

An Analysis of the Acquisition and Disposition of Real Estate Assets

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Abstract. This research studies the acquisition and disposition of real estate assets by non-real estate firms from 1981 through 1986. Contrary to previous studies of real estate assets, we find no abnormal performance associated with the buyers of real estate assets and only weak evidence of excess returns for sellers. When combining our results with previous work, we conclude that real estate assets themselves offer the market no unique opportunity to earn excess return. However, it appears that selected organizational forms may be preferred for managing some real estate assets. Thus, when the acquisition or disposition of a realty asset has no change in the management structure of the assets, as in this study, no excess return is found. Our study is limited by the relatively small number of sellers available for analysis.

This study uses capital market data to analyze the effects of the acquisition and disposition of real estate (and related) assets on firm value for the period of 1981–1986. Contrary to previous studies, there is no abnormal performance associated with the purchase or disposition of a real estate asset. We define asset to mean both a specific asset (such as a building) or a set of operating assets (such as a brokerage business).

Introduction

The acquisition or disposition of corporate assets can affect shareholder wealth. A firm that is attempting to maximize shareholder wealth will undertake the purchase of another firm (or part of a firm) as long as the investment is expected to have a zero or positive net present value. Empirical results suggest that the net present value for successful bidders is zero. Dodd [3], Asquith [2] and Eckbo [5] find that firms do not experience large positive gains from corporate takeovers, and Jensen and Ruback [8] report no gain in voluntary mergers. However, researchers agree that targets experience large positive gains. This evidence is consistent with competitive markets where the gain is captured by the current asset owner and the bidder earns only a fair return (i.e., the investments have zero net present values).

However, the results are different for real estate firms. Allen and Sirmans [1], Hite, Owers and Rogers [7], and Owers and Rogers [13] report positive gains to both buyers

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and sellers in some real estate mergers. Their evidence is different from the traditional finance literature which finds gains to sellers but no gains to buyers.

Real estate assets and firms may be unique because of tax advantages or institutional arrangements. Palmon and Seidler [14] believe that investors may undervalue firms with significant real estate assets because current (and past) accounting practices understate real estate values. Hite, Owers and Rogers [7] indicate that there may be contractual gains when non-real estate firms spin off their realty assets. The notion of organizational advantage is also supported by Rutherford and Nourse [15] who find positive gains for firms who form a corporate real estate unit. They find large gains for both publically traded subsidiaries and master limited partnerships. Thus, it is argued that separation allows more efficient monitoring and effective incentives. REITs may have both organizational gains as well as tax advantages.

In terms of organization gains, Solt and Miller [17] indicate that fees and financial performance are associated for REITs. In their study of thirty-eight REITs from 1972 to 1981, they suggest equity REIT investors face asymmetric information and thus pay fees to induce managers to make suitable decisions. Their results indicate fees paid and REIT financial performance are positively associated. Additionally they conclude that fee structures respond to environment change and thus better align management and equityholder outcomes. Owers and Rogers [13] argue for the possibility of tax-related benefits and provide an example of a sell-off that is directly related to a REIT attempting to get tax benefits.

We examine the acquisition and disposition of real estate assets for the period 1981–1986. Using event-time methodology, we find no excess returns for acquisitions and only weak positive returns for dispositions. These results are in agreement with the more general finance literature, but are in disagreement with recent results regarding real estate assets.

Data and Methodology

Data

The list of real estate-related acquisitions and divestitures was obtained directly from the W. T. Grimm Company (the publisher of *Mergerstat*) for the period 1981–1986. There are 180 real estate transactions reported by Grimm. Exhibit 1 shows the data by year of transaction. For this analysis, the sample is limited to the 70 acquisitions transactions and 9 divestiture transactions that have complete stock return data on the CRSP tapes.

