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ON THE QUALITY OF FFO FORECASTS
IMPLICATIONS FOR INSTITUTIONAL INVESTORS [†] [‡]

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Abstract

Institutional real estate analysts and investors have joined in the dialog over controversies surrounding real estate funds from operations (FFO). Midway through fiscal year 2001 the controversy seemed to come to a head as the Wall Street Journal reported that several brokerages would begin issuing GAAP net income forecasts for REITs. To our knowledge, this paper is the first attempt to provide an objective assessment of the quality of FFO forecasts. Our work looks past the more primitive question concerning the appropriate measure for real estate earnings in order to quantify and test the quality of REIT FFO forecasts relative to the net income forecasts of several comparison groups. Our results show the high quality of REIT forecasts are remarkably robust and do not appear to be driven by the level of analyst attention. Institutional investors in a post-Enron era should find the implications for high quality forecasts of real estate earning to be an appealing investment concept.

Original Version: January 2003
Current Version: April 2003

[†] We gratefully acknowledge the Real Estate Research Institute for funding this project and Martha Peyton for valuable comments. We also wish to thank David E. Thompson for his assistance in collecting data for this project and the generous contribution of First Call in providing the I/B/E/S analyst forecast data. Z. Nuray Güner would like to acknowledge the support by the Turkish Academy of Sciences in the framework of the Young Scientist Award Program. (EA-TÜBA-GEBİP/2001-1-1)

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On The Quality of FFO Forecasts

Implications for Institutional Investors

Why is real estate so frequently cast as the marginalized asset class? For institutional investors who have been in the game long enough, this question begs many answers.[1] 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. (See Hudson-Wilson [2001] for a discussion of real estate quadrants and investment rationale for institutional investors.) 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 net income (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]. However, FFO, originally intended as a supplemental performance measurement to net income, 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 net income

[1] 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 – we refer you to Downs and Hartzell [1995].

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 net income; and (3) REIT managers take too many liberties in how it is reported [Wall Street Journal, 1998]. More recent criticism has maintained that the continually evolving definition of FFO (it was first defined in 1991 with clarifying revisions issued in 1995, 1999 and 2002) remains flawed [Vinocur, 1999]. The controversy seemed to have come to a head during the summer of 2001 when analysts at several brokerages announced they would begin forecasting net income for REITs [Wall Street Journal, 2001a, b]. In spite of the harsh words found in the popular press, we have yet seen an objective assessment of 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 institutional investors might benefit from FFO forecasts. Aside from describing FFO forecasts, we will compare these to net income forecasts for various groups of non-REITs. Specifically, we test whether there is a difference between the quality of REIT FFO forecasts and non-REIT EPS forecasts. We also provide a direct test of FFO and EPS forecast quality for a small group of REITs that have forecasts for both FFO and EPS during part of our sample period.

FFO FORECASTS

The data for our study are obtained from First Call's Institutional Brokers Estimate System (I/B/E/S). I/B/E/S contains forecasts 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., net income, FFO, etc.) released by firms. We merge these data to form our initial sample of all firms, REITs and non-REITs, with valid forecasts for calendar years, 1998 through 2001.

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 most timely 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." Our Exhibit 1 illustrates this caveat in REIT forecast data. From 1998 to 2001, we find the number of REITs in the I/B/E/S system with earnings estimates has 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 2/3rds in 2001. This finding is consistent with the brewing controversy reported in the popular press and the profession by several brokers that they will begin forecasting earnings as net income from REITs.

We viewed these events as an opportunity to conduct a more systematic comparison of REIT FFO forecasts. We begin with Exhibit 2, which shows a graph of forecast and actual earnings (e.g., net income 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 could only speculate with our 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. Non-REITs, on the other hand, show 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. 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 some interesting generalizations are possible through enlightened graph reading, the purpose of our paper is to present an objective assessment of FFO forecast quality. We next turn to our quality measures.

MEASURING QUALITY

We calculate two measures of forecast quality for each firm in the I/B/E/S dataset. Each of our measures captures a different attribute of quality. The first measure, accuracy, captures the margin of error in the forecast. We define accuracy as the standardized and unsigned error of all forecasts for a specific firm at a specific point in time. It is calculated

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

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. We calculate precision as

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

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* and fiscal year *t* divided by the mean forecast value. Precision is inversely related to the degree of dispersion across analysts' forecasts of earnings for a specific firm.

Our claim that accuracy and precision capture distinct attributes of quality bears further examination. Take, for instance, a scenario in which 3 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. We can assume that Apple and Orange each have actual earnings of \$1.00 per share. Our 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

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

Likewise, the accuracy of the forecasts for Orange is 25%. We would conclude that 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.

