	0.088008027	0.714025	0.485498	-0.123728744	0.249408621	-0.123728744	0.249408621
Increase	0.014321762	0.106189581	0.13487	0.894397	-0.210790091	0.239433615	-0.210790091	0.239433615
VC	0.047326808	0.160347577	0.295151	0.771674	-0.292594868	0.387248485	-0.292594868	0.387248485
Marketing	0.39317257	0.216427095	1.816651	0.088051	-0.065632372	0.851977513	-0.065632372	0.851977513
New Market	0.07907898	0.107028699	0.738858	0.470694	-0.147811724	0.305969683	-0.147811724	0.305969683
Software	-0.189289046	0.155874732	-1.21437	0.242227	-0.519728714	0.141150621	-0.519728714	0.141150621
Networking	-0.078955502	0.179584641	-0.43966	0.666067	-0.459657933	0.301746928	-0.459657933	0.301746928
Years since 95	-0.0035794	0.055880271	-0.06405	0.94972	-0.122040282	0.114881482	-0.122040282	0.114881482
(Years Since 1995)^2	0.001264511	0.003790701	0.333582	0.743026	-0.006771416	0.009300438	-0.006771416	0.009300438

Index Method Cumulative Abnormal Return

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.578441569
R Square	0.334594649
Adjusted R Square	-0.081283695
Standard Error	0.219179867
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	0.386504008	0.03865	0.804549	0.627908279
Residual	16	0.768637023	0.04804		
Total	26	1.155141031			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.116379823	0.213427811	-0.54529	0.593076	-0.568826567	0.336067	-0.568826567	0.33606692
Premium Paid	-8.29988E-11	5.55706E-11	-1.49357	0.154745	-2.00803E-10	3.48E-11	-2.00803E-10	3.48056E-11
Prodev	0.088154517	0.094850169	0.929408	0.366488	-0.112918858	0.289228	-0.112918858	0.289227891
Increase	0.055747923	0.114445238	0.487114	0.632783	-0.186865143	0.298361	-0.186865143	0.298360988
VC	-0.016914066	0.172813722	-0.09787	0.923248	-0.383262789	0.349435	-0.383262789	0.349434657
Marketing	0.207776038	0.233253115	0.890775	0.386249	-0.286698473	0.702251	-0.286698473	0.702250549
New Market	-0.004775796	0.115349593	-0.0414	0.967487	-0.249306008	0.239754	-0.249306008	0.239754416
Software	-0.229566187	0.167993138	-1.36652	0.190673	-0.585695727	0.126563	-0.585695727	0.126563354
Networking	-0.146782311	0.193546363	-0.75838	0.459248	-0.557082268	0.263518	-0.557082268	0.263517646
Years since 95	-0.009325052	0.060224656	-0.15484	0.878886	-0.136995618	0.118346	-0.136995618	0.118345514
(Years Since 1995)^2	0.002733812	0.004085407	0.669165	0.512931	-0.005926864	0.011394	-0.005926864	0.011394488

Appendix 3. Target Regression Results – First Premium Calculation Method

Regressions with Two-Year Time Intervals

One-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.863006787
R Square	0.744780714
Adjusted R Square	0.44702488
Standard Error	0.214658584
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.613588165	0.115256298	2.501313589	0.059590152
Residual	12	0.552939694	0.046078308		
Total	26	2.166527859			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.12289223	0.264768261	-0.464150157	0.650847543	-0.699772713	0.453988	-0.699772713	0.453988254
Premium Recieved	-1.33809E-10	5.66638E-11	-2.361461596	0.035955625	-2.57269E-10	-1E-11	-2.57269E-10	-1.03496E-11
Prodev	0.04633535	0.113677784	0.40760251	0.690743295	-0.201347263	0.294018	-0.201347263	0.294017963
Increase	-0.03907432	0.125672604	-0.310921548	0.761194885	-0.312891401	0.234743	-0.312891401	0.23474276
VC	-0.091172724	0.178603115	-0.510476674	0.618977366	-0.480315483	0.29797	-0.480315483	0.297970034
Marketing	1.088783305	0.240807048	4.521393012	0.000700106	0.564109819	1.613457	0.564109819	1.61345679
New Market	-0.035838566	0.155012333	-0.231198157	0.821055957	-0.373581426	0.301904	-0.373581426	0.301904295
Software	-0.224540041	0.272520874	-0.823937037	0.426048658	-0.818312016	0.369232	-0.818312016	0.369231934
Networking	-0.148960416	0.293133042	-0.508166582	0.6205483	-0.787642449	0.489722	-0.787642449	0.489721616
1997-1998	0.764139869	0.32825001	2.327920322	0.038214333	0.048944537	1.479335	0.048944537	1.479335202
1999-2000	0.686567675	0.378186497	1.815420911	0.094514138	-0.137429916	1.510565	-0.137429916	1.510565266
2001-2002	0.204691512	0.252896991	0.809386901	0.434048503	-0.346323696	0.755707	-0.346323696	0.75570672
2002-2003	0.531328009	0.38509763	1.379722872	0.192838725	-0.307727648	1.370384	-0.307727648	1.370383665
2004-2005	0.633957773	0.354488206	1.788374795	0.098971133	-0.138405678	1.406321	-0.138405678	1.406321224
2006-2007	0.585495075	0.378513516	1.546827393	0.147860466	-0.239215029	1.410205	-0.239215029	1.410205179

