

A Note On Market Reactions To Relatively Recent ERP Announcements

Benjamin P. Foster, (Email: ben.foster@louisville.edu), University of Louisville
Alan S. Levitan, (Email: levitan@louisville.edu), University of Louisville

ABSTRACT

Prior capital research (Hayes et al., 2001) indicated that the market reacted positively to Enterprise Resource Planning (ERP) implementation announcements from 1990 to 1998. Using more recent data, this study examines whether the market continued to react positively to ERP announcements in light of negative publicity surrounding ERP implementations during 1999. Our evidence is less conclusive than that found by the earlier study, but our data indicate that the market does still react positively to ERP announcements. We conclude that market participants still believed that the expected benefits exceeded the perceived risks associated with ERP implementation of large market share systems. The results of this study should be useful to managers seeking to increase their companies' shareholder wealth.

INTRODUCTION

Launches of Enterprise Resource Planning (ERP) software systems received much negative publicity near the end of the last century, particularly in regard to Hershey Foods in September 1999. Capital market research based on ERP implementations announcements from 1990 to 1998 (Hayes et al. 2001) indicated that the market reacted positively to such announcements. This paper describes the results of a study conducted to examine whether the market continued to react positively to ERP announcements in light of this negative publicity. We analyzed market reactions to ERP implementation announcements from October 1999 through 2004.

We found evidence that the market does still react positively to ERP announcements, but the evidence is less conclusive than that found by the earlier study. The positive market responses appeared limited to announcements of implementation of systems from large market-share ERP vendors. The remainder of this paper is organized as follows. Section II discusses prior literature and the motivation for our study. Section III discusses hypotheses tested while section IV discusses our research methods. Section V discusses our results and section VI contains a summary and our conclusions.

PRIOR LITERATURE AND MOTIVATION

Several studies offered little support for the notion that firm performance is related to information technology (IT) investments (e.g., Barua et al. 1995; Brynjolfsson 1993; Weill 1992). However, specific IT investments can perhaps improve performance. Successful implementation of a comprehensive new computer system can produce great benefits for a company.

For example, as integrated multi-module software, ERP systems can support major business cycles in a standardized environment with seamless flows across organizational boundaries. In addition to their on-line transaction processing (OLTP) core, most ERP systems also include on-line analytical processing (OLAP) with a data warehouse to support management decision making. Accordingly, public announcements of a company's installation of an ERP system have been observed to cause a significant market reaction (Hayes et al., 2001).

However, not all news regarding ERP system investments has been positive. For example, on September 14, 1999, the front page of the *Wall Street Journal* included a story about how serious problems associated with the

implementation of the SAP R/3 ERP at Hershey Foods could cause Hershey to miss earnings expectations by 10 percent (Branch 1999). (SAP AG is the market share leader in ERP software.) Hershey realized it had major problems with the SAP implementation project in July, 1999, which by then was three years old.

Hershey attempted a relatively risky “big-bang” approach of going “live” with multiple new systems to replace many legacy structures. Adding to the complexity of the implementation, the SAP product was combined with customer-relations management and logistics packages from two other vendors. The result was a break-down in order-processing and logistics prior to peak Halloween candy orders, helping to drive third-quarter sales down 12.4% from the previous year (Osterland 2000).

The Hayes et al. (2001) study that found a positive market response to ERP implementation announcements examined from 1990 to 1998. They also found more positive market reactions to implementation announcements relating to large market share ERP system vendors than small vendors. (Hayes et al. included SAP and PeopleSoft as large market share vendors.)

The negative publicity about SAP’s ERP system at Hershey in September 1999 could have changed subsequent market reactions to announcements relating to ERP implementation. Other negative reports concerning ERP implementations appeared following Hershey’s problems.

Total ERP system implementation costs include hardware, software, consulting, and much staff training time--extending up to two years after installation. Reports on ERP implementations have noted high costs, cost overruns, and long implementation times. For example, one Meta Group study found the average ERP implementation to cost \$15 million, ranging from \$300 million down to \$400,000 (Koch 2003). ERP systems impose fundamental changes to business processes that often generate resistance among employees. A Conference Board study (Peterson et al. 2001) reported that companies experienced a gap between the expected benefits from an ERP system and the benefits obtained after implementation.

