

# On the Quality of FFO Forecasts

**Authors** David H. Downs and Z. Nuray Güner

## Abstract

This paper is the first attempt to provide an objective assessment of the quality of real estate funds from operations (FFO) forecasts. The work, which looks past the more primitive question concerning the appropriate measure for real estate earnings, quantifies and tests the quality of real estate investment trust (REIT) FFO forecasts relative to the net income forecasts of several comparison groups. The results show the high quality of REIT forecasts are remarkably robust and are not driven by the level of analyst attention. Investors in a post-Enron and Sarbanes-Oxley era may find the implications for high quality forecasts of real estate earning to be an appealing investment concept.

Why is real estate so frequently cast as the marginalized asset class? This question may strike an economist as normative; however, for institutional investors who have been in the game long enough, this question begs many answers.<sup>1</sup> It seems that every time real estate allocations gain ground in the institutional investment community, some element of moral hazard, private information, or transaction costs knocks aggregate allocations back. Theory may justify 20%, a topic addressed by Fogler (1984), but for institutional investors, practice seems to reveal a darker side to the story.

What should be of interest to institutional investors is a more recent controversy involving earnings forecasts for the public-equity quadrant of real estate.<sup>2</sup> This so-called controversy has been described in *The Wall Street Journal* and *Barron's* as a combination of misuse and misunderstanding of the real estate investment trust (REIT) performance measure, funds from operations (or, FFO), and the generally accepted accounting principle (GAAP) earnings measure, net income (NI). In short, FFO is currently defined as NI (computed in accordance with GAAP), excluding gains (or losses) from sales of property, plus depreciation and amortization, and after adjustments for unconsolidated partnerships and joint ventures (NAREIT, 2002). FFO, which was originally intended as a supplemental performance measurement to NI, has become the industry-wide benchmark for performance. Its popularity in the institutional investment community has contributed to it becoming a substitute for, as opposed to a complement of, REIT NI forecasts. Nonetheless, FFO forecasts have their detractors. The common criticisms are: (1) it is not governed by GAAP; (2) it is not audited and, therefore,

is not scrutinized as closely as NI; and (3) REIT managers take too many liberties in how it is reported (*The Wall Street Journal*, 1998). More recent criticism has maintained that the continually evolving definition of FFO<sup>3</sup> remains flawed (Vinocur, 1999).<sup>4</sup> The controversy seemed to have come to a head during the summer of 2001 when analysts at several brokerages announced they would begin forecasting NI for REITs (*The Wall Street Journal*, 2001a, b). Despite the harsh words found in the popular press, an objective assessment has not yet been offered about the REIT FFO controversy as it relates to analyst ability to forecast this measure.

The purpose of this study is to examine the quality of FFO forecasts for REITs, thus contributing to the collective understanding of how investors might benefit from FFO forecasts. Aside from describing FFO forecasts, these forecasts are compared to NI forecasts for various groups of non-REITs. Specifically, the research examines whether there is a difference between the quality of REIT FFO forecasts and non-REIT EPS forecasts. In addition, a direct test of FFO and EPS forecast quality is provided for a small group of REITs that have forecasts of both FFO and EPS during part of the sample period.

The findings show that REIT FFO forecast quality is higher than that of EPS for all the comparison groups examined. Furthermore, this finding is robust to the imposition of several filters. Moreover, the results are not an artifact of the difference in the level of attention REITs and non-REIT comparison groups get from the investment community. This finding is quite interesting and it might have important investment implications for individual as well as institutional investors.

The balance of this paper is organized as follows. The data sources and some descriptive measures on FFO and EPS forecasts are discussed in the next section. Following that the forecast quality metrics used in this study are described. A fourth section summarizes the hypotheses and presents the empirical findings. This section also offers several robustness checks on the findings. A separate section elaborates on implications of the findings for institutional investors. The final section contains concluding remarks.

---

## FFO Forecasts

The data for the study are obtained from First Call's Institutional Brokers Estimate System (I/B/E/S). The I/B/E/S contains estimates from multiple forecasters who report their predictions to the I/B/E/S service. The I/B/E/S database also reports the actual earnings (e.g., NI, FFO, etc.) released by firms.<sup>5</sup> These data are merged to form the initial sample of all firms, REITs and non-REITs, with valid forecasts for calendar years 1998 through 2001. The examination period is based on the attention REIT earnings received from FFO and GAAP proponents during this time period.

The First Call data, as described on the company's website, are recognized by virtually all institutional investors, brokers, and the companies covered as having

the timeliest and the most consistent data of any of the estimate services. Nonetheless, the historical data for REITs are less than ideal. Again, as reported on the First Call website, FFO per share is reported for REITs “in lieu of earnings, because FFO is the main valuation yardstick for REITs.” This background information goes on to say that “very few analysts provide EPS estimates on REITs.” Exhibit 1 illustrates this caveat in REIT forecast data. From 1998 to 2001, the number of REITs with estimates in the I/B/E/S system declined from 136 to 113. This trend is consistent with a general level of consolidation in the industry. At the same time, the proportion of REITs with FFO forecasts, exclusively, decreases precipitously to less than two-thirds in 2001. This finding is consistent with the brewing controversy reported in the popular press at that time and the profession by several brokers that they will begin forecasting earnings as NI from REITs.