35

Three-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.878645156
R Square	0.77201731
Adjusted R Square	0.506037505
Standard Error	0.199632461
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.619454434	0.115675	2.90254108	0.035889657
Residual	12	0.478237435	0.039853		
Total	26	2.097691869			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.001033783	0.246234455	-0.0042	0.996719183	-0.537532573	0.535465006	-0.537532573	0.535465006
Premium Recieved	-1.06079E-10	5.26974E-11	-2.01298	0.067107881	-2.20896E-10	8.73891E-12	-2.20896E-10	8.73891E-12
Prodev	0.014061035	0.105720327	0.133002	0.896395958	-0.21628377	0.24440584	-0.21628377	0.24440584
Increase	-0.050975452	0.116875508	-0.43615	0.670470062	-0.305625308	0.203674405	-0.305625308	0.203674405
VC	0.094404351	0.166100879	0.568356	0.580273952	-0.267498374	0.456307076	-0.267498374	0.456307076
Marketing	1.03549501	0.22395053	4.623767	0.000586368	0.547548723	1.523441297	0.547548723	1.523441297
New Market	-0.012856283	0.144161454	-0.08918	0.93041017	-0.326957108	0.301244542	-0.326957108	0.301244542
Software	0.011068745	0.253444384	0.043673	0.965883159	-0.541139131	0.56327662	-0.541139131	0.56327662
Networking	0.063594161	0.272613699	0.233276	0.81947907	-0.530380063	0.657568385	-0.530380063	0.657568385
1997-1998	0.589626456	0.305272475	1.931476	0.077382782	-0.075505129	1.254758041	-0.075505129	1.254758041
1999-2000	0.332691685	0.351713403	0.945917	0.362849309	-0.433625989	1.099009359	-0.433625989	1.099009359
2001-2002	0.025389238	0.235194175	0.10795	0.915819209	-0.487054849	0.537833324	-0.487054849	0.537833324
2002-2003	0.358150111	0.358140756	1.000026	0.337036926	-0.422171563	1.138471785	-0.422171563	1.138471785
2004-2005	0.325313849	0.329673995	0.986774	0.34323249	-0.39298408	1.043611779	-0.39298408	1.043611779
2006-2007	0.182322861	0.352017531	0.517937	0.61391763	-0.58465745	0.949303172	-0.58465745	0.949303172

36

Capital Asset Pricing Model Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.895873948
R Square	0.802590131
Adjusted R Square	0.572278618
Standard Error	0.184514257
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.660986342	0.118642	3.484802	0.018227769
Residual	12	0.408546134	0.034046		
Total	26	2.069532476			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.097855896	0.227587074	0.429971	0.674837	-0.398013739	0.593726	-0.398013739	0.593725532
Premium Recieved	-1.42345E-10	4.87066E-11	-2.92249	0.012781	-2.48467E-10	-3.6E-11	-2.48467E-10	-3.62221E-11
Prodev	-0.049161641	0.097714107	-0.50312	0.623989	-0.26206239	0.163739	-0.26206239	0.163739108
Increase	-0.052183666	0.108024504	-0.48307	0.637738	-0.287548841	0.183182	-0.287548841	0.183181509
VC	-0.01026755	0.153522028	-0.06688	0.947779	-0.344763313	0.324228	-0.344763313	0.324228214
Marketing	1.116621251	0.206990714	5.394548	0.000162	0.665627228	1.567615	0.665627228	1.567615274
New Market	0.021230261	0.13324408	0.159334	0.876056	-0.269083649	0.311544	-0.269083649	0.311544172
Software	0.01196688	0.234250993	0.051086	0.960098	-0.498422189	0.522356	-0.498422189	0.522355949
Networking	0.014936454	0.251968612	0.059279	0.953706	-0.534055991	0.563929	-0.534055991	0.563928898
1997-1998	0.54490242	0.282154133	1.931223	0.077417	-0.069858625	1.159663	-0.069858625	1.159663465
1999-2000	0.30761116	0.325078081	0.946269	0.362677	-0.400673133	1.015895	-0.400673133	1.015895453
2001-2002	0.168520907	0.217382876	0.775226	0.453212	-0.305115692	0.642158	-0.305115692	0.642157507
2002-2003	0.347193674	0.33101869	1.048864	0.314906	-0.374034093	1.068421	-0.374034093	1.06842144
2004-2005	0.312391957	0.304707721	1.025218	0.325484	-0.351509134	0.976293	-0.351509134	0.976293049
2006-2007	0.195503065	0.325359177	0.600884	0.559096	-0.513393683	0.9044	-0.513393683	0.904399814

Index Method Cumulative Abnormal Return

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.88142395
R Square	0.77690818
Adjusted R Square	0.51663439
Standard Error	0.16719236
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.168154139	0.083439581	2.984965105	0.032475
Residual	12	0.335439424	0.027953285		
Total	26	1.503593563			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.048201345	0.206221571	0.233735711	0.819130057	-0.401116859	0.49751955	-0.401116859	0.49751955
Premium Recieved	-9.19825E-11	4.41341E-11	-2.084159312	0.059185065	-1.88142E-10	4.17745E-12	-1.88142E-10	4.17745E-12
Prodev	-0.033356327	0.088540866	-0.376733688	0.712948678	-0.226270302	0.159557648	-0.226270302	0.159557648
Increase	-0.03592909	0.09788334	-0.36706032	0.719965316	-0.249198567	0.177340387	-0.249198567	0.177340387
VC	-0.072938326	0.139109631	-0.52432262	0.609603043	-0.376032174	0.230155522	-0.376032174	0.230155522
Marketing	0.91232188	0.187558764	4.864192214	0.000388781	0.503666439	1.320977321	0.503666439	1.320977321
New Market	-0.043483723	0.120735343	-0.360157362	0.724988805	-0.306543438	0.219575992	-0.306543438	0.219575992
Software	-0.085899688	0.212259893	-0.404691094	0.692825227	-0.548374265	0.376574889	-0.548374265	0.376574889
Networking	-0.087712448	0.228314211	-0.384174281	0.707570158	-0.585166378	0.409741483	-0.585166378	0.409741483
1997-1998	0.464847623	0.255665964	1.818183441	0.094069249	-0.09220066	1.021895905	-0.09220066	1.021895905
1999-2000	0.330092946	0.294560282	1.120629517	0.284372121	-0.311698774	0.971884667	-0.311698774	0.971884667
2001-2002	0.138883506	0.196975327	0.705080723	0.494218916	-0.290288863	0.568055875	-0.290288863	0.568055875
2002-2003	0.415617378	0.299943196	1.385653632	0.191065782	-0.237902704	1.069137461	-0.237902704	1.069137461
2004-2005	0.453089	0.276102258	1.641018811	0.126723563	-0.148486142	1.054664142	-0.148486142	1.054664142
2006-2007	0.343694168	0.294814989	1.165796111	0.266345771	-0.298652512	0.986040847	-0.298652512	0.986040847

Regressions with Years since 1995 and Years since 1995[2]