Some literature noted that ERP system implementation problems prevented some organizations from achieving positive returns on ERP system implementation costs or even recovering those costs (Davenport 1998). Overall, research is mixed on whether companies have earned positive returns on ERP system investments (e.g., Davenport 1998; Wheatley 2000; Hitt et al. 2002; Hunton et al. 2003; Poston and Grabski 2001a, 2001b). Many reasons are mentioned to explain the lack of positive returns from ERP systems.

However, not adopting an ERP system could entail risks. Hunton et al. (2003) found superior return on assets, return on investment, and asset turnover after ERP adoption for 63 firms that adopted ERP systems from 1990 to 1996, compared to a matched set of companies that did not adopt ERP systems. The relatively higher returns for ERP adopters resulted from a decline in the financial performance of companies without ERP systems, rather than an improvement for the adopters.

Nicolau (2004) found similar higher differential returns for a sample of firms that adopted ERP systems from 1990 to 1998, compared to a matched set of companies that did not adopt ERP systems. An interesting finding was that returns for the adopting companies were significantly worse for the 1st and 2nd years after ERP system adoption; the adopting companies experienced higher returns only after the system was fully operational for two years.

Research on ERP system implementations published after the Hershey Foods ERP system debacle led us to question whether the market would still react positively to announcements of ERP system adoptions. Also, Oracle has emerged as a leader in ERP systems since the time period studied by Hayes et al. (2001). They considered only SAP and PeopleSoft as large ERP vendors. Consequently, we extend the research of Hayes et al. (2001) by: (1) examining ERP system announcements from a more recent period: October 1999 through 2004 and (2) by considering Oracle as a large market share ERP vendor.

HYPOTHESES

Hayes et al. (2001) in general found positive responses to ERP implementation announcements in the time frame 1990 to 1998. As a follow-up study, we test the general hypothesis:

H₁: Markets do not exhibit positive reactions to announcements of ERP adoption after September, 1999.

Hayes et al. (2001) found that the response varied with an interaction between the size and health of companies and by the ERP vendor. They found large companies' adoption announcements were associated with positive market reactions, and unhealthy large firms experience larger positive reactions than healthy large firms. Investors evidently believed that the unhealthy firms had more to gain from an ERP adoption than healthy firms. However, Hayes et al. (2001) also found that small healthy firms experience strong positive reactions to announcements while small unhealthy firms experienced negative market reactions. Investors could have viewed ERP adoptions as risky for small unhealthy firms due to high implementation costs. Also, Hunton et al. (2003) found a more positive relative advantage in post-adoption returns for a group of relatively smaller adopting firms. Consequently, we hypothesize:

H_{2a}: Small healthy companies exhibit larger positive reactions to ERP adoption announcements than small unhealthy companies.

H_{2b}: Large unhealthy companies exhibit larger positive reactions to ERP adoption announcements than small unhealthy companies.

Finally, the study by Hayes et al. (2001) found significantly more positive market reaction to announcements related to ERP systems from vendors with large market shares (SAP and PeopleSoft), than to those with small market shares. Nicolaou (2004) found evidence to explain a larger market reaction to large ERP vendors. Companies that adopted ERP systems from SAP and Oracle were able to later produce higher differential accounting income returns than companies adopting ERP systems from small market share vendors. However, since the announcement dates examined by Hayes et al. (2001) and Nicolaou (2004), most of publicized problems surrounding ERP implementation involved larger market share vendors. Consequently, we test the hypothesis:

H₃: Companies experience more positive reaction to implementation announcements of ERP systems from large market share vendors than announcements of ERP systems from small market share vendors.

RESEARCH METHODS

Sample

Following the Hayes et al. (2001) study, we first searched the Lexis-Nexis Academic Universe's (News) Wire Service Reports for the period October 1999 through 2004. We used keyword combinations of "implement," "convert," and "contract" with the names of known ERP vendors: Baan, Epicor, GEAC Smartstream, Great Plains, Hyperion, Intenia International, JBA International, JD Edwards, Lawson, Oracle, PeopleSoft, QAD, SAP, or SSA. We examined the announcements to confirm that the companies indeed planned to implement genuine ERP systems.

PeopleSoft, as its name suggests, was founded in 1987 as a human resource management software company, with some finance functionality. Similarly, Oracle was founded in 1977 and aggressively captured market share in database management systems. They have both expanded into the ERP market. (Oracle acquired PeopleSoft in 2004 following a nasty stockholder battle just one year after PeopleSoft had purchased J.D. Edwards.) In constructing our sample, we included only announcements related to implementation of actual ERP systems. Thus, we excluded many announcements of contracts to acquire some of the more established software products from Oracle and PeopleSoft.