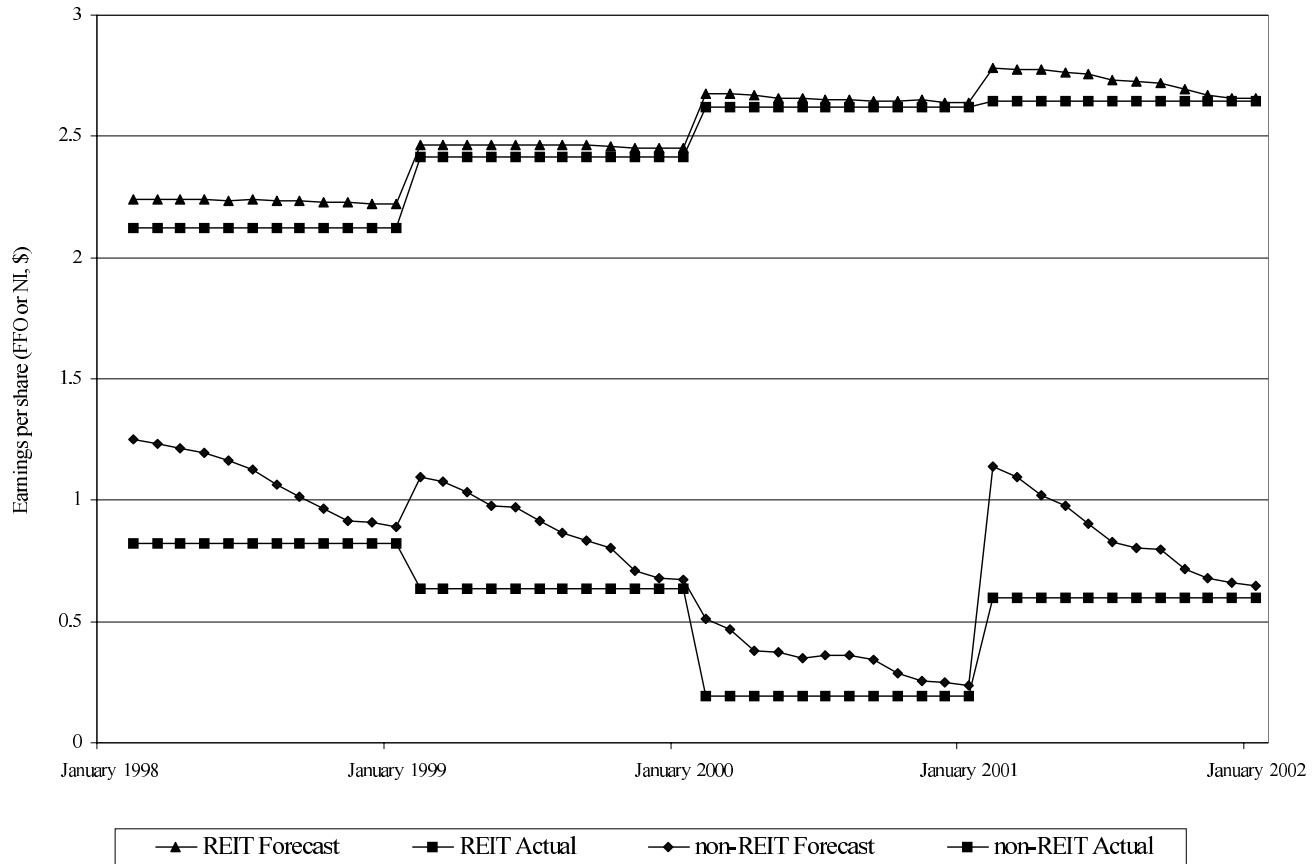
These events were viewed as an opportunity (i.e., natural experiment) to conduct a more systematic comparison of REIT FFO forecasts. Exhibit 2 shows a graph of forecast and actual earnings (e.g., NI and FFO, each on a per share basis) across the sample period, 1998–2001. Several observations are readily apparent. First, REIT earnings as measured by FFO per share are greater than the earnings of non-REITs. The exact reason for this difference is neither evident from this data nor is it the focus of this study. One can only speculate with the data as to whether this difference is due to industry differences or to the effects of “adding back in” the depreciation of property for FFO. The second observation is the year-to-year change in actual earnings for REITs and non-REITs. The REITs represented in Exhibit 2 appear to have a generally stable upward trend in year-to-year earnings during the sample period. Non-REITs, on the other hand, show

**Exhibit 1** | Number of REIT Forecasts Reported by the Institutional Brokers Estimate System

Calendar Year	Number of REITs with Earnings Estimates	Proportion of REITs by Earnings Estimate Type (%)		
		FFO Estimates Only	EPS Estimates Only	Both FFO & EPS Estimates
1998	136	89.0	6.6	4.4
1999	128	86.0	3.1	10.9
2000	120	97.5	0.8	1.7
2001	113	64.6	2.7	32.7

*Notes:* This exhibit reports the total number of REITs included in the sample. Furthermore, it shows the proportion of REITs with (a) only FFO estimates, (b) only EPS estimates, and (c) both FFO and EPS estimates during the examination period. Numbers reported in this exhibit confirm the general notion that FFO is the main valuation variable for REITs. Also, the observed increase in the proportion of REITs with both FFO and EPS estimates in 2001 is consistent with the fact that analysts at several brokerages announcing that they would begin forecasting NI for REITs in 2001.

**Exhibit 2** | REIT FFO versus Non-REIT Net Income



a marked decrease in earnings from 1998 to 2000, with an increase in earnings for calendar year 2001. The year-to-year change for the non-REITs appears to be more volatile than the change in REIT earnings.<sup>6</sup> Overall, the REIT earnings forecasts seem to be more “in-line” with the actual earnings reported at the end of the fiscal year. Some investment houses have touted the “terrific earnings visibility” of property stock after observing characteristics such as those in Exhibit 2 (Deutsche Banc Alex Brown). Although “enlightened graph reading” may offer some interesting generalizations, the purpose of this paper is to present an objective assessment of FFO forecast quality. The next section describes the forecast quality measures used in this study and commonly employed in the accounting and economics literature.