One-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.763748733
R Square	0.583312127
Adjusted R Square	0.322882206
Standard Error	0.237534982
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.263761973	0.126376	2.239805	0.072650085
Residual	16	0.902765886	0.056423		
Total	26	2.166527859			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.216825014	0.231301223	0.937414	0.362481	-0.273511671	0.707161699	-0.273511671	0.707161699
Premium Recieved	-1.16636E-10	6.02244E-11	-1.93669	0.070648	-2.44306E-10	1.1034E-11	-2.44306E-10	1.1034E-11
Prodev	-0.119899021	0.102793352	-1.16641	0.260542	-0.337811191	0.09801315	-0.337811191	0.09801315
Increase	-0.105839461	0.124029401	-0.85334	0.406064	-0.368770044	0.157091123	-0.368770044	0.157091123
VC	0.001335572	0.187285927	0.007131	0.994398	-0.395692854	0.398363998	-0.395692854	0.398363998
Marketing	0.933939061	0.252786788	3.694572	0.001965	0.398055012	1.469823109	0.398055012	1.469823109
New Market	0.194728318	0.125009491	1.557708	0.13886	-0.070279962	0.459736599	-0.070279962	0.459736599
Software	0.090530038	0.182061644	0.497249	0.625777	-0.295423404	0.476483481	-0.295423404	0.476483481
Networking	0.061714748	0.209754812	0.294223	0.77237	-0.382945588	0.506375083	-0.382945588	0.506375083
Years since 95	0.051360756	0.065268141	0.786919	0.44283	-0.087001522	0.189723034	-0.087001522	0.189723034
(Years Since 1995)^2	-0.004413857	0.004427538	-0.99691	0.333647	-0.013799818	0.004972103	-0.013799818	0.004972103

Three-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.80878403
R Square	0.654131607
Adjusted R Square	0.437963861
Standard Error	0.212944435
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.372166553	0.137217	3.026037	0.023681463
Residual	16	0.725525316	0.045345		
Total	26	2.097691869			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.282559702	0.207356018	1.362679	0.191857	-0.157015417	0.722134822	-0.157015417	0.722134822
Premium Recieved	-1.01136E-10	5.39897E-11	-1.87325	0.079419	-2.15589E-10	1.33167E-11	-2.15589E-10	1.33167E-11
Prodev	-0.131685821	0.092151783	-1.42901	0.172234	-0.327038873	0.063667232	-0.327038873	0.063667232
Increase	-0.129460518	0.111189394	-1.16432	0.261361	-0.365171502	0.106250466	-0.365171502	0.106250466
VC	0.162004721	0.167897357	0.964903	0.348952	-0.193921774	0.517931216	-0.193921774	0.517931216
Marketing	0.914145221	0.226617314	4.033872	0.000961	0.43373798	1.394552463	0.43373798	1.394552463
New Market	0.168892866	0.112068021	1.507057	0.151285	-0.068680724	0.406466456	-0.068680724	0.406466456
Software	0.246331192	0.163213913	1.509254	0.150727	-0.099666844	0.592329229	-0.099666844	0.592329229
Networking	0.207788325	0.188040176	1.105021	0.285491	-0.190839039	0.606415688	-0.190839039	0.606415688
Years since 95	0.033811655	0.058511329	0.577865	0.571399	-0.090226821	0.15785013	-0.090226821	0.15785013
(Years Since 1995)^2	-0.004598761	0.003969182	-1.15862	0.263614	-0.013013051	0.003815528	-0.013013051	0.003815528

40

Capital Asset Pricing Model Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.863125397
R Square	0.744985451
Adjusted R Square	0.585601358
Standard Error	0.181617884
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.541771585	0.154177	4.674152	0.003187436
Residual	16	0.527760891	0.032985		
Total	26	2.069532476			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.323391051	0.176851587	1.828601	0.086162	-0.051517563	0.6983	-0.051517563	0.698299666
Premium Recieved	-1.38454E-10	4.60472E-11	-3.00678	0.00836	-2.36069E-10	-4.1E-11	-2.36069E-10	-4.0838E-11
Prodev	-0.156714098	0.078595207	-1.99394	0.06349	-0.323328493	0.0099	-0.323328493	0.009900296
Increase	-0.118805181	0.094832168	-1.25279	0.228282	-0.319840396	0.08223	-0.319840396	0.082230033
VC	0.03445266	0.143197744	0.240595	0.812925	-0.269112995	0.338018	-0.269112995	0.338018315
Marketing	1.023922982	0.193279327	5.297633	7.22E-05	0.614189115	1.433657	0.614189115	1.433656848
New Market	0.171365756	0.095581539	1.792875	0.091917	-0.031258053	0.37399	-0.031258053	0.373989566
Software	0.129238564	0.139203288	0.928416	0.366987	-0.165859222	0.424336	-0.165859222	0.42433635
Networking	0.063201076	0.160377325	0.394077	0.698726	-0.276783664	0.403186	-0.276783664	0.403185815
Years since 95	0.058692428	0.049903646	1.176115	0.256752	-0.047098575	0.164483	-0.047098575	0.164483432
(Years Since 1995)^2	-0.00558142	0.00338527	-1.64874	0.118694	-0.012757871	0.001595	-0.012757871	0.001595032

Index Method Cumulative Abnormal Return

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.821510119
R Square	0.674878876
Adjusted R Square	0.471678173
Standard Error	0.174794528
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.014743534	0.101474	3.321243	0.015997072
Residual	16	0.48885003	0.030553		
Total	26	1.503593563			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.245200345	0.1702073	1.440598	0.168981	-0.11562301	0.606024	-0.11562301	0.6060237
Premium Recieved	-8.6821E-11	4.43172E-11	-1.95908	0.067766	-1.80769E-10	7.13E-12	-1.80769E-10	7.12734E-12
Prodev	-0.135853102	0.075642397	-1.79599	0.091402	-0.296207819	0.024502	-0.296207819	0.024501615
Increase	-0.092624124	0.091269338	-1.01484	0.325282	-0.286106477	0.100858	-0.286106477	0.100858228
VC	-0.009541337	0.137817827	-0.06923	0.945663	-0.301702076	0.282619	-0.301702076	0.282619403
Marketing	0.815816541	0.186017852	4.385689	0.000461	0.421476313	1.210157	0.421476313	1.210156769
New Market	0.084254605	0.091990555	0.915905	0.373315	-0.11075666	0.279266	-0.11075666	0.279265869
Software	0.104978318	0.133973442	0.783576	0.444734	-0.17903269	0.388989	-0.17903269	0.388989325
Networking	0.026719403	0.154351974	0.173107	0.864738	-0.300492162	0.353931	-0.300492162	0.353930967
Years since 95	0.047485698	0.048028774	0.988693	0.33753	-0.054330754	0.149302	-0.054330754	0.149302149
(Years Since 1995)^2	-0.00375975	0.003258086	-1.15398	0.265457	-0.010666584	0.003147	-0.010666584	0.003147083