Then, following the methods of Hayes et al. (2001), we sought data for those companies from the University of Chicago's Center for Research in Security Prices (CRSP) database, as well as the Compustat database, eliminating those organizations that were not publicly traded and included in the databases.

Table 1: Sample Demographics
Panel A: Sample Size

Initial Newswire stories	6,594
Less: Announcements for non-business entities, duplicate announcements, non-ERP announcements, and missing CUSIP numbers	6,312
Less: Announcements with confounding events	39
Less: CRSP or Compustat data missing	156
Full Sample Size for H1 and H3	87
Less: Missing Compustat Z-score	8
Reduced Sample Size for H2	<u>79</u>

Panel B: Number of Announcements per ERP Product by SIC code of Adopter

<u>Vendor</u>	<u>1000s</u>	<u>2000s</u>	<u>3000s</u>	<u>4000s</u>	<u>5000s</u>	<u>6000s</u>	<u>7000s</u>	<u>Total</u>
BRIO	0	0	0	0	1	0	0	1
Hudson	0	0	1	0	0	0	0	1
Intentia	0	0	2	0	0	0	0	2
Iteration2	0	0	1	0	0	0	0	1
JDE	1	0	1	0	0	1	0	3
LAWSON	0	0	0	3	6	0	3	12
Oracle	0	2	12	4	2	0	7	27
PeopleSoft	0	0	0	0	0	0	2	2
SAP	<u>1</u>	<u>12</u>	<u>16</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>6</u>	<u>38</u>
Total	<u>2</u>	<u>14</u>	<u>33</u>	<u>8</u>	<u>9</u>	<u>3</u>	<u>18</u>	<u>87</u>

Panel C: Number of ERP Products by Size and Health of Adopter

<u>Vendor</u>	<u>Size Large</u>	<u>Small</u>	<u>Financial Healthy</u>	<u>Health^a Unhealthy</u>
BRIO	1	0	0	0
Hudson	0	1	0	1
Intentia	1	1	2	0
Iteration2	0	1	1	0
JDE	3	0	1	1
LAWSON	3	9	8	4
Oracle	15	12	17	9
PeopleSoft	1	1	0	0
SAP	<u>20</u>	<u>18</u>	<u>16</u>	<u>19</u>
Total	<u>44</u>	<u>43</u>	<u>45</u>	<u>34</u>

^aBecause not all firms had necessary data available on Compustat for measuring their Z-Score, the sample size is reduced by eight observations to n = 79.

Market Model

We used the same event-study methodology as Hayes et al. (2001) to test hypotheses based on abnormal market returns over the event windows studied. We used Eventus® software from Cowan Research, L.C. (Cowan 2001), to extract each company's SIC code, and stock return data from the University of Chicago's Center for Research in Security Prices (CRSP) data set. Eventus® (Cowan 2002, 75-76) calculated abnormal returns based on the market model used by Hayes et al. (2001):

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$$

where:

R_{it} = the rate of return for firm i at day t ,

R_{mt} = the market rate of return from the CRSP index at time t ,

α and β = the market model parameters for firm i , and
 ϵ_{it} = the random error term.

Following the Hayes et al. (2001) study, we specified a 200 day trading period from 259 to 60 days prior to the announcement to develop a return estimation model for each company. Eventus® computes abnormal returns, cumulative abnormal returns (CAR), standardized abnormal returns, and standardized cumulative abnormal returns to (SCAR) for each observation during the event windows requested. We requested tests for three event windows around the announcement date: a two-day event window (0,+1), a three day event window (-1,+1), and a five day event window (-1,+3).

We used the same test statistic as Hayes et al. (2001, 11), (Z) which is the sum of the SCARs for each company (i) divided by the square root of the number of companies:

$$Z = \sum \text{SCAR}_i / \sqrt{N}, \text{ where } Z \text{ is } N(0,1).$$

Procedures for Testing Hypotheses

Hypothesis 1 was tested by determining whether the SCARs associated with the market windows significantly differed from zero (measured by the Z statistic). To test Hypotheses 2a and 2b, like Hayes et al. (2001), we divided the sample into large and small companies based on the median of total assets and considered companies with Z -scores > 2.99 as healthy, and Z -scores ≤ 2.99 as unhealthy. We use ANOVA models with SCAR as the dependent variable and company size and company health as independent variables. Support for Hypotheses 2a and 2b would require a significant interaction and between company size and financial health.