Exhibit 1
Acquisition Activity by Year

Year	1981	1982	1983	1984	1985	1986	Total
Transactions	31	30	28	27	44	20	180
Divesting	—	—	—	—	3	6	9
Acquiring	7	13	14	6	25	5	70

Methodology

We estimated expected returns using the market model. The basic event-time methodology is explained more completely in the appendix to Dodd and Warner [4] and in Hite and Owers [6], but is summarized below. We also modify the Dodd-Warner Technique to adjust for serial correlation in the prediction errors for test intervals longer than one day. For security j , we used the market model to calculate the excess return, or prediction error (PE_{jt}) for event day t as follows:

$$PE_{jt} = R_{jt} - (a_j + \beta_j R_{mt}) \quad (1)$$

where R_{jt} is the rate of return on security j for day t , and R_{mt} is the return on the CRSP value-weighted index on day t . The coefficients a_j and β_j are ordinary least squares estimates of the intercept and slope, respectively, from a market model regression obtained over days -290 to -91 .

We calculated prediction errors over the interval $t = -90$ days prior to the announcement to $t = +90$ after the announcement for each firm. The cumulative prediction error (CPE) from day T_1 to day T_2 is:

$$CPE_j = \sum_{t=T_1}^{T_2} PE_{jt} \quad (2)$$

The accumulation is performed over various intervals. For a sample of N securities, the mean cumulative prediction error is defined as:

$$MCPE = \frac{1}{N} \sum_{j=1}^N CPE_j \quad (3)$$

The expected value of the CPE is zero in the absence of abnormal performance. The test-statistic is based on an aggregation of mean standardized cumulative prediction errors ($MCPE$). The Z -statistic for the $MCPE$ is:

$$Z = \frac{1}{\sqrt{n}} \sum_{j=1}^N \left[\frac{1}{\sqrt{T_2 - T_1 + 1}} \sum_{t=T_1}^{T_2} PE_{jt} / \sqrt{\text{var} \sum_{t=T_1}^{T_2} PE_{jt}} \right], \quad (4)$$

where T_1 is the first day of the interval and T_2 is the last day of the interval and the denominator is the square root of the variance of the cumulative prediction errors of firm j . For intervals longer than one day, this procedure adjusts for serial correlation in the prediction errors. Karafiath and Spencer [9] show that the Dodd-Warner test-statistic is biased for multiple-day intervals: the bias increases with the length of the interval. Thus, we correct all multiple-day test-statistics as suggested in Karafiath and Spencer and in Mikkelson and Partch [12]. Our test-statistics are smaller than would be cited if we did not make the serial correlation correction. The variance is defined to be:

$$\text{Var}\left(\sum_{t=T_1}^{T_2} PE_{jt}\right) = \sigma_j^2 \left[T + \frac{T^2}{ED} + \frac{\sum_{t=T_1}^{T_2} (R_{mt} - T\bar{R}_m)^2}{\sum_{t=-290}^{-91} (R_{mt} - \bar{R}_m)^2} \right] \quad (5)$$

The σ_j is the standard deviation of the regression, T is the number of days in the interval and equals $T_2 - T_1 + 1$, ED is the number of days in the estimation period for the market model, R_{mt} is the market return on day t , and \bar{R}_m is the mean market return during the estimation period.

The test-statistic for a sample of N securities is:

$$Z = \sum_{j=1}^N MSCPE_j \div \sqrt{N}. \quad (6)$$

Each $MCPE_j$ is assumed to be distributed unit normal in the absence of abnormal performance. Under this assumption, Z is also unit normal. Because the weights used in calculating the $MSCPE$ -statistic are the inverse of the standard deviation of the cumulative prediction errors, the Z -statistic can differ in sign from the average prediction error (since returns of securities with lower variance are given greater weight).

Previous Evidence and Expectations

Recent evidence in the real estate area suggests that realty assets and firms may be different from non-real estate firm assets for tax and organizational reasons. These differences may allow abnormal performance to be associated with corporate restructuring activities that would not normally yield such gains. In general, research on non-real estate assets indicates that sellers earn positive abnormal returns and buyers earn zero abnormal returns. This outcome is consistent with a competitive market solution (once the value of an asset is known, the current owner captures the increased (decreased) value).