Appendix 4. Acquirer Regression Results – Second Premium Calculation Method

<u>Regressions with Two-Year Time Intervals</u>

<u>One-Year Cumulative Abnormal Return Technique</u>

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.664552369
R Square	0.441629851
Adjusted R Square	-0.20980199
Standard Error	0.316320133
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	0.949666558	0.067833326	0.677937	0.758357432
Residual	12	1.200701121	0.100058427		
Total	26	2.150367679			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.255703021	0.389792974	-0.655997	0.524205	-1.104988952	0.593583	-1.104988952	0.59358291
Percentage Premium Paid	0.036973665	0.275299399	0.134303472	0.895389	-0.562852197	0.6368	-0.562852197	0.636799527
Prodev	0.094822001	0.170015281	0.557726347	0.587285	-0.275609473	0.465253	-0.275609473	0.465253475
Increase	0.245626426	0.182396869	1.346659228	0.202974	-0.151782211	0.643035	-0.151782211	0.643035064
VC	-0.002558182	0.251475323	-0.010172696	0.992051	-0.550475842	0.545359	-0.550475842	0.545359478
Marketing	0.141943644	0.414312228	0.342600662	0.737825	-0.760765154	1.044652	-0.760765154	1.044652441
New Market	-0.141283939	0.228713798	-0.61773247	0.548296	-0.639608496	0.357041	-0.639608496	0.357040617
Software	-0.071315034	0.41384492	-0.172323087	0.866056	-0.973005655	0.830376	-0.973005655	0.830375586
Networking	0.290521255	0.436301113	0.665873284	0.518088	-0.660097207	1.24114	-0.660097207	1.241139717
1997-1998	0.203422003	0.524386713	0.387923641	0.704866	-0.939118495	1.345963	-0.939118495	1.345962501
1999-2000	-0.345922146	0.569251433	-0.607679008	0.554726	-1.58621447	0.89437	-1.58621447	0.894370178
2001-2002	0.011587725	0.353700493	0.032761404	0.974403	-0.759059447	0.782235	-0.759059447	0.782234897
2002-2003	-0.219639127	0.581739751	-0.377555646	0.712354	-1.487141159	1.047863	-1.487141159	1.047862904
2004-2005	-0.083169951	0.534586288	-0.155578159	0.878952	-1.247933413	1.081594	-1.247933413	1.081593511
2006-2007	0.214334606	0.567901191	0.377415313	0.712455	-1.023015794	1.451685	-1.023015794	1.451685006

Three-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.57204122
R Square	0.327231157
Adjusted R Square	-0.457665826
Standard Error	0.278865805
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	0.453900384	0.032421	0.416909689	0.939469489
Residual	12	0.933193645	0.077766		
Total	26	1.387094029			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.129844685	0.34363899	-0.37785	0.712139244	-0.878569725	0.618880355	-0.878569725	0.618880355
Percentage Premium Paid	0.12916918	0.242702188	0.532213	0.60429316	-0.399633461	0.65797182	-0.399633461	0.65797182
Prodev	0.04324694	0.149884383	0.288535	0.777860442	-0.283323076	0.369816957	-0.283323076	0.369816957
Increase	0.063639065	0.160799912	0.395766	0.699224104	-0.286713846	0.413991976	-0.286713846	0.413991976
VC	0.286191948	0.221699035	1.290903	0.221053114	-0.196848754	0.76923265	-0.196848754	0.76923265
Marketing	0.069944809	0.365255008	0.191496	0.851339129	-0.725877488	0.865767107	-0.725877488	0.865767107
New Market	0.157999376	0.20163262	0.7836	0.448465232	-0.281320363	0.597319116	-0.281320363	0.597319116
Software	0.148847958	0.364843033	0.407978	0.690474924	-0.646076722	0.943772637	-0.646076722	0.943772637
Networking	0.281638614	0.384640269	0.732213	0.478096366	-0.556420537	1.119697765	-0.556420537	1.119697765
1997-1998	-0.26386162	0.46229597	-0.57076	0.578691833	-1.271118009	0.743394769	-1.271118009	0.743394769
1999-2000	-0.363553408	0.501848419	-0.72443	0.48268852	-1.456987181	0.729880365	-1.456987181	0.729880365
2001-2002	-0.100831225	0.311820091	-0.32336	0.751985611	-0.780228839	0.578566388	-0.780228839	0.578566388
2002-2003	-0.377225894	0.51285804	-0.73554	0.476143903	-1.494647571	0.740195783	-1.494647571	0.740195783
2004-2005	-0.347519498	0.47128785	-0.73738	0.475061604	-1.37436751	0.679328514	-1.37436751	0.679328514
2006-2007	-0.286969013	0.500658055	-0.57318	0.577103897	-1.377809205	0.803871179	-1.377809205	0.803871179

Capital Asset Pricing Model Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.56085448
R Square	0.314557748
Adjusted R Square	-0.485124879
Standard Error	0.268001541
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	0.395535386	0.028252528	0.393353	0.950554823
Residual	12	0.861897909	0.071824826		
Total	26	1.257433295			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.02687204	0.330251244	-0.081368476	0.93649	-0.746427686	0.692684	-0.746427686	0.692683606
Percentage Premium Paid	0.098152892	0.233246813	0.42081129	0.681331	-0.410048256	0.606354	-0.410048256	0.606354041
Prodev	0.012045836	0.144045074	0.083625464	0.934733	-0.301801419	0.325893	-0.301801419	0.325893092
Increase	0.059567703	0.154535348	0.385463288	0.70664	-0.277135895	0.396271	-0.277135895	0.396271301
VC	0.246821136	0.213061917	1.158447926	0.269217	-0.217400902	0.711043	-0.217400902	0.711043175
Marketing	0.047053787	0.351025128	0.134046778	0.895588	-0.717764265	0.811872	-0.717764265	0.81187184
New Market	0.167297007	0.193777265	0.863346934	0.404872	-0.254907383	0.589501	-0.254907383	0.589501397
Software	0.161085191	0.350629203	0.459417496	0.654146	-0.602870214	0.925041	-0.602870214	0.925040595
Networking	0.260646065	0.369655163	0.705105977	0.494204	-0.544763346	1.066055	-0.544763346	1.066055476
1997-1998	-0.320702473	0.444285495	-0.72183872	0.484222	-1.288717409	0.647312	-1.288717409	0.647312462
1999-2000	-0.428429874	0.48229703	-0.888311242	0.391832	-1.479264831	0.622405	-1.479264831	0.622405082
2001-2002	-0.080677265	0.299671969	-0.26921859	0.792335	-0.733606394	0.572252	-0.733606394	0.572251864
2002-2003	-0.355341062	0.49287773	-0.72095175	0.484748	-1.429229383	0.718547	-1.429229383	0.718547259
2004-2005	-0.413800363	0.452927063	-0.913613686	0.378911	-1.400643657	0.573043	-1.400643657	0.573042931
2006-2007	-0.349077272	0.481153041	-0.725501539	0.482054	-1.39741969	0.699265	-1.39741969	0.699265146