To test Hypothesis 3, Hayes et al. (2001) divided their sample into large market share and small market share ERP vendors. They considered SAP and PeopleSoft as large market share systems. Nicolaou (2004) tested for improved returns after ERP adoption by vendor market size as well. They considered SAP and Oracle as the only two large vendors. Consequently, we examined this hypothesis in one instance, following the Hayes et al. (2001) classification of SAP and PeopleSoft as large vendors, and again with Oracle included as a large market share vendor.

RESULTS

The overall market reaction to ERP announcements is tested for H_1 . Hayes et al. (2001) found significant abnormal returns associated with all three event windows tested. As discussed later, our results vary somewhat between the three event windows. Consequently we report results for all three windows: (0,1), (-1,1), and (-1,3).

Table 2 below presents some descriptive statistics for the sample of ERP announcements after September 1999 through December 31, 2004. The mean cumulative abnormal return (CAR) and standardized cumulative abnormal returns (SCAR) for the (0,1) window were positive and similar in size to those reported by Hayes et al. (2001), that included data from January 1, 1990 through December 31, 1998. However, the reported median for SCAR is negative in our study while positive in the Hayes et al. study. Table 2 also reports descriptive statistics for SCARs for windows (-1,1) and (-1, 3). The SCAR for window (-1,1) is similar to Hayes et al.'s statistics reported for their (0,1) window. The means and medians for Total Assets and Z -score of our sample are similar to those reported by Hayes et al., indicating a relatively healthy sample of companies. Our sample does exhibit wider ranges of CAR, SCAR, Total Assets, and Z -Score, with lower minima and higher maxima.

Table 3 presents risk-adjusted abnormal returns in the event windows. Panel A shows that, even with post-September 1999 data, mean abnormal returns were positive for days 0 through +3. However, the day -1 mean abnormal return was negative. As Hayes et al. (2001) found with pre-1999 market data, the SCAR results for the two-day and three-day event windows in Panel B indicate a moderately significant ($Z = 1.410$, $p \leq 0.08$, and $Z = 1.911$, $p \leq 0.03$, respectively) market reaction around the ERP announcement. In contrast, the SCAR for the five-day window is not significantly greater than zero. The mixed results do not offer enough support to reject H_1 , that market reaction to announcements of ERP adoption after September, 1999 would not be positive.

TABLE 2: Descriptive Statistics for the Event Windows, Total Assets, and Z-Score

<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>Median</u>	<u>Std Dev</u>	<u>Minimum</u>	<u>Maximum</u>
CAR (0,+1)	87	0.007	0.001	0.066	-0.277	0.194
SCAR (0,+1)	87	0.151	-0.051	1.221	-2.642	6.293
SCAR (-1,+1)	87	0.205	0.027	1.269	-3.231	6.317
SCAR (-1,+3)	87	0.115	-0.063	1.078	-2.477	4.544
Total Assets*	87	16,687.8	1,162.18	83,590.39	8.055	755089.2
Z-Score*	79	7.948	3.625	14.186	-1.86	88.201

* Total Assets represents dollars in millions. Both total assets and Z-score are for the FYE before event date.

CAR = Cumulative Abnormal Return SCAR = Standardized Cumulative Abnormal Return for specific event period.

TABLE 3: Risk-Adjusted Abnormal Returns (Full Sample, n = 87)

Panel A: Event Window Mean Abnormal Returns (MAR)

<u>Event Day</u>	<u>Mean Abnormal Returns</u>	<u>Companies with positive MARs</u>
Day -1	-0.0035	41
Day 0	0.0024	41
Day +1	0.0042	47
Day +2	0.0016	41
Day +3	0.0014	41

Panel B: Standardized Cumulative Abnormal Returns (SCAR) (H_1)

	<u>Σ SCAR</u>	<u>Z-Statistic</u>	<u>p-value¹</u>
(0,+1) window	13.16	1.410	0.079
(-1,+1) window	17.83	1.911	0.028
(-1,+3) window	9.99	1.071	0.157

¹One-sided p-value for the test of whether SCAR is greater than 0.