Armed with objective quality measures, we proceed to examine REIT FFO forecasts beyond the elementary conclusions that can be drawn from graphics such as Exhibit 2. Exhibits 3 and 4 are constructed based on calendar year 1998 through 2002 forecasts. Furthermore, we limit our analysis to firms with a December fiscal year end. In constructing these exhibits and for all subsequent tests, we use I/B/E/S calendarized current fiscal year and actual earnings per share for the entire sample period. The current exhibits begin in February of the forecast year due to the I/B/E/S convention of rolling over calendar years in the month following the fiscal year end, which in our case is a December fiscal year end. In addition, both exhibits show quality measures of forecasts for REIT FFO and non-REIT net income.

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 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 net income forecasts. However, the extent to which we may have affected these results by casting our non-REIT net too wide is addressed in our subsequent analysis.

Though 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, we have yet to demonstrate statistical significance based on testable hypotheses. For these tests, we limit our analysis to quality measures in the last month of the fiscal year (i.e., December since we use all December fiscal year end data), thus removing the effect of seasonality in the data.

HYPOTHESIS TESTS

Our empirical analysis relies on a simple 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 we consider a two-sided test. The comparison groups begin with all non-REIT firms in the I/B/E/S data set. Since we are allowing firms with a wide cross-section of characteristics in these tests, we apply various filters to ensure that the results are robust and not unduly influenced by outliers. In addition, we use industry-level comparison groups to control for any concern that industry-specific considerations are driving our results.

Comparing REIT FFO to Non-REIT Net Income Forecasts

Exhibit 5 compares the quality of FFO forecasts for REITs to net income forecasts for non-REITs across the sample period. Panel A reports the results for the full 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 for us to calculate accuracy. The mean value of accuracy across all these firms is 7.40%. In contrast, we are able to calculate accuracy based on net income 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, our test of equality for the precision measure yields a rejection of the null hypothesis with a probability of less than 1%. From these tests, we conclude that REIT FFO forecasts are of higher quality than non-REIT net income forecasts.

As with any empirical test, we had to consider various competing influences, not the least of which are data problems. For this reason, we repeated our analyses by imposing a series of filters on the data. Panel A serves as a baseline for comparison. In Panel B, we report the results based on a filter that excludes any firm with stock prices less than $5 per share. Panel C imposes two more filters on the sample analyzed in Panel B. These additional filters require the firms to have forecasts from at least 3 analysts and have accuracy measures that are less than 3. Finally, in Panel D of each Table, we show results for a sample of firms having stock prices greater than or equal to $5, forecasts from at least 3 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 our results between REITs and non-REITs is shown in Panels A through D in Exhibit 5. In particular, Panel D 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 net income quality remain consistent.

Comparing REIT FFO to Industry-Specific Net Income 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. To address this concern, we repeat the analysis with two industry-specific comparison groups. In Exhibit 6, we identify a comparison group based on the I/B/E/S industry classification for high

tech firms. The REIT measures shown in Exhibit 6, Panel A are identical to those in Exhibit 5. The high tech firms with sufficient data to calculate accuracy number 2495. 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. Progressing through the various filters applied in Panels B through D, we find that 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 10% level in Panel D and precision decreases to under 5%. Nonetheless, the difference between REIT FFO forecast quality and forecast quality for high tech firms is statistically significant.

A similar story is revealed in Exhibit 7 where we compare REIT FFO forecasts to net income forecasts for the utility industry. Across the four-year sample period, there are slightly less than 1000 firm-year observations for utility firms. The same result, that the accuracy and precision of FFO forecasts is better for REITs relative to the net income forecasts for utility firms, is evident. A minor difference evident in this exhibit is that few utility firms are lost in the process of sequentially applying filters to the data. However, the overall result is consistent. In both the high tech and utility comparisons, the Panel A evidence is robust to the filters.

We find these results somewhat surprising. By focusing on utility firms and high tech firms we anticipated capturing 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 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 quite high growth rates. At the same time, the earnings of high tech firms have been volatile, if not nonexistent, and backed up by intangible assets. However, in each case we find that REIT FFO forecast quality appears to exceed that of our comparison group.

Comparing REIT FFO to REIT Net Income Forecasts

Having compared REIT FFO forecasts to the net income forecasts of non-REITs, we now turn 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 net income 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 the each group without any filters on the data. In this case, we see the REIT FFO forecast accuracy is less than 1% where the net income accuracy is approximately 25%. This difference is statistically significant at a very high level of confidence. Comparing the precision measure between FFO and net income forecasts, we find a similar result whereby the FFO forecast is, again, of higher quality than the net income forecast.