### Measuring Quality

Two measures of forecast quality are calculated for each firm in the I/B/E/S dataset. Each of the measures captures a different attribute of quality. The first measure, accuracy, captures the margin of error in the forecast. Accuracy is defined here as the standardized and unsigned error of all forecasts for a specific firm at a specific point in time. It is calculated using the following:

$$Accuracy_{it} = Abs \left[ \frac{(mean\ forecast_{it} - actual\ value_{it})}{actual\ value_{it}} \right], \quad (1)$$

where  $Accuracy_{it}$  is the absolute value of the quotient of the  $mean\ forecast_{it}$  provided by all analysts of a specific firm  $i$  for fiscal year  $t$  less the  $actual\ value_{it}$  announced by firm  $i$  for that fiscal year  $t$  divided by the  $actual\ value_{it}$ . Accuracy shows the percentage deviation of mean forecast of analysts from the actual value announced by the firm. It measures the size of the forecast error but not the direction of it.

The second measure of quality, precision, captures the extent of agreement among analysts' forecasts, independent of the actual or realized earnings. Specifically, precision is the unsigned and standardized variability of forecasts by analysts. Precision is calculated by the following:

$$Precision_{it} = Abs \left[ \frac{stdev\ of\ forecasts_{it}}{mean\ forecast_{it}} \right], \quad (2)$$

where  $Precision_{it}$  is the absolute value of the quotient of the standard deviation of forecasts provided by all analysts for a specific firm  $i$  in fiscal year  $t$  divided by

the mean forecast value. Precision is directly related to the degree of dispersion across analysts' forecasts of earnings for a specific firm.

The claim that accuracy and precision capture distinct attributes of quality bears further examination. Take, for instance, a scenario in which three analysts forecast earnings per share to be \$1.05, \$1.10, and \$1.15 for a hypothetical firm, Apple. At the same time, three analysts—whether or not they are the same analysts covering Apple is immaterial—forecast earnings per share to be \$1.24, \$1.25, and \$1.26 for another hypothetical firm, Orange. Assume that Apple and Orange each have actual earnings of \$1.00 per share. The objective is to calculate the accuracy and precision for each firm and compare the resulting measures.

In the case of Apple, accuracy is 10% and is calculated as:

$$\left| \frac{\left( \frac{\$1.05 + \$1.10 + \$1.15}{3} \right) - \$1.00}{\$1.00} \right| = 10\%. \quad (3)$$

Likewise, the accuracy of the forecasts for Orange is 25%. The quality, as determined by accuracy, of the Apple forecasts is superior to those of Orange. The calculation of precision is equally straightforward given the standard deviations of forecasts for each firm. To a first approximation, the dispersion among the Apple forecasts is five times that of the Orange forecasts. The Orange forecasts, though less accurate, are simply more precise. Intuitively, the set of forecasts for a single firm generated by all analysts might be quite accurate—there might not be much difference between the mean forecast by analysts and the actual earnings reported by the firm—but these average forecasts can, at the same time, be very imprecise due to disagreement among analysts regarding future earnings. Similarly, the earnings forecast of analysts for a firm might be quite precise—there might be agreement among analysts regarding what the earnings of this firm will be—but inaccurate because the mean forecast by analysts might differ substantially from the actual earnings reported by the firm.

When there is agreement among analysts regarding what the earnings of a firm will be, announcement of actual earnings that are widely different from the mean forecast might have a higher surprise effect. On the other hand, when there is not agreement among analysts regarding what the earnings of a firm will be, then announcement of actual earnings that are widely different from the mean forecast might have a lower surprise effect because different earnings numbers are reported to the public by the analysts. Therefore, the precision measure combined with the accuracy measure might provide an idea about the surprise effect created by actual earnings announcement of the firm.

Before examining the quality of analyst's forecasts statistically, consider two more graphs. Exhibits 3 and 4 are constructed based on calendar year 1998 through

2002 forecasts. Furthermore, the analysis is limited to firms with a December fiscal year end. In constructing these exhibits and for all subsequent tests, the I/B/E/S calendar-based current fiscal year and actual earnings per share are used for the entire sample period. The current exhibits begin in February of the forecast year and end in January of the following year due to the I/B/E/S convention of rolling over calendar years in the month following the fiscal year end, which here is a December fiscal year end. In addition, both exhibits show quality measures of forecasts for REIT FFO and non-REIT NI.

The decreasing optimism seen in Exhibit 2 across the fiscal year is evident in the diminishing error (improved accuracy) across months in Exhibit 3. The fact that analysts revise fiscal year forecasts based on quarterly reports is well documented (Crichfield, Dyckman, and Lakonishok, 1978) and intuitively appealing. What is not evident in Exhibit 2 is the degree and trend of forecast precision across the calendar year. Interestingly, the degree of precision for REIT FFO forecasts, as seen in Exhibit 4, appears to be considerably better than the precision of non-REIT NI forecasts. However, the extent to which these results may have been affected by casting the non-REIT net too wide is addressed in the subsequent analysis.

Although Exhibits 3 and 4 reveal a compelling story regarding the high quality of REIT FFO forecasts, graphical exhibits do not include the distribution of accuracy and precision measures across the representative comparison groups. In other words, the paper has yet to demonstrate statistical significance based on testable hypotheses. For these tests, the analysis is limited to quality measures in the last month of the fiscal year (i.e., January based on I/B/E/S-convention since all December fiscal year end data are used), thus removing the effect of seasonality in the data.

---

## Hypothesis Tests

The empirical analysis relies on a simple, yet straightforward, research hypothesis that the quality of REIT FFO forecasts is equal to the quality of the comparison group. The alternative hypothesis allows for REIT FFO forecast quality to be greater or less than the comparison group; consequently, a two-sided test is considered. A standard *t*-test for two sample means is utilized throughout the paper.<sup>7</sup> The comparison groups begin with all non-REIT firms in the I/B/E/S data set. Since all firms with a wide cross-section of characteristics are allowed in these tests, various filters are applied to ensure that the results are robust and not unduly influenced by outliers. In addition, industry-level comparison groups are used to control for any concern that industry-specific considerations are driving the results.