H_{2a} and H_{2b} addressed market reaction by company size and financial health. Table 4, Panel A displays the mean and standard deviation of SCARs for companies separated by size and health for the three event windows. In these 2 (large/small) X 2 (healthy/unhealthy) ANOVA designs, we see that all four cells experienced slightly positive market reactions for the two-day and three-day event windows. The small/healthy and large/unhealthy cells were slightly negative for the five-day window. Panels B, C, and D report the ANOVA results for the three event windows. No variables included in the models (Size, Health, or Size*Health) are significant in any event window.

Also, no Bonferroni mean planned pairwise comparison tests were near significance for any comparison for any event window. Consequently, H_{2a} is not supported; particularly, small unhealthy companies experienced a greater positive reaction than small healthy companies in all event windows. H_{2b} is not supported either. These results differ from Hayes et al.'s (2001) results where healthy small firms showed a positive reaction to announcements while unhealthy small announcers experienced a negative reaction.

H_3 tests whether the market reaction to implementation announcements differs by ERP vendor. Thus, we next segmented the data by ERP system vendor. Table 5, Panel A reports the market reactions to announcements related to SAP, PeopleSoft, and Oracle as a group, and all other vendors as a group, for the three windows. We considered SAP, PeopleSoft, and Oracle to be large market share ERP vendors. The market reacted quite positively ($Z = 1.90, 2.205, \text{ and } 1.363$ for the two-day, three-day, and five-day event windows, respectively) to announcements involving those big three vendors. In contrast, the market reaction to announcements of small-share ERP vendors was quite insignificant for all three event windows and even slightly negative for two windows.

To compare our results more directly with the Hayes et al. (2001) results, Table 5, Panel B presents results when only SAP and PeopleSoft are considered large market share vendors and all other systems, including Oracle, are considered small market share vendors. Again, we found relatively large positive reactions to implementation announcements of the large market share vendors, SAP and PeopleSoft ($Z = 1.714, 1.742, \text{ and } 0.95$ for the two-day, three-day, and

five-day event windows, respectively). When Oracle is included with the small market vendors, the average SCAR is now positive, but still insignificant. Also note that the SCAR for the large vendors (SAP and PeopleSoft) becomes less significant.

TABLE 4: Interaction between Firm Size and Health (Reduced Sample, n = 79)^a

Panel A: Mean [Standard Deviation] SCAR Statistics and Cell Sizes

<u>TA Zgroup</u>	<u>N</u>	<u>Variable</u>	<u>Mean</u>	<u>Std Dev</u>
small/unhealthy	15	SCAR (0,+1)	0.049	1.115
small/unhealthy	15	SCAR (-1,+1)	0.404	1.000
small/unhealthy	15	SCAR (-1,+3)	0.287	0.910
small/healthy	27	SCAR (0,+1)	0.003	1.582
small/healthy	27	SCAR (-1,+1)	0.007	1.588
small/healthy	27	SCAR (-1,+3)	-0.074	1.260
large/unhealthy	19	SCAR (0,+1)	0.126	1.020
large/unhealthy	19	SCAR (-1,+1)	0.868	0.999
large/unhealthy	19	SCAR (-1,+3)	-0.055	0.963
large/healthy	18	SCAR (0,+1)	0.394	1.157
large/healthy	18	SCAR (-1,+1)	0.494	1.313
large/healthy	18	SCAR (-1,+3)	0.345	1.103

Panel B: ANOVA Model with SCAR (0,+1) as the Dependent Variable (H₂)^b

<u>Independent Variable</u>	<u>F-Value</u>	<u>df</u>	<u>p-value</u>	<u>R²</u>
Firm Size	0.67	1	0.416	0.014
Firm Health	0.13	1	0.718	
Firm Size * Firm Health	0.28	1	0.600	

Panel C: ANOVA Model with SCAR (-1,+1) as the Dependent Variable (H₂)^b

<u>Independent Variable</u>	<u>F-Value</u>	<u>df</u>	<u>p-value</u>	<u>R²</u>
Firm Size	0.21	1	0.647	0.026
Firm Health	0.00	1	0.999	
Firm Size * Firm Health	1.77	1	0.188	

Panel D: ANOVA Model with SCAR (-1,+3) as the Dependent Variable (H₂)^b

<u>Independent Variable</u>	<u>F-Value</u>	<u>df</u>	<u>p-value</u>	<u>R²</u>
Firm Size	0.12	1	0.734	0.031
Firm Health	0.00	1	0.965	
Firm Size * Firm Health	2.27	1	0.136	

^a Because not all firms had necessary data available on Compustat for measuring their Z-Score, the sample size is reduced by eight observations to n = 79.