Index Method Cumulative Abnormal Return

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.526739643
R Square	0.277454651
Adjusted R Square	-0.565514923
Standard Error	0.263729941
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	0.320499252	0.022892804	0.32913958	0.974611274
Residual	12	0.83464178	0.069553482		
Total	26	1.155141031			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.063463827	0.324987464	-0.195280845	0.848440542	-0.771550681	0.644623028	-0.771550681	0.644623028
Percentage Premium Paid	0.100416195	0.229529159	0.437487747	0.669527759	-0.399684881	0.600517271	-0.399684881	0.600517271
Prodev	0.022788732	0.141749181	0.160767996	0.874950891	-0.286056202	0.331633666	-0.286056202	0.331633666
Increase	0.070808712	0.152072253	0.465625453	0.649820961	-0.260528264	0.402145688	-0.260528264	0.402145688
VC	0.116514593	0.209665984	0.555715287	0.58861667	-0.340308343	0.573337529	-0.340308343	0.573337529
Marketing	-0.057772	0.345430239	-0.167246505	0.869961398	-0.810399837	0.694855836	-0.810399837	0.694855836
New Market	0.085663403	0.190688704	0.449231661	0.66127029	-0.329811591	0.501138398	-0.329811591	0.501138398
Software	0.050004144	0.345040624	0.144922482	0.887177721	-0.701774794	0.801783082	-0.701774794	0.801783082
Networking	0.128892944	0.363763335	0.354331873	0.729238624	-0.663679277	0.921465165	-0.663679277	0.921465165
1997-1998	-0.338431972	0.437204156	-0.774082239	0.453863347	-1.291017994	0.614154051	-1.291017994	0.614154051
1999-2000	-0.363802637	0.474609836	-0.766529915	0.458175935	-1.397888636	0.670283361	-1.397888636	0.670283361
2001-2002	-0.019457194	0.294895583	-0.065979943	0.948480295	-0.661979473	0.623065085	-0.661979473	0.623065085
2002-2003	-0.303217139	0.485021893	-0.625161757	0.543570412	-1.359989062	0.753554784	-1.359989062	0.753554784
2004-2005	-0.219264512	0.445707988	-0.491946561	0.631633181	-1.190378793	0.751849769	-1.190378793	0.751849769
2006-2007	-0.15713534	0.47348408	-0.331870377	0.74571173	-1.188768528	0.874497848	-1.188768528	0.874497848

Regressions with Years since 1995 and Years since 1995^2

One-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.630466519
R Square	0.397488031
Adjusted R Square	0.020918051
Standard Error	0.28456351
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	0.854745415	0.085475	1.055549	0.445321494
Residual	16	1.295622264	0.080976		
Total	26	2.150367679			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.076696033	0.302495897	-0.25354	0.803077	-0.717958684	0.564567	-0.717958684	0.564566617
Percentage Premium Paid	0.033965738	0.200324859	0.169553	0.867487	-0.39070399	0.458635	-0.39070399	0.458635466
Prodev	0.065952136	0.125984259	0.523495	0.607805	-0.201122561	0.333027	-0.201122561	0.333026833
Increase	0.160008968	0.147231301	1.086786	0.293233	-0.152107445	0.472125	-0.152107445	0.472125382
VC	0.020327966	0.210743223	0.096458	0.924354	-0.426427706	0.467084	-0.426427706	0.467083638
Marketing	0.061425447	0.308582377	0.199057	0.844726	-0.592739966	0.715591	-0.592739966	0.71559086
New Market	-0.014888356	0.15312466	-0.09723	0.923751	-0.339498133	0.309721	-0.339498133	0.309721421
Software	-0.2458882	0.210539795	-1.16789	0.259959	-0.692212625	0.200436	-0.692212625	0.200436225
Networking	0.048963783	0.238639083	0.205179	0.84002	-0.45692847	0.554856	-0.45692847	0.554856036
Years since 95	-0.082091785	0.075678799	-1.08474	0.294112	-0.242523671	0.07834	-0.242523671	0.078340101
(Years Since 1995)^2	0.00842288	0.005180633	1.62584	0.123515	-0.002559572	0.019405	-0.002559572	0.019405331

Three-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.555586142
R Square	0.308675961
Adjusted R Square	-0.123401564
Standard Error	0.244812613
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	0.428162582	0.042816	0.714399	0.700419551
Residual	16	0.958931447	0.059933		
Total	26	1.387094029			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.172381912	0.26024001	-0.6624	0.517146	-0.724066085	0.379302	-0.724066085	0.379302262
Percentage Premium Paid	0.029182024	0.172341324	0.169327	0.867662	-0.33616526	0.394529	-0.33616526	0.394529309
Prodev	0.093992848	0.10838542	0.867209	0.398647	-0.135773977	0.32376	-0.135773977	0.323759674
Increase	0.073344444	0.126664446	0.579045	0.570622	-0.195172185	0.341861	-0.195172185	0.341861074
VC	0.239302441	0.181304339	1.319894	0.205444	-0.145045585	0.62365	-0.145045585	0.623650466
Marketing	0.173380314	0.265476266	0.653092	0.522972	-0.389404225	0.736165	-0.389404225	0.736164852
New Market	0.110464693	0.131734558	0.83854	0.41408	-0.168800092	0.389729	-0.168800092	0.389729478
Software	-0.043762433	0.181129328	-0.24161	0.812153	-0.427739453	0.340215	-0.427739453	0.340214587
Networking	0.109418018	0.205303404	0.532958	0.601388	-0.325805754	0.544642	-0.325805754	0.54464179
Years since 95	-0.047827356	0.065107169	-0.73459	0.473216	-0.185848388	0.090194	-0.185848388	0.090193675
(Years Since 1995)^2	0.003746461	0.004456946	0.840589	0.412964	-0.005701843	0.013195	-0.005701843	0.013194765