## Comparing REIT FFO to Non-REIT NI Forecasts

Exhibit 5 compares the quality of FFO forecasts for REITs to NI forecasts for non-REITs across the sample period. Panel A reports the results for the full

**Exhibit 3** | REIT versus Non-REIT Accuracy

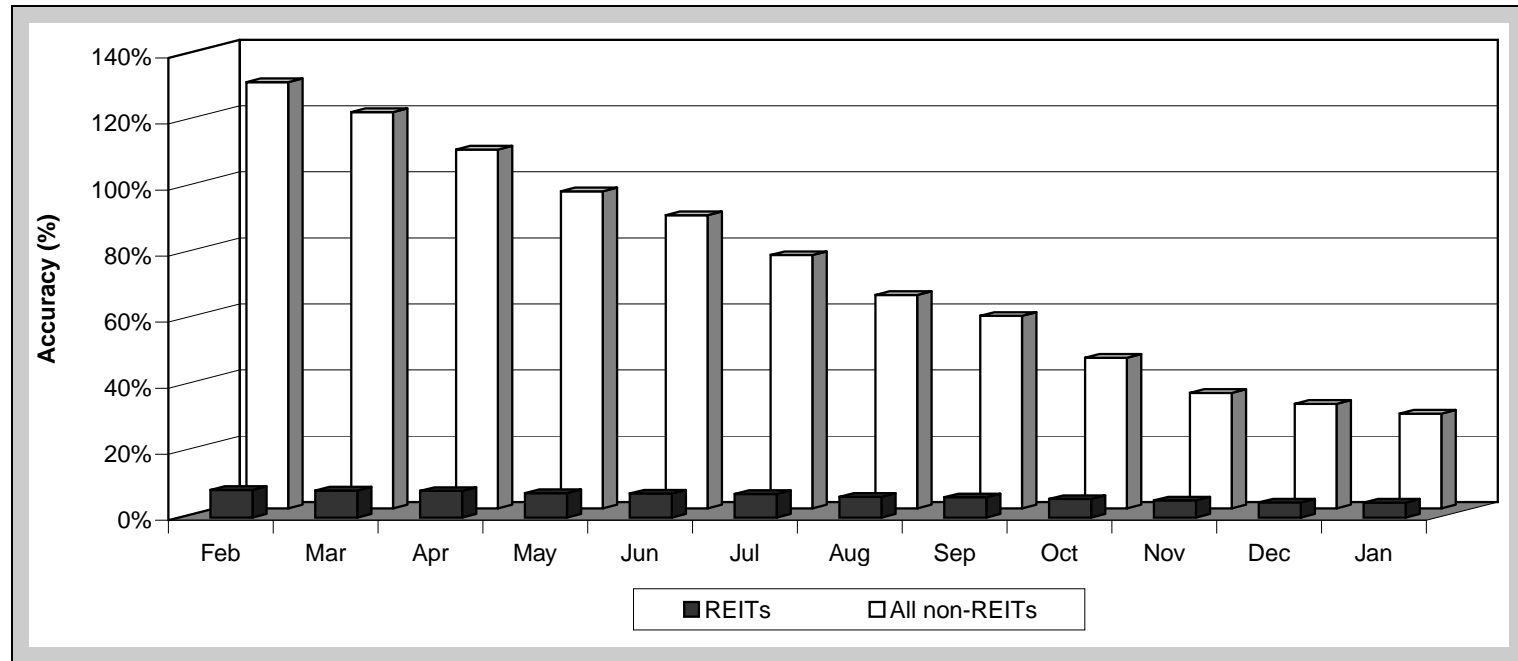
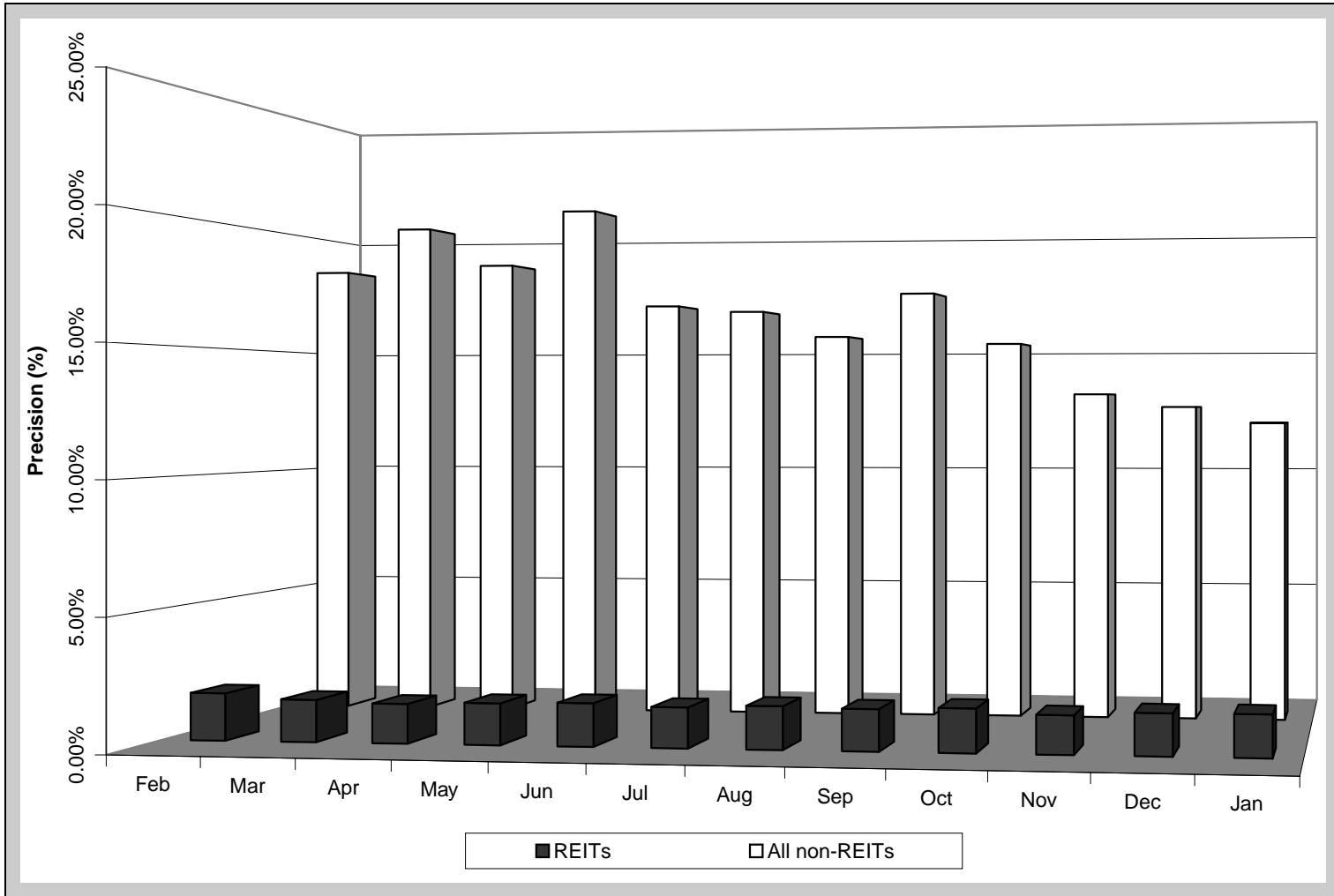