Hite, Owers and Rogers [7] examined thirty-three real estate spin-offs and found statistically positive returns of about 6% for day -1 and 0 . These are larger than the gains reported by Hite and Owers [6] and Schipper and Smith [16] for corporate spin-offs. Ower and Rogers [13] reported positive abnormal returns for both buyers and sellers (fifty-five sellers and sixteen buyers) for sell-off transactions. Allen and Sirmans [1] found abnormal returns for thirty-eight acquiring firms. Their samples included only REITs buying REITs. Rutherford and Nourse [15], while not examining acquisitions or dispositions, find positive returns for the formation of a corporate real estate unit. Thus they also add evidence that real estate units (or assets) may be unique.

Authors who have examined realty asset have concluded that the unique nature of the realty market has allowed both the buyer and seller to share the gain. One exception is McIntosh, Officer and Born [11] who only examine REIT targets and find positive abnormal returns. Their evidence is consistent with traditional finance results. In essence

there is more of a bilateral monopoly solution rather than a competitive market solution. This seems particularly to be the argument of Allen and Sirmans. Since organizing into a REIT to buy a particular asset is costly, there are gains to current REITs in acquisition of those assets. Since we are primarily examining non-real estate firms who buy or sell realty assets (including real estate divisions), we expect results more compatible with the traditional finance research where gains occur only for sellers. At first this may seem contrary to Hite and Owers since they found the largest gain for the non-real estate firm who spins off a realty asset. However, we are examining sell-offs where the current stockholders maintain no ownership in the sold assets. Thus we expect a traditional finance outcome.

Event Study Results

Our results differ from both Allen and Sirmans [1] and Hite, Owers and Rogers [7]. They are more closely aligned with the general corporate research on merger activity. We find no statistical abnormal return behavior associated with the announcement of acquisition of real estate assets and only weak evidence of positive returns for dispositions.

The results are not sensitive to the testing procedure chosen. While all results are from the Dodd-Warner procedure with adjustment for serial correlation in the prediction errors, all tests are also performed with a time-series variance from the parameter estimation period and with a mean return model similar to that used by Allen and Sirmans. We also estimate abnormal returns using a post-estimation period (i.e., days +91 to +290) and find no qualitative difference in the outcomes.

Divestitures

Exhibit 2 shows the summary statistics for a sample of divestitures of real estate assets. These firms have no abnormal return behavior associated with specific dates around the disposition. There is no apparent price behavior for any interval around the event except for days -5 to -1. While only day -3 has a statistically significant positive return, the whole interval days -5 to -1 show a positive return of 3.41% that is statistically significant ($Z=2.61$). Days 0 and 1 have non-significant negative returns. The day -3 return appears to be firm specific. Six of the firms have positive returns on day -3, but the primary result is from one firm who has one-day return of 4.4% ($Z=3.19$). Thus we attribute the day -3 return to one firm and do not believe that it is representative of the sample.

The firm in question is Avon who bought Retirement Inns of America. The announcement for this transaction was carried by the *Wall Street Journal* (*WSJ*) giving us confidence that the day -3 return is not an event day misclassification. There was no *WSJ* information on days -5 through -2 for Avon. Without Avon, the test-statistic is not significant for day -3.

There may be a lack of precision in the event date selection since most of the announcements are not carried by the *WSJ*. However we examined the *WSJ* for announcements of other information that might contaminate the event and found none.

Exhibit 2
Mean Cumulative Prediction Errors and Test-Statistics for Various
Intervals Around the Announcement of a Divestiture for Agency
Reported Event Date $n=9$

Interval Day(s)	<i>MCPE</i>	<i>Z</i>
-90 -11	-0.0529	-0.07
-10 -02	0.0419	1.98
-10 -10	0.0186	1.02
-09 -09	-0.0003	-0.44
-08 -08	0.0138	2.21
-07 -07	0.0038	0.77
-06 -06	-0.0164	-2.67
-05 -05	-0.0002	0.09
-04 -04	0.0042	1.10
-03 -03	0.0140	2.51
-02 -02	0.0041	1.38
-01 -01	0.0116	0.75
0 -0	-0.0069	-0.68
01 01	0.0078	0.33
02 02	0.0115	0.02
03 03	0.0026	1.76
04 04	0.0024	0.42
05 05	0.0112	1.46
06 06	0.0064	2.37
07 07	0.0005	-0.29
08 08	0.0018	-0.03
09 09	-0.0140	-2.26
10 10	0.0134	1.71
2 10	0.0357	1.69
11 90	-0.0255	-0.27

In general, firms who divest real estate assets and units show no abnormal gains. However, we place limited confidence in these results because of the small size of the sample.