Capital Asset Pricing Model Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.517851324
R Square	0.268169994
Adjusted R Square	-0.18922376
Standard Error	0.239821212
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	0.337205879	0.033721	0.5863	0.802638989
Residual	16	0.920227416	0.057514		
Total	26	1.257433295			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.076506423	0.254934065	-0.3001	0.767963	-0.616942494	0.463929649	-0.616942494	0.463929649
Percentage Premium Paid	-0.037830945	0.168827516	-0.22408	0.825531	-0.395729288	0.320067397	-0.395729288	0.320067397
Prodev	0.074919877	0.106175587	0.705622	0.49057	-0.150162311	0.300002065	-0.150162311	0.300002065
Increase	0.066719381	0.124081928	0.537704	0.598181	-0.196322554	0.329761316	-0.196322554	0.329761316
VC	0.184879276	0.177607786	1.040941	0.313378	-0.191632408	0.56139096	-0.191632408	0.56139096
Marketing	0.186527376	0.26006356	0.717238	0.483568	-0.36478274	0.737837491	-0.36478274	0.737837491
New Market	0.09582023	0.129048667	0.742512	0.468539	-0.177750721	0.36939118	-0.177750721	0.36939118
Software	-0.073609017	0.177436344	-0.41485	0.683763	-0.44975726	0.302539225	-0.44975726	0.302539225
Networking	0.066249011	0.201117543	0.329404	0.746123	-0.36010113	0.492599153	-0.36010113	0.492599153
Years since 95	-0.044527311	0.063779721	-0.69814	0.495111	-0.179734278	0.090679657	-0.179734278	0.090679657
(Years Since 1995)^2	0.003427397	0.004366075	0.785006	0.443919	-0.005828269	0.012683063	-0.005828269	0.012683063

Index Method Cumulative Abnormal Return

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.492322085
R Square	0.242381035
Adjusted R Square	-0.231130818
Standard Error	0.233874533
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	0.279984279	0.027998	0.51188	0.857683998
Residual	16	0.875156752	0.054697		
Total	26	1.155141031			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.151498271	0.248612643	-0.60937	0.550832	-0.678533528	0.375536985	-0.678533528	0.375536985
Percentage Premium Paid	-0.017887808	0.164641218	-0.10865	0.914833	-0.366911596	0.331135979	-0.366911596	0.331135979
Prodev	0.09678497	0.103542825	0.934734	0.363819	-0.122716012	0.316285952	-0.122716012	0.316285952
Increase	0.090079071	0.121005155	0.744423	0.467414	-0.166440397	0.346598539	-0.166440397	0.346598539
VC	0.07142663	0.17320377	0.412385	0.68553	-0.295748957	0.438602217	-0.295748957	0.438602217
Marketing	0.070936375	0.253614946	0.279701	0.78329	-0.466703289	0.608576039	-0.466703289	0.608576039
New Market	0.004917071	0.125848737	0.039071	0.969317	-0.261870332	0.271704473	-0.261870332	0.271704473
Software	-0.156256856	0.173036579	-0.90303	0.379906	-0.523078013	0.210564302	-0.523078013	0.210564302
Networking	-0.054177499	0.196130572	-0.27623	0.785906	-0.469955734	0.361600736	-0.469955734	0.361600736
Years since 95	-0.03524673	0.06219822	-0.56668	0.578792	-0.167101065	0.096607605	-0.167101065	0.096607605
(Years Since 1995)^2	0.004109659	0.004257813	0.965204	0.348806	-0.004916501	0.013135819	-0.004916501	0.013135819

50

Appendix 5. Target Regression Results – Second Premium Calculation Method

<u>Regressions with Two-Year Time Intervals</u>

<u>One-Year Cumulative Abnormal Return Technique</u>

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.797826614
R Square	0.636527307
Adjusted R Square	0.212475831
Standard Error	0.256169494
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.379054143	0.098504	1.501061	0.243301767
Residual	12	0.787473716	0.065623		
Total	26	2.166527859			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.172042905	0.315670924	-0.54501	0.595733	-0.859830764	0.515745	-0.859830764	0.515744953
Percentage Premium Paid	0.130320492	0.222949159	0.58453	0.569691	-0.355443996	0.616085	-0.355443996	0.61608498
Prodev	0.041627665	0.137685603	0.302339	0.76757	-0.258363493	0.341619	-0.258363493	0.341618824
Increase	0.010478008	0.14771274	0.070935	0.944618	-0.311360404	0.332316	-0.311360404	0.33231642
VC	0.087031885	0.20365541	0.427349	0.676693	-0.356695134	0.530759	-0.356695134	0.530758904
Marketing	0.710507889	0.335527659	2.117584	0.055774	-0.020544079	1.44156	-0.020544079	1.441559856
New Market	0.030828604	0.185222159	0.166441	0.870581	-0.372735811	0.434393	-0.372735811	0.434393019
Software	-0.085142865	0.335149213	-0.25404	0.803762	-0.81537027	0.645085	-0.81537027	0.64508454
Networking	-0.016969025	0.353335193	-0.04803	0.962486	-0.786820276	0.752882	-0.786820276	0.752882226
1997-1998	0.483498388	0.424670658	1.138526	0.277121	-0.441779488	1.408776	-0.441779488	1.408776264
1999-2000	0.461470215	0.461004015	1.001011	0.33658	-0.542971247	1.465912	-0.542971247	1.465911676
2001-2002	0.024792774	0.286441699	0.086554	0.932453	-0.599310074	0.648896	-0.599310074	0.648895622
2002-2003	0.384295124	0.471117586	0.81571	0.43056	-0.642181916	1.410772	-0.642181916	1.410772163
2004-2005	0.350599525	0.432930707	0.809828	0.433804	-0.592675453	1.293875	-0.592675453	1.293874502
2006-2007	0.3311926	0.459910532	0.720124	0.48524	-0.670866366	1.333252	-0.670866366	1.333251566