^b Heteroskedasticity is a concern with ANOVA, particularly with uneven cell sizes. Thus, the standard test for heteroskedasticity in the Statistic Analysis System was conducted on the ANOVA model. Test results indicated no problems with heteroskedasticity.

TABLE 5: Market Reaction to ERP System, Standardized Cumulative Abnormal Return (SCAR) by Market Share (Full Sample, n = 87)

Panel A: SAP, PeopleSoft, and Oracle vs. the Others			
	<u>SCAR (0,1)</u>	<u>Z-Statistic</u>	****Ck for 1-sided test <u>p-value^a</u>
SAP, PeopleSoft, and Oracle (n= 68)	15.670	1.900	0.03
Other software (n= 19)	-2.686	-0.616	0.77
	<u>SCAR (-1,1)</u>	<u>Z-Statistic</u>	<u>p-value^a</u>
SAP, PeopleSoft, and Oracle (n= 68)	18.184	2.205	0.01
Other software (n= 19)	0.351	0.081	0.47
	<u>SCAR (-1,3)</u>	<u>Z-Statistic</u>	<u>p-value^a</u>
SAP, PeopleSoft, and Oracle (n= 68)	11.238	1.363	0.09
Other software (n= 19)	-1.247	-0.286	0.61
Panel B: SAP and PeopleSoft vs. the Others			
	<u>SCAR (0,1)</u>	<u>Z-Statistic</u>	<u>p-value^a</u>
SAP and PeopleSoft (n= 41)	10.974	1.714	0.04
Other software (n= 46)	2.187	0.322	0.37
	<u>SCAR (-1,1)</u>	<u>Z-Statistic</u>	<u>p-value^a</u>
SAP and PeopleSoft (n= 41)	11.151	1.742	0.04
Other software (n= 46)	6.682	0.985	0.16
	<u>SCAR (-1,3)</u>	<u>Z-Statistic</u>	<u>p-value^a</u>
SAP and PeopleSoft (n= 41)	6.308	0.985	0.16
Other software (n= 46)	3.683	0.543	0.29

^aOne-sided p-value for the test of whether SCAR is significantly greater than 0.

Tests of H_3 , also involved t-tests on the means of the SCAR for the different ERP groups of large versus small market share ERP vendors for each return window. Unlike the results for Hayes et al. (2001), the means for the large and small ERP groups in our sample did not differ significantly for any event window.

Our results provide weak evidence that announcements involving large market share ERP systems produce positive market reactions while announcements involving small market share ERP systems do not. We cannot accept H_3 based on t-tests of difference between the mean SCAR for the large and small market share vendors. Perhaps, the negative publicity involving large vendor ERP implementations reduced the enthusiasm for large market share ERP vendors.

SUMMARY AND CONCLUSIONS

This study examined the market reaction to announcements that indicated a company was implementing an ERP system subsequent to reports of difficulties experienced by other companies during ERP system implementation and the high cost of ERP implementation. Over time, the market might not react at all to ERP announcements or even react negatively. Accordingly, we analyzed more recent data (announcements from October 1999 through 2004) using the same methods used earlier by Hayes et al. (2001).

Like Hayes et al. (2001), we found a moderately significant positive market reaction to ERP announcements for the two-day and three-day event window, but unlike their results, the reaction for our five-day event windows was insignificant. Also contrary to Hayes et al. (2001), we found no significant interactions between the size and financial health of the adopting companies.

Hayes et al. (2001) defined large ERP vendors as SAP and PeopleSoft. Because of the number of implementation announcements and market reaction to announcements, our results show that Oracle should be considered a large market share vendor. Like Hayes et al. (2001), we found a significant positive reaction to announcements related to ERP systems from large market share vendors, but no significant reaction to announcements related to ERP systems from small market share vendors.

However, tests for differences between means revealed no significant difference between the market reactions based on ERP vendor size. We speculate that the market reaction to announcements may have been somewhat muted due to the negative publicity surrounding implementation of large market share ERP software or because ERP systems were becoming more commonly used in general.

We conclude that, through 2004, market participants still believed that risks associated with ERP implementation of large market share systems were exceeded by their expected benefits. Thus, investors still perceive ERP installations to be positive for a company's future relative profitability. However, the evidence is somewhat weak. Managers seeking to increase their companies' shareholder wealth should find the results of this study useful.

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NOTES