Exhibit 4 | REIT versus Non-REIT Precision



**Exhibit 5** | A Quality Comparison of REIT FFO Forecasts versus non-REIT NI Forecasts

Variable	REIT FFO		non-REIT EPS		$H_0: \mu_1 = \mu_2$	
	N	Mean	N	Mean	t-Stat	p-value
Panel A: Full sample						
Accuracy (%)	461	7.40	15,172	61.37	7.5	<0.00
Precision (%)	430	2.01	12,286	18.50	14.6	<0.01
Panel B: Filtered sample						
Accuracy (%)	389	3.93	7,965	8.32	7.3	<0.01
Precision (%)	389	1.17	7,954	4.47	30.4	<0.01

*Notes:* This exhibit shows the results of a test for the equality of accuracy and precision measures for REIT FFO and non-REIT EPS forecasts using a *t*-test for two sample means. Results of these tests are reported in the last two columns of the exhibit. Panel A has the results for the full sample of REITs and non-REITs available in the I/B/E/S data set. Panel B shows the results for a filtered sample. The sample of firms analyzed in Panel B have stock prices greater than or equal to \$5 per share, accuracy measures less than or equal to 1, precision measures less than or equal to 0.25 and number of estimates greater than or equal to 3.

sample; that is all firms in the I/B/E/S data with a December fiscal year end. For the four years in the sample period, 1998–2001, there are 461 REITs with sufficient data to calculate accuracy. The mean value of accuracy across all these firms is 7.40%. In contrast, accuracy is calculated based on NI for over 15,000 non-REITs during the sample period. The mean non-REIT accuracy is 61.37%. A test of the equality of means for these two accuracy measures rejects the null hypothesis that they are equal with a corresponding probability of less than 1%. Likewise, the test of equality for the precision measure yields a rejection of the null hypothesis with a probability of less than 1%. From these tests, the findings indicate that REIT FFO forecasts are of higher quality than non-REIT NI forecasts.

As with any empirical test, various competing influences are considered, not the least of which is data problems. For this reason, the analyses are repeated by imposing some filters on the data. Panel A, which reports results for the full sample of firms, serves as a baseline for comparison. Panel B of each exhibit shows the results for a filtered sample of firms.<sup>8</sup> The firms included in this filtered sample have stock prices greater than or equal to \$5, forecasts from at least three analysts, accuracy measures that are less than or equal to 1, and dispersion measures that are less than or equal to 0.25.

The robustness of the results between REITs and non-REITs is shown in Panels A and B (the full and the filtered samples, respectively) of Exhibit 5. In particular,

Panel B filters have reduced the REIT sample by approximately 15%, whereas the non-REIT sample decreases by approximately 50%. The application of filters in the analysis demonstrates the potential influence of firms with low stock prices, low levels of analyst attention, and data outliers. Nonetheless, the conclusions regarding REIT FFO forecast quality relative to non-REIT NI quality remain consistent.<sup>9</sup>

### Comparing REIT FFO to Industry-Specific NI Forecasts

The preceding comparison of REITs to all non-REITs may leave open the issue of whether these results are influenced by not controlling for industry-specific concerns.<sup>10</sup> To address this concern, the analysis is repeated with two industry-specific comparison groups. In Exhibit 6, a comparison group is identified based on the I/B/E/S industry classification for high tech firms. The REIT measures shown in Panels A and B of Exhibit 6 are identical to those in Exhibit 5. The high tech firms with sufficient data to calculate the accuracy measure number 2,495. The mean accuracy for all high tech firms is 54.52%. As was the case in the comparison of REITs to non-REITs, the null hypothesis is rejected. In Panel B of Exhibit 6, the sample of high tech firms decreases by 50%, which is comparable to the filtering effect on the full non-REIT sample. In the case of the high tech firms, accuracy decreases to a more reasonable level of 10% and