Three-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.857182187
R Square	0.734761302
Adjusted R Square	0.425316155
Standard Error	0.215327088
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.541302809	0.110093	2.374448	0.070456848
Residual	12	0.556389059	0.046366		
Total	26	2.097691869			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.049997356	0.265341903	-0.18843	0.853692	-0.628127697	0.528133	-0.628127697	0.528132985
Percentage Premium Paid	0.251244783	0.18740324	1.340664	0.204858	-0.157071801	0.659561	-0.157071801	0.659561367
Prodev	-0.005590144	0.115733687	-0.0483	0.96227	-0.257752186	0.246572	-0.257752186	0.246571898
Increase	-0.014518665	0.124162146	-0.11693	0.908847	-0.285044742	0.256007	-0.285044742	0.256007412
VC	0.265112553	0.171185592	1.548685	0.147416	-0.10786881	0.638094	-0.10786881	0.638093916
Marketing	0.592870411	0.282032777	2.102133	0.057327	-0.021626222	1.207367	-0.021626222	1.207367044
New Market	0.058088198	0.155691247	0.373099	0.715582	-0.281133889	0.39731	-0.281133889	0.397310285
Software	0.182508323	0.281714669	0.647848	0.529284	-0.431295211	0.796312	-0.431295211	0.796311858
Networking	0.213437008	0.297001166	0.71864	0.486121	-0.433672942	0.860547	-0.433672942	0.860546957
1997-1998	0.243969761	0.356963254	0.683459	0.507299	-0.533786356	1.021726	-0.533786356	1.021725877
1999-2000	0.073316018	0.387503799	0.189201	0.853098	-0.77098223	0.917614	-0.77098223	0.917614267
2001-2002	-0.100767988	0.240772841	-0.41852	0.682961	-0.625366943	0.423831	-0.625366943	0.423830967
2002-2003	0.167530897	0.396004912	0.423053	0.67974	-0.695289685	1.030351	-0.695289685	1.03035148
2004-2005	0.009280414	0.363906362	0.025502	0.980074	-0.783603435	0.802164	-0.783603435	0.802164262
2006-2007	-0.102737546	0.386584656	-0.26576	0.794937	-0.945033153	0.739558	-0.945033153	0.739558061

Capital Asset Pricing Model Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.841143184
R Square	0.707521856
Adjusted R Square	0.366297355
Standard Error	0.224590928
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.464239459	0.104589	2.073479055	0.106289971
Residual	12	0.605293017	0.050441		
Total	26	2.069532476			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.036901484	0.276757488	0.133335	0.896138297	-0.566101281	0.639904249	-0.566101281	0.639904249
Percentage Premium Paid	0.266883852	0.195465735	1.365374	0.197184595	-0.158999399	0.692767103	-0.158999399	0.692767103
Prodev	-0.067970812	0.120712802	-0.56308	0.583749084	-0.330981413	0.195039789	-0.330981413	0.195039789
Increase	-0.00192089	0.129503872	-0.01483	0.988409423	-0.284085586	0.280243807	-0.284085586	0.280243807
VC	0.204822681	0.178550368	1.147142	0.2736805	-0.18420515	0.593850513	-0.18420515	0.593850513
Marketing	0.590465	0.29416644	2.007248	0.067787127	-0.050468613	1.231398614	-0.050468613	1.231398614
New Market	0.107836094	0.162389423	0.664059	0.519208665	-0.245980064	0.461652253	-0.245980064	0.461652253
Software	0.213080321	0.293834646	0.725171	0.482249553	-0.427130375	0.853291018	-0.427130375	0.853291018
Networking	0.194538186	0.309778801	0.627991	0.541777167	-0.48041184	0.869488212	-0.48041184	0.869488212
1997-1998	0.139572092	0.372320589	0.374871	0.714297878	-0.671644784	0.950788967	-0.671644784	0.950788967
1999-2000	-0.002005022	0.404175055	-0.00496	0.996123406	-0.882626817	0.878616773	-0.882626817	0.878616773
2001-2002	-0.008583337	0.251131412	-0.03418	0.973296622	-0.55575168	0.538585005	-0.55575168	0.538585005
2002-2003	0.126577479	0.413041904	0.306452	0.764512667	-0.77336352	1.026518478	-0.77336352	1.026518478
2004-2005	-0.068279106	0.379562404	-0.17989	0.860241654	-0.895274541	0.758716329	-0.895274541	0.758716329
2006-2007	-0.14737629	0.403216368	-0.3655	0.721098348	-1.025909285	0.731156705	-1.025909285	0.731156705

53

Index Method Cumulative Abnormal Return

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.868497436
R Square	0.754287797
Adjusted R Square	0.467623559
Standard Error	0.175463977
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	14	1.134142276	0.08101	2.631259	0.050376175
Residual	12	0.369451288	0.030788		
Total	26	1.503593563			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.003077678	0.21621964	0.014234	0.988877	-0.468024447	0.474179804	-0.468024447	0.474179804
Percentage Premium Paid	0.257310468	0.15270962	1.684966	0.117802	-0.075415212	0.590036147	-0.075415212	0.590036147
Prodev	-0.054641672	0.094308121	-0.5794	0.573039	-0.260121415	0.150838071	-0.260121415	0.150838071
Increase	-0.005070634	0.101176235	-0.05012	0.960854	-0.225514711	0.215373444	-0.225514711	0.215373444
VC	0.082935303	0.139494315	0.594543	0.563192	-0.2209967	0.386867307	-0.2209967	0.386867307
Marketing	0.49044701	0.229820564	2.134043	0.054163	-0.010288982	0.991183002	-0.010288982	0.991183002
New Market	0.02285867	0.126868411	0.180176	0.860021	-0.253563851	0.299281191	-0.253563851	0.299281191
Software	0.079007989	0.229561346	0.344169	0.736675	-0.421163216	0.579179195	-0.421163216	0.579179195
Networking	0.054274445	0.242017882	0.224258	0.826329	-0.47303722	0.58158611	-0.47303722	0.58158611
1997-1998	0.1322736	0.290879298	0.454737	0.657415	-0.501497946	0.766045145	-0.501497946	0.766045145
1999-2000	0.08360171	0.315765928	0.264758	0.795688	-0.604393144	0.771596564	-0.604393144	0.771596564
2001-2002	0.033880301	0.196199005	0.172683	0.865779	-0.393600607	0.461361209	-0.393600607	0.461361209
2002-2003	0.23057805	0.322693245	0.714543	0.488559	-0.472510132	0.933666231	-0.472510132	0.933666231
2004-2005	0.154676449	0.296537041	0.521609	0.611435	-0.491422259	0.800775157	-0.491422259	0.800775157
2006-2007	0.074256001	0.315016944	0.235721	0.817624	-0.612106956	0.760618959	-0.612106956	0.760618959