Acquisitions

Exhibit 3 shows the results for return behavior around the agency announcement date, the *WSJ* and agency date (agency when no *WSJ* date is available) and the *WSJ* only date. There are seventy-two transactions for the acquisition sample giving us confidence about the results.

There are three key outcomes. First, both day -1 and day 0 returns are negative, but not significant. The interval days -1 to day +3 is consistently negative, but also not statistically significant (the test-statistic is -1.78 for the interval days -1 to day 3). Thus, the nominal effect associated with the announcement of an acquisition in this

Exhibit 3
Mean Cumulative Prediction Errors and Test-Statistics for Various
Intervals Around the Announcement of An Acquisition

Event Date Interval Day(s)	Agency		Agency/WSJ ^a		WSJ only	
	n=72		n=72		n=19	
	MCPE	Z	MCPE	Z	MCPE	Z
-90 -11	-0.0588	-2.340	-0.0536	-2.238	-0.0579	-1.713
-10 -02	0.0023	-0.086	0.0047	0.056	-0.0075	-0.374
-10 -10	-0.0015	-1.218	-0.0013	-1.230	-0.0057	-1.103
-09 -09	0.0035	0.895	0.0009	-0.201	-0.0025	-0.631
-08 -08	0.0067	1.865	0.0054	1.310	-0.0069	-1.981
-07 -07	0.0028	0.739	0.0015	0.074	0.0049	0.583
-06 -06	-0.0036	-1.146	-0.0036	-1.163	-0.0016	0.065
-05 -05	-0.0016	-0.262	0.0027	1.097	0.0041	1.038
-04 -04	-0.0023	-1.718	-0.0036	-1.753	-0.0011	-0.131
-03 -03	-0.0038	-1.220	-0.0004	0.126	0.0037	1.260
-02 -02	0.0021	1.834	0.0032	1.953	-0.0025	-0.207
-01 -01	0.0010	-0.328	0.0009	-0.088	0.0055	0.961
0 0	0.0004	-0.270	-0.0005	-0.563	-0.0032	-0.198
01 01	-0.0006	-0.626	0.0019	0.298	0.0073	0.716
02 02	-0.0016	-0.985	-0.0034	-1.503	-0.0041	-1.170
03 03	-0.0018	-0.646	-0.0023	-0.629	-0.0059	-1.197
04 04	0.0010	0.306	-0.0004	0.007	-0.0023	0.329
05 05	0.0000	0.910	0.0019	1.535	0.0066	1.855
06 06	-0.0070	-2.451	-0.0022	-0.824	0.0078	1.952
07 07	0.0031	0.975	-0.0015	-0.182	-0.0038	-0.834
08 08	0.0015	1.489	0.0035	2.413	0.0055	1.157
09 09	-0.0009	-0.523	-0.0011	-0.697	0.0002	0.052
10 10	0.0014	0.354	-0.0008	-0.184	0.0027	0.417
02 10	-0.0043	-0.180	-0.0064	-0.015	0.0066	0.837
11 90	-0.0164	-0.440	-0.0127	-0.396	-0.0158	-0.052

^aThe agency date is used when there is no WSJ date.

sample is negative. This does not agree with the result of Owers and Rogers who found statistically positive returns.

Second, day -2 shows a statistically significant positive return ($Z=1.83$). However, we do not find this positive return to be representative of the whole sample. There are thirty-five firms who have positive returns and thirty-seven with negative returns on day -2. Thus, the proportion is not different from 50%. Additionally, two firms have large positive returns on day -2. Their average one-day return exceeds 5% (Z s of 4.10 and 4.23, respectively). To determine the effect of these outliers, we retest the sample deleting those two firms. The day -2 MCPE is 0.0007 with Z of 0.86 of the sample without the two outliers. For this sample, there are thirty-five firms with positive and thirty-five with negative returns. Thus we conclude that the positive day -2 returns is not associated with the acquisition event for the sample as a whole.