**Exhibit 6** | A Quality Comparison of REIT FFO Forecasts versus High Tech Firm NI Forecasts

Variable	REIT FFO		High Tech EPS		H <sub>0</sub> : $\mu_1 = \mu_2$	
	N	Mean	N	Mean	t-Stat	p-value
Panel A: Full sample						
Accuracy (%)	461	7.40	2,495	54.52	7.8	<0.01
Precision (%)	430	2.01	2,007	18.04	9.9	<0.01
Panel B: Filtered sample						
Accuracy (%)	389	3.93	1,245	10.64	9.2	<0.01
Precision (%)	389	1.17	1,242	4.87	20.7	<0.01

*Notes:* This exhibit shows the results of a test for the equality of accuracy and precision measures for REIT FFO and high tech firm EPS forecasts using a *t*-test for two sample means. The results of these tests are reported in the last two columns of the exhibit. Panel A shows the results for the full sample of REITs and high tech firms available in the I/B/E/S data set. Panel B shows the results for a filtered sample. The sample of firms analyzed in Panel B have stock prices greater than or equal to \$5 per share, accuracy measures less than or equal to 1, precision measures less than or equal to 0.25, and number of estimates greater than or equal to 3.

precision decreases to under 5% in Panel B. Nonetheless, the difference between REIT FFO forecast quality and forecast quality for high tech firms is still statistically significant.

A similar story is revealed in Exhibit 7 where REIT FFO forecasts are compared to NI forecasts for the utility industry. Across the four-year sample period, there are slightly less than 1,000 firm-year observations for utility firms. The same result, that the accuracy and precision of FFO forecasts is better for REITs relative to the NI forecasts for utility firms, is evident. A minor difference evident in this exhibit is that few utility firms are lost when additional filters are applied to the data. However, the overall result is consistent. In both the high tech and utility comparisons, evidence reported in Panel A is robust to the filters as shown in the respective B panels.

These results are somewhat surprising. By focusing on utility and high tech firms, the concept was to capture two somewhat extreme comparison groups to REITs. Stable earnings and low growth rates frequently characterize the utility industry. The same might be said about REITs where leases are, generally, long term and backed by tangible assets. On the other hand, much of the high tech industry has been characterized by high informational asymmetry and high growth rates. At the same time, the earnings of high tech firms have been volatile, if not

**Exhibit 7** | A Quality Comparison of REIT FFO Forecasts versus Utility Firm NI Forecasts

Variable	REIT FFO		Utility EPS		$H_0: \mu_1 = \mu_2$	
	N	Mean	N	Mean	t-Stat	p-value
Panel A: Full sample						
Accuracy (%)	461	7.40	930	50.03	3.9	<0.01
Precision (%)	430	2.01	879	16.66	6.4	<0.01
Panel B: Filtered sample						
Accuracy (%)	389	3.93	642	9.12	6.3	<0.01
Precision (%)	389	1.17	641	5.03	16.9	<0.01

*Notes:* This exhibit shows the results of a test for the equality of accuracy and precision measures for REIT FFO and utility firm EPS forecasts using a *t*-test for two sample means. Results of these tests are reported in the last two columns of the exhibit. Panel A shows the results for the full sample of REITs and utility firms available in the I/B/E/S data set. Panel B shows the results for a filtered sample. The sample of firms analyzed in Panel B have stock prices greater than or equal to \$5 per share, accuracy measures less than or equal to 1, precision measures less than or equal to 0.25, and number of estimates greater than or equal to 3.

nonexistent, and frequently backed by intangible assets. Yet, surprisingly, in each case the REIT FFO forecast quality appears to exceed that of the comparison group.

### Comparing REIT FFO to REIT NI Forecasts

Having compared REIT FFO forecasts to the NI forecasts of non-REITs, the discussion turns to what might be considered a more direct test of the quality of FFO forecasts. Exhibit 8 shows the quality measures for a matched sample of REITs with FFO and NI forecasts. As shown in Exhibit 1, 32.7% of the 113 REITs in 2001, or 37 REITs, have FFO and EPS estimates. Panel A of Exhibit 8 shows the accuracy and precision calculations for each group without any filters on the data. In this case, the REIT FFO forecast accuracy is less than 1% whereas the NI accuracy is approximately 25%. This difference is statistically significant at a very high level of confidence. Comparing the precision measure between FFO and NI forecasts, a similar result is found whereby the FFO forecast is, again, of higher quality than the NI forecast.

As restrictive filters are imposed on the data in an effort to ensure the results are not driven by outliers or data errors, the main finding remains valid: FFO forecasts

**Exhibit 8** | A Quality Comparison of REIT FFO Forecasts versus REIT NI Forecasts for 2001

Variable	REIT FFO		REIT EPS		H <sub>0</sub> : $\mu_1 = \mu_2$	
	N	Mean	N	Mean	t-Stat	p-value
<b>Panel A: Full sample</b>						
Accuracy (%)	37	0.78	35	25.71	4.7	<0.01
Precision (%)	37	0.55	22	12.76	3.9	<0.01
<b>Panel B: Filtered sample</b>						
Accuracy (%)	36	0.80	10	9.93	3.8	<0.01
Precision (%)	36	0.55	10	6.52	3.0	0.01

*Notes:* This exhibit shows the results of a test for the equality of accuracy and precision measures for REIT FFO and EPS forecasts using a *t*-test for two sample means. Results of these tests are reported in the last two columns of the exhibit. Panel A shows the results for the full sample of REITs with FFO and EPS forecasts in the I/B/E/S data set. Panel B shows the results for a filtered sample. The sample of firms analyzed in Panel B have stock prices greater than or equal to \$5 per share, accuracy measures less than or equal to 1, precision measures less than or equal to 0.25, and number of estimates greater than or equal to 3.

are of significantly higher quality than NI forecasts for a matched sample of REITs in 2001.