As we progress through the exercise of applying more restrictive filters on the data in an effort to ensure the results are not driven by outliers or data errors, the main finding is consistent – FFO forecasts are of significantly higher quality than NI forecasts for a matched sample of REITs in 2001. The somewhat obvious question of whether this finding holds in future years promises to be an interesting research question and of considerable interest to the investment community.

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, if one group of firms receives 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 our calculation of fiscal year end quality. Each panel of Exhibit 9 reports the number of forecasts of REITs FFO versus the corresponding comparison group that is listed in the first column 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 filter panels. First, we see that the number of REITs FFO forecasts is significantly greater than the number of non-REITs net income forecasts when there are no filters on the data. However, as data filters are sequentially applied to these data, the relationship reverses. In the most restrictive data filter case, we find that the number of forecasts of REITs FFO is statistically less than the number of net income 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 most restrictive data case. In sharp contrast, the number of utility firms net income 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, we find that REIT FFO forecasts always outnumber the forecasts of REIT net income. Interestingly, the mean of 3 net income forecasts for the 10 REITs in the final panel is consistent with the number of brokerages that announced their intent to issue net income forecast for REITs midway through fiscal year 2001.

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 net income, 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 net income 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 – and here we refer to equity managers and real estate managers – may, in concert, elect to assign high 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 net income for REITs, institutional investors could watch for arbitrage opportunities where economically significant differences exist in FFO and net income multiples. However, a more probable scenario going forward is that an ever-increasing number of analysts will forecast net income and FFO for REITs. The additional data is likely to benefit the publicly-traded real estate markets. At the same time, a large population of REITs with FFO and net income forecasts will benefit researchers looking to extend the results presented here. We expect such research to be of continued interest and benefit to the institutional investment community.

CONCLUSIONS

We have shown 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 over the period 1998 through 2001 have been of higher quality relative to each and every one of the comparison groups in this study. In addition, we demonstrate that this result is not likely to be due to a differential level of analyst following.

Institutional investors may find these results particularly appealing given the attention fiduciaries have received in the post-Enron 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.

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EXHIBIT 1
Number of REIT forecasts reported by the Institutional Brokers Estimate System (I/B/E/S)

Calendar Year	Number of REITs in I/B/E/S system with earnings estimates	Proportion of REITs in the I/B/E/S system 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