Third, clustering is a potential problem in this study; 32% of the acquisitions are purchases by Merrill Lynch. We test for excess return with a sample that excludes the Merrill Lynch transactions. The results are not different from the whole sample. There is no abnormal return around the acquisition announcement (for days -1 and 0 , the *MCPEs* (*zs*) are 0.0030 (0.45) and 0.0011 (-0.12), respectively).

Exhibit 3 also shows the results for the agency/*WSJ* sample. In this sample, the *WSJ* is used when available and the agency date otherwise. The results agree with the agency sample. While there are a limited number of firms with *WSJ* dates, their results compliment the overall sample results. Seventeen of the nineteen *WSJ* announcements occurred after the agency date. In many instances, the *WSJ* reported that the deal was approved rather than proposed. To test for potential activity between the agency date and the *WSJ* date, we accumulate prediction errors from agency day 0 through *WSJ* day 0 (as well as other intervals). The *MCPE* is -0.0001 with *Z* of -0.23 .

Analysis

The results are different from those of Allen and Sirmans, Hite, Owers and Rogers, and Owers and Rogers. We find no statistically significant return behavior immediately around the announcement of an acquisition and only weak evidence of positive returns for divestiture. Our results appear to be different because of the organizational nature of the assets. In prior studies, the restructuring resulted in organizational advantages (i.e., REITs buying REITs or the spinning off of a real estate unit to allow separate management) that appear to not be available for the assets that we study.

Previous research in real estate finds positive returns to both acquisition and divestiture of real estate assets. The explanation is that real estate is a unique asset that has tax benefits and that real estate firms (primarily REITs) have organizational advantages. Allen and Sirmans examine the purchase of REITs by other REITs. As Allen and Sirmans discuss, there are special reasons to expect positive returns from such an activity. Hite, Owers and Rogers examine real estate spin-offs and find positive returns, especially for those spin-offs of real estate assets from non-real estate firms. Owers and Rogers study real estate sell-offs and find positive returns for both buyers and sellers. They offer the general explanation of tax and organization structure, but perform no tests to determine the source of the gain.

Our results of no gain to the sellers agrees with previous financial research (and the results of McIntosh, Officer and Born) for corporate assets. The difference between our results and Allen and Sirmans, Hite, Owers and Rogers and Owers and Rogers is likely sample composition. We study primarily non-real estate firms buying and selling real estate assets, while they study more closely related real estate firms. Additionally our study is limited in its confidence about the acquisition results since the study included only nine acquisitions.

In each study where excess returns is found for the acquiring firm, each author provides a description of the unique nature of the transaction. Hite and Owers and Rogers examine non-real estate firms that spun off real estate units. The hypothesis is that such a restructuring improves the agency relationship among various stakeholders and thus increases firm value. Allen and Sirmans study the case of REITs buying REITs.

Given the unique legal and institutional nature of REITs, it is possible to understand that another REIT could have a comparative advantage in such a purchase, especially since the small number of such transactions may limit the willingness of non-REIT corporations to invest in acquisition skills for buying REITs. In some sense, the previous studies that found excess returns for the buyer represent a set of case studies. Our results however are more general in that we examine general realty assets that have been and continue, after the asset sale, to be managed within a general corporate setting. Thus we expect no unique organizational benefit. Any gain should be associated only with the asset. Then since we find no gains for the buyers, we conclude that the market competes any excess gain away and leaves the buyers with only expected fair rates of return for buying and managing such assets.

In general, we find no abnormal return associated with the buyers and only weak positive returns for sellers of real estate assets. We conclude that real estate assets themselves offer the market no unique opportunity to earn excess returns. However, based on previous studies, it appears that the market may expect that some organization forms are more efficient for managing realty assets. Thus, future research should concentrate on the unique nature, including unique organizational form and/or tax advantages, of real estate samples that have shown positive returns to both parties.

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