### Does Analyst Attention Influence Forecast Quality?

One factor that might be of particular interest in explaining the quality differences seen across comparison groups is the level of attention these firms receive from analysts (Downs and Güner, 2000). In other words, should one group of firms receive more attention from analysts (i.e., a higher number of estimates or forecasts), this may influence the quality of forecasts.

Exhibit 9 attempts to address this issue by reporting the number of forecasts, a proxy for the level of analyst attention firms receive in the calculation of fiscal year end quality. Both panels of Exhibit 9 report the number of forecasts of REIT FFO versus the corresponding comparison group that is listed in the first column

**Exhibit 9** | The Number of Forecast Estimates of REIT FFO versus Comparison Group NI

Variable	REIT FFO		Comparison Group NI		$H_0: \mu_1 = \mu_2$	
	<i>N</i>	Mean	<i>N</i>	Mean	<i>t</i> -Stat	<i>p</i> -value
Panel A: Full sample						
Non-REITs	454	7.62	14,780	6.37	6.1	<0.01
High tech firms	454	7.62	2,411	5.99	7.0	<0.01
Utility firms	454	7.62	924	9.71	6.9	<0.01
REITs (NI)	37	9.41	35	1.97	11.5	<0.01
Panel B: Filtered sample						
Non-REITs	389	8.49	7,971	9.22	3.5	<0.01
High tech firms	389	8.49	1,248	8.88	1.4	0.16
Utility firms	389	8.49	642	11.95	10.4	<0.01
REITs (NI)	36	9.61	10	3.20	10.3	<0.01

*Notes:* This exhibit shows the results of a test for equality in the number of FFO estimates for REITs and various comparison groups. The test is a *t*-test for sample means. Results of these tests are reported in the last two columns of the exhibit. The comparison groups are identified in the first column of this exhibit. Panel A reports the results for the full sample of REITs and the corresponding comparison group available in the I/B/E/S data set. Panel B shows the results for a filtered sample. The sample of firms analyzed in Panel B have stock prices greater than or equal to \$5 per share, accuracy measures less than or equal to 1, precision measures less than or equal to 0.25, and number of estimates greater than or equal to 3.

of the exhibit. As in all other exhibits, an equality of means test is reported in the last two columns.

Some interesting trends are seen across the comparison groups and across panels. First, as can be seen in Exhibit 9, the number of REIT FFO forecasts is significantly greater than the number of non-REIT NI forecasts when there are no filters on the data. However, as the filters (as previously described) are applied to the data, the relationship reverses. In the filtered sample, the number of forecasts of REIT FFO is significantly less than the number of NI forecasts for non-REITs.

A similar trend is evident between REITs and high tech firms; however, the difference between the two groups is not significant in the filtered sample. In sharp contrast, the number of utility firms' NI forecasts is always significantly greater than the number of REIT FFO forecasts. This result may be due to the interest that analysts believe institutions have in utility firms.

Finally, the findings reveal that REIT FFO forecasts always outnumber the forecasts of REIT NI. Interestingly, the mean of three NI forecasts for the ten REITs in Panel B of Exhibit 9 is consistent with the number of brokerages that announced their intent to issue NI forecasts midway through fiscal year 2001 for REITs.

---

### Institutional Investment Implications

Users of FFO estimates will clearly benefit from recognizing the quality of REIT forecasts. Valuation models for real estate investments are predominantly driven by cash flow projections. Given that FFO is more directly related to cash flow than GAAP NI, institutional investors will want to be mindful of the mitigated estimation risk in forecasting real estate cash flows, at least in the public-equity quadrant.

Furthermore, the finding that FFO forecast quality exceeds NI quality for the high tech and utility industries suggests that institutional investors may assign less valuation risk to the traditionally "marginalized" asset class of real estate. This fact may be even more relevant as institutional investors chase the next trendy high tech investment or, at the opposite end of the spectrum, the stodgy arena of income equities.

In addition, portfolio managers—here referring to equity managers and real estate managers—may, in concert, elect to assign higher allocations to real estate and REITs in return for the benefits of high quality analyst forecasts. In other words, portfolio managers could perceive less valuation risk in publicly-traded real estate, thereby assigning higher allocations to the real estate asset class as a whole.

Recognizing that FFO forecasts do not preclude using forecasts of NI for REITs, institutional investors could watch for arbitrage opportunities where economically

significant differences exist in FFO and NI multiples. Such research should be of continued interest and benefit to the institutional investment community.

---

## Conclusion

This paper demonstrates that the quality of FFO forecasts, the subject of considerable negative reaction in the popular press, is far less a shortcoming than a positive hallmark for the historically beleaguered real estate industry. In essence, REIT FFO forecasts are of higher quality relative to each and every one of the comparison groups during the examination period of this study. In addition, the findings reveal that this result is not likely to be due to a differential level of analyst following these firms.

Investors may find these results particularly appealing given the attention fiduciaries have received in the post-Enron and Sarbanes-Oxley environment. Whether an institution is legally obligated through the Employee Retirement Income Security Act (ERISA) or, perhaps, more severely obligated by the court of public opinion, there is some conciliation in allocating assets to income-producing real estate, particularly given the high quality of public-equity real estate's FFO forecasts. Stated differently, the enviable earnings visibility, as measured by FFO forecast quality, argues for publicly-traded real estate as an asset class in the portfolio of those seeking transparency and disclosure credibility.

Finally, the results may shed important light on the work of Higgins, Ott, and Van Ness (2006). Their study investigates the information content of the 1999 revision to the definition of FFO. While the work offers an important discussion of transparency issues related to publicly-traded real estate, the statistical significance of the findings are not strong. This may be due, in large part, to the fact that a history of high quality REIT forecasts implies a low degree of uncertainty regarding FFO calculation prior to the 1999 announcement. Consequently, the empirical work of Higgins, Ott, and Van Ness supports the notion that a marginal change in transparency and disclosure yields minimal economic impact.