Regressions with Years since 1995 and Years since 1995^2

One-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.758729006
R Square	0.575669704
Adjusted R Square	0.310463269
Standard Error	0.239703385
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.247204452	0.124720445	2.170648	0.080585805
Residual	16	0.919323407	0.057457713		
Total	26	2.166527859			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.047087919	0.254808814	-0.184797058	0.85571	-0.58725847	0.493083	-0.58725847	0.493082632
Percentage Premium Paid	0.310922872	0.168744569	1.842565205	0.084001	-0.046799632	0.668645	-0.046799632	0.668645376
Prodev	-0.060279424	0.106123422	-0.568012445	0.577911	-0.285251027	0.164692	-0.285251027	0.164692178
Increase	-0.016233038	0.124020965	-0.130889464	0.897494	-0.279145738	0.24668	-0.279145738	0.246679662
VC	0.1394243	0.177520526	0.785398192	0.443696	-0.236902401	0.515751	-0.236902401	0.515751001
Marketing	0.501887938	0.259935789	1.930815068	0.071422	-0.049151315	1.052927	-0.049151315	1.05292719
New Market	0.153883608	0.128985264	1.193032472	0.250248	-0.119552934	0.42732	-0.119552934	0.427320151
Software	0.153079101	0.177349168	0.863150942	0.400808	-0.222884337	0.529043	-0.222884337	0.529042539
Networking	0.172081732	0.201018732	0.856048239	0.40461	-0.254058941	0.598222	-0.254058941	0.598222404
Years since 95	0.030746435	0.063748385	0.482309242	0.636118	-0.104394104	0.165887	-0.104394104	0.165886975
(Years Since 1995)^2	-0.002962761	0.00436393	-0.678920343	0.506891	-0.01221388	0.006288	-0.01221388	0.006288358

Three-Year Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.836509933
R Square	0.699748867
Adjusted R Square	0.512091909
Standard Error	0.198405261
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.467857509	0.146785751	3.728872487	0.009541707
Residual	16	0.629834359	0.039364647		
Total	26	2.097691869			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.001031926	0.210908198	-0.004892773	0.996156633	-0.44813733	0.446073478	-0.44813733	0.446073478
Percentage Premium Paid	0.355357085	0.139671829	2.544228769	0.021654388	0.059266037	0.651448134	0.059266037	0.651448134
Prodev	-0.067870606	0.087839582	-0.772665399	0.450984349	-0.2540822	0.118340988	-0.2540822	0.118340988
Increase	-0.041207466	0.102653586	-0.401422565	0.69341956	-0.258823344	0.176408413	-0.258823344	0.176408413
VC	0.285301687	0.14693579	1.941675938	0.069997155	-0.02618827	0.596791644	-0.02618827	0.596791644
Marketing	0.478330702	0.215151855	2.223223697	0.040956479	0.022229148	0.934432255	0.022229148	0.934432255
New Market	0.119577935	0.106762593	1.120035883	0.279230235	-0.10674865	0.345904519	-0.10674865	0.345904519
Software	0.290241403	0.146793954	1.977202702	0.065511835	-0.020947876	0.601430683	-0.020947876	0.601430683
Networking	0.298444667	0.166385526	1.793693679	0.09178169	-0.05427689	0.651166223	-0.05427689	0.651166223
Years since 95	0.019971643	0.052765275	0.378499752	0.710034494	-0.091885742	0.131829029	-0.091885742	0.131829029
(Years Since 1995)^2	-0.003463578	0.003612075	-0.958888582	0.351881708	-0.011120836	0.00419368	-0.011120836	0.00419368

Capital Asset Pricing Model Cumulative Abnormal Return Technique

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.829421597
R Square	0.687940186
Adjusted R Square	0.492902802
Standard Error	0.200906993
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.423714556	0.142371	3.527222	0.012277401
Residual	16	0.64581792	0.040364		
Total	26	2.069532476			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.054987209	0.213567583	0.25747	0.800098	-0.397755839	0.50773	-0.397755839	0.507730258
Percentage Premium Paid	0.298795691	0.14143298	2.112631	0.050701	-0.00102883	0.59862	-0.00102883	0.598620213
Prodev	-0.095875124	0.088947169	-1.07789	0.297067	-0.284434699	0.092684	-0.284434699	0.09268445
Increase	-0.021088054	0.103947966	-0.20287	0.841793	-0.241447896	0.199272	-0.241447896	0.199271788
VC	0.195455223	0.148788533	1.313644	0.207492	-0.119962375	0.510873	-0.119962375	0.510872821
Marketing	0.561198279	0.217864749	2.575902	0.02031	0.099345647	1.023051	0.099345647	1.023050911
New Market	0.134272383	0.108108784	1.242012	0.23213	-0.094908	0.363453	-0.094908	0.363452766
Software	0.211952492	0.14864491	1.425898	0.173117	-0.103160637	0.527066	-0.103160637	0.527065622
Networking	0.198347686	0.168483516	1.177253	0.256311	-0.15882141	0.555517	-0.15882141	0.555516781
Years since 95	0.03091475	0.053430603	0.578596	0.570917	-0.082353068	0.144183	-0.082353068	0.144182568
(Years Since 1995)^2	-0.003758	0.003657621	-1.02744	0.319495	-0.011511809	0.003996	-0.011511809	0.00399581

Index Method Cumulative Abnormal Return

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.856207285
R Square	0.733090915
Adjusted R Square	0.566272737
Standard Error	0.158375105
Observations	27

ANOVA

	df	SS	MS	F	Significance F
Regression	10	1.102270781	0.110227	4.394551	0.004347922
Residual	16	0.401322782	0.025083		
Total	26	1.503593563			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.006879499	0.168355456	-0.04086	0.967911	-0.363777119	0.350018	-0.363777119	0.350018121
Percentage Premium Paid	0.318573718	0.111491704	2.857376	0.011406	0.082221866	0.554926	0.082221866	0.554925571
Prodev	-0.079160615	0.070117108	-1.12898	0.275551	-0.227802242	0.069481	-0.227802242	0.069481013
Increase	-0.015199403	0.081942245	-0.18549	0.855176	-0.188909201	0.15851	-0.188909201	0.158510394
VC	0.096864341	0.117290091	0.825853	0.421032	-0.151779543	0.345508	-0.151779543	0.345508225
Marketing	0.432047131	0.171742914	2.515662	0.022939	0.06796842	0.796126	0.06796842	0.796125842
New Market	0.039729443	0.08522222	0.466186	0.647366	-0.140933592	0.220392	-0.140933592	0.220392479
Software	0.141045538	0.117176873	1.203698	0.246214	-0.107358334	0.389449	-0.107358334	0.389449409
Networking	0.103748663	0.132815658	0.781148	0.44612	-0.177807952	0.385305	-0.177807952	0.385305278
Years since 95	0.036240653	0.042119377	0.860427	0.402263	-0.053048437	0.12553	-0.053048437	0.125529743
(Years Since 1995)^2	-0.002804647	0.002883305	-0.97272	0.34517	-0.00891698	0.003308	-0.00891698	0.003307686

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