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The Market's Reaction to Information Systems Outsourcing Announcements

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Introduction

The purpose of this study is to examine the market's reaction to a firm's announcement to outsource a part or all of its information system. Event study methodology is used to examine abnormal market returns associated with such announcements. Chief executive officers (CEOs), as well as chief information officers (CIOs), have a vested interest in the study since the results imply that outsourcing announcements represent an economic value-added activity in the capital markets arena.

Hypothesis Development

Watts & Zimmerman (1986) contend that discretionary disclosure of voluntary information by management leads to greater credibility of such information. However, management's decision to disclose information to the market is influenced by the cost of disclosure (Verrichia 1983) and the firm's market value (Healy and Palepu 1993).

If management believes the firm is undervalued by the market there is an incentive for management to disclose its privately held "good news." The decision to outsource all or a portion of the information system is viewed as "good news" if the decision is a part of the firm's long-term business strategy (Healy and Palepu 1993). By revealing the outsourcing decision management is able to reduce information asymmetry (Diamond 1985), improve risk sharing (Diamond 1985), and provide information about future business strategy at a relatively low cost.

The risk adjustment offered by voluntary disclosure can lead to a higher firm market value. In the past, investors have responded to voluntary "good news" disclosures by increasing the market value of undervalued stock. Based on the aforementioned, the following hypothesis is presented (alternative form):

H: There will be a positive association between the increased market value of a firm and the firm's announcement that it will outsource a part or all of its information system.

Sample Selection

A keyword search was performed using *Lexis-Nexis Academic Universe's (General News Topics) Major Newspapers* and *Wire Service Stories* for firm's

announcing the outsourcing of their information system. The keyword search included combinations of the following terms: "computer" or "information" or "system" with "outsource" and "contract." Duplicate and non-outsourcing announcements were eliminated resulting in an initial sample of 216 outsourcing announcements.

A second search was performed to identify possible contemporaneous confounding announcements. Examples of such announcements include lawsuits, mergers, dividends, or earnings information. The day before, the day of, and the day after the outsourcing announcement were searched using the firm's name as the keyword. Two of the authors independently reviewed potential confounding announcements and agreed (inter-rater reliability of 92%) that 45 announcements needed to be deleted from the initial sample, leaving 171 outsourcing announcements.

From the 171 outsourcing announcements, 93 were deleted because data were unavailable from the University of Chicago's *Center for Research in Security Prices (CRSP)*. This resulted in a final usable sample of 78 outsourcing announcements.

Table 1
Distribution of Announcements over Time
by Media Source

<u>Year</u>	<u>Newspaper Stories</u>	<u>Wire Stories</u>	<u>Total</u>
1990	1	0	1
1991	0	2	2
1992	0	5	5
1993	1	4	5
1994	2	11	13
1995	2	14	16
1996	2	18	20
1997	<u>2</u>	<u>14</u>	<u>16</u>
Total	<u>10</u>	<u>68</u>	<u>78</u>
Media Source:			
Newspaper	13%		
Wire Service		87%	

Table 1 presents the distribution of announcements over time and by media source. While some of the prior financial studies (Beaver 1998) have documented abnormal returns on day -1, these studies used the event date as the day the information was published in the *Wall Street Journal*. Since most (87%) of the outsourcing announcements were obtained from the *Wire Service Stories* (the day before most of the newspapers carried the story), we expect a positive effect on day 0 or day +1, depending upon the time of day the announcement was released.

Research Methodology

To test our hypothesis we measured the abnormal change in market value (i.e., abnormal returns). Abnormal returns were calculated using the following market-adjusted return model:

$$AR_{it} = R_{it} - R_{mt}, \text{ where}$$

AR_{it} = the abnormal return of firm i at time t ,
 R_{it} = the return of firm i at time t ,
 R_{mt} = the value-weighted market return from the CRSP files for time t ,
 t = the days in the event window, -1, 0 and +1.

This model compares the market performance of a specific firm to the market as a whole. The market-adjusted return model was chosen for this study since the sample did not appear to suffer from calendar clustering. Also, the market-adjusted model yields similar or somewhat conservative results when compared to the risk-adjusted market model [Brown and Warner (1980, 1985) and Dyckman et al. (1984)]. An average of the AR_{it} (abnormal return) was calculated for each day in the three-day event window (day -1, day 0, and day +1); t tests were performed to determine whether the average abnormal returns were significantly greater than zero.

Research Results

The results of the tests of the hypothesis are shown in Table 2. As expected, there was not a significant abnormal return on day -1. However, there was a significant positive abnormal return on day +1 ($t=1.4768$, $p\text{-value}=.072$). Two plausible explanations for the significant positive abnormal return on day +1 are provided.