---

## Endnotes

- <sup>1</sup> For institutional or individual investors looking for a better appreciation of “what was promised” and “what was delivered” in institutional real estate from the 1970s to the early 1990s, right at the start of the REIT boom, please see Downs and Hartzell (1995).
- <sup>2</sup> See Hudson-Wilson (2001) for a discussion of real estate quadrants and investment rationale for institutional investors.
- <sup>3</sup> FFO was first defined in 1991 with clarifying revisions issued in 1995, 1999, and 2002.
- <sup>4</sup> Higgins, Ott, and Van Ness (2006) study the information content of the 1999 revision to the definition of FFO.
- <sup>5</sup> It is important to note that most analysts issue earnings forecasts on a continuing operations basis. Consequently, I/B/E/S receives analysts' forecasts after discontinued



operations, extra-ordinary charges, and other non-operating items have been backed out. Likewise I/B/E/S adjusts reported earnings to match analysts' forecasts so there is a basis for comparison.

- <sup>6</sup> The apparently higher volatility of EPS for non-REITs relative to FFO for REITs might partially explain higher quality of REIT FFO estimates during the sample period.
- <sup>7</sup> The equality of means tests throughout the paper are also conducted using nonparametric statistics. The results based on nonparametric analyses are qualitatively similar to those reported here. To conserve space, these findings are not reported in the paper; however, they are available from the authors upon request.
- <sup>8</sup> The original empirical analyses imposed several filters sequentially. The first filter constrains the full sample to firms with stock prices greater than \$5 per share. Then two more filters are imposed on the data requiring firms to have forecasts from at least three analysts and accuracy measures less than 3. The results obtained for these sub-samples are qualitatively the same as the ones reported in Panels A and B of each exhibit. They are not reported in the paper to conserve space and are available from the authors upon request.
- <sup>9</sup> While the predictability of FFO and NI may seem to be related to the current investigation, it is in fact a narrower topic. The empirical analysis in the paper focuses on the cross-section of forecast estimates as the relevant basis for quality. Predictability between and among forecasts and actual metrics implies certain assumptions regarding the ability of analysts to learn from past mistakes. Although this topic is interesting, it is not the focus of the current study.
- <sup>10</sup> For an analysis of industry effects on forecast quality of analysts, see Jaggi (1980) and Kwon (2002).

---

## References

- Crichfield, T., T. Dyckman, and J. Lakonishok. An Evaluation of Security Analysts' Forecasts. *The Accounting Review*, 1978, 53:3, 651–68.
- Downs, D. H. and Z. N. Güner. Investment Analysis, Price Formation and Neglected Firms: Does Real Estate Make a Difference?, *Real Estate Economics*, 2000, 28:4, 549–79.
- Downs, D. H. and D. J. Hartzell. Real Estate Investment Trusts, In J. L. Pagliari (ed.). *The Handbook of Real Estate Portfolio Management*, 1995, 597–634.
- Fogler, H. R. 20% in Real Estate: Can Theory Justify It?, *Journal of Portfolio Management*, 1984, 10, 6–13.
- Higgins, E. J., R. L. Ott, and R. A. Van Ness. The Information Content of the 1999 Announcement of Funds from Operations (FFO) Changes for Real Estate Investment Trusts. *Journal of Real Estate Research*, 2006, 28:3, 241–55.
- Hudson-Wilson, S. Why Real Estate? An Investment Rationale for Institutional Investors: 2001 Update. *Journal of Portfolio Management*, 2001, 28, 20–32.
- Jaggi, B. Further Evidence on the Accuracy of Management Forecasts vis-à-vis Analysts' Forecasts. *The Accounting Review*, 1980, 55:1, 96–101.
- Kwon, S. S. Financial Analysts' Forecast Accuracy and Dispersion: High-Tech versus Low-Tech Stocks. *Review of Quantitative Finance and Accounting*, 2002, 19:1, 65–91.
- National Association of Real Estate Investment Trusts (NAREIT). *White Paper on Funds From Operations—April 2002*, 2002.

*The Wall Street Journal*, REIT Interest: Accounting Becomes Issue as Pressure Mounts, By B. Martinez, 1998, 11/18/1998.

—., Deals and Deal Makers: Three Firms to Emphasize Different Metric for REITs, By D. Starkman and J. Weil, 2001a, 07/13/2001.

—., REIT Wrangle: A Debate Over Earnings Puts Major Wall Street Analysts at Odds, By R. A. Smith, 2001b, 08/29/2001.

Vinocur, B. None Dare Call It Earnings: REIT Industry Again Looks at FFO, and Arguments Ensur. In *Barron's The Ground Floor*, 1999, 79:51.

*The authors gratefully acknowledge the Real Estate Research Institute (RERI) for initially funding this project and Martha Peyton (TIAA-CREF) for valuable comments. We also acknowledge the generous contribution of First Call in providing the I/B/E/S analyst forecast data. Güner acknowledges the support from the Turkish Academy of Sciences in the framework of the Young Scientist Award Program. (EA-TÜBA-GEBİP/2001-1-1). We are grateful to many colleagues for valuable comments, particularly we recognized Paul Reeder (SNL Securities), our discussants at the 2004 AREUEA, 2004 ARES and 2004 FMA conferences and the participants at the May 2003 Homer Hoyt Advanced Studies Institute. We also received helpful suggestions from anonymous referees.*

---

David H. Downs, Virginia Commonwealth University, Richmond VA 23284-4000 or [dhd downs@vcu.edu](mailto:dhd downs@vcu.edu).

Z. Nuray Güner, Middle East Technical University, Ankara, Turkey or [nguner@ba.metu.edu.tr](mailto:nguner@ba.metu.edu.tr).