First, recall that only 13% of the announcements were derived from newspaper stories, which are generally released in the morning. The bulk of the announcements (87%) were wire service stories and could have been released at different times throughout the day causing the market reaction to be delayed to day +1.

Second, unlike earnings announcements, which are fairly easy to interpret, outsourcing announcements could be more complex. It could take market participants longer to decipher the expense and cost savings information and to react accordingly.

Table 2
Market Adjusted Abnormal Returns

Event Window	Contract Granting Firms (n = 78)
Day - 1	-0.0010 - 0.3899 (.349)
Day 0	+0.0008 +0.3348 (.369)
Day +1	+0.0035 +1.4768 (.072)

Notes:

- The first line of the table provides the average abnormal return for day t .
- t statistics (p-values) are provided for abnormal returns in each day of the three-day event window.
- Significant t test results indicate that the abnormal returns are significantly greater than zero.

The finding supports the hypothesis that the firm's announcement of the outsourcing of its information system did have a positive effect on the market value of the firm.

Post-hoc analysis was performed to further determine significant factors related to the outsourcing announcement and abnormal returns (See Table 3). Specifically, we examined the date of the outsourcing announcements and the size of the firm.

As outsourcing was relatively new and unknown in the early 1990s, we thought that the market may have reacted differently to later announcements. The presumption was that in later periods the market would be better informed about outsourcing of information systems, and therefore better able to analyze the value of the outsourcing announcement. To test this we divided our sample into two groups. The first group was assigned a zero value and consisted of announcements made in the years 1990-1995. The second group was assigned a value

of one and consisted of 1996-1997 announcements. These dates were arbitrarily selected to approximate two equal groups in terms of sample size. Results show (Model one) an insignificant p-value for the Date_96&97 variable, suggesting consistent treatment of announcements throughout the sample years.

The second variable of interest is the size of the firm. Firm size is represented by the firm's market value divided by the common stock shares outstanding (i.e., market value per share). The results (Model two) indicate that firm size is significant (p-value<.05) and negative. This finding is consistent with prior research (Atiase 1985), suggesting that the outsourcing announcement has a more pronounced effect on smaller firms than larger firms. The size difference is generally attributed to greater information asymmetry existing for smaller firms; thus increasing the value of information released by small firms.

- The estimated parameter coefficient for each variable is shown, followed by the (*t* statistic).
- For all but the intercept, tests are one-sided.
- An analysis of abnormal return plots indicated that the sample distribution was relatively normal. However, in an effort to ensure that regression results were not overly influenced by outlier observations, the regression models were re-analyzed after dropping observations more than three standard deviations from the mean. In no instance were significance levels lower than those reported, and in no instance did a non-significant variable become significant.

All variables and models were tested for parametric assumptions. Results of the tests indicated no significant departures from the assumptions.

Table 3
Post-hoc Regression Analysis Results

Model 1: Abnormal Return = $\alpha_0 + \alpha_1 \text{Date}_{96\&97}$
 Model 2: Abnormal Return = $\alpha_0 + \alpha_2 \text{Firm Size}$

Variable	Expect. Sign	Model One	Model Two
Intercept		0.0051 (1.584)	0.0109** (2.644)
Date_96&97	(+)	-0.0035 (-0.741)	
Firm Size	(-)		-0.0195** (-2.169)
Adjusted R ²		-0.006	0.046
Sample Size		78	78

Notes:

- * p<.10
- ** p<.05
- *** p<.01

- Date_96&97 is a dichotomous variable, with 0 representing event dates that occurred before 1996 and 1 representing event dates that occurred during 1996 and 1997.
- Firm Size is the firm's market value per share.
- The regression models shown above uses day +1 abnormal returns as the dependent variable.

Summary and Conclusions

Empirical evidence indicates that when firms announce that they are outsourcing part or all of their information systems, there is a positive abnormal return to the market value of the firm. Further post-hoc analysis reflects that the abnormal return was greater for smaller firms than for larger firms, as defined by the firm's market value per share.

While precise cognitive explanations were not explored in this article, the signaling hypothesis (Watts and Zimmerman 1986) offers a macro-level explanation for management's incentive to disclose such information. Future studies should delve into the cognitive reasoning of investors regarding this phenomenon.

Overall, the findings suggest that investors not privy to the outsourcing contract recognized that the outsourcing contract represented a value-added exchange for the firms. CEOs and CIOs can benefit from this study, as the findings indicate that outsourcing is perceived as a value-added economic activity by the capital markets.

References

References available upon request from James Hunton.