EXHIBIT 2
REIT FFO versus Non-REIT Net Income

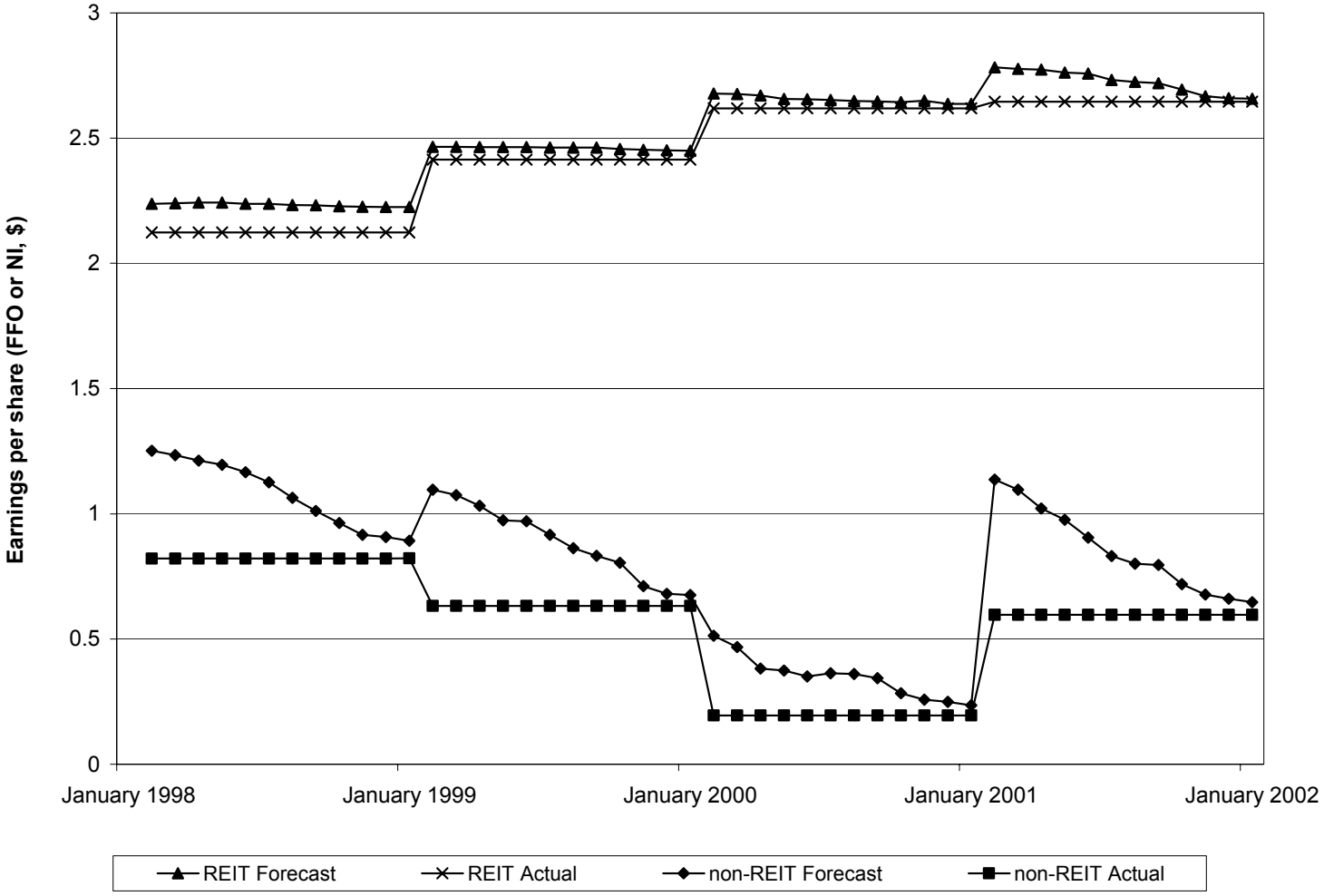

EXHIBIT 3
REIT versus Non-REIT Accuracy

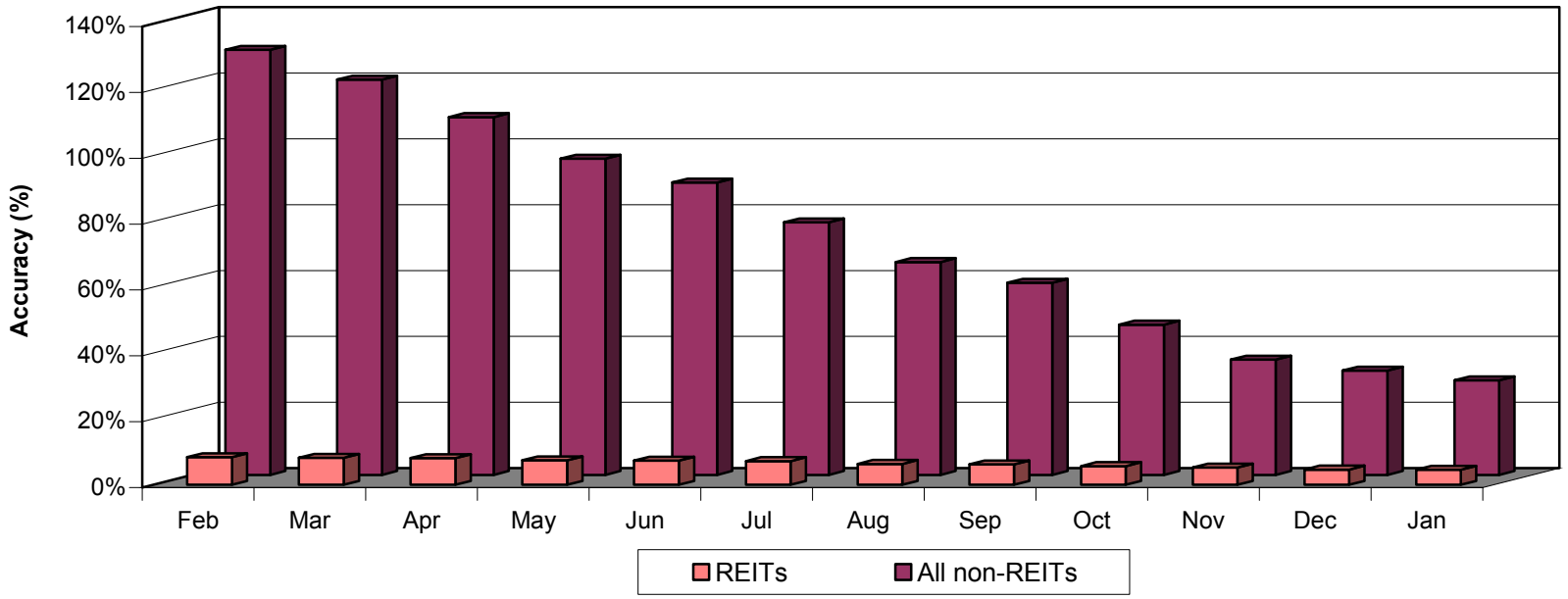

EXHIBIT 4
REIT versus Non-REIT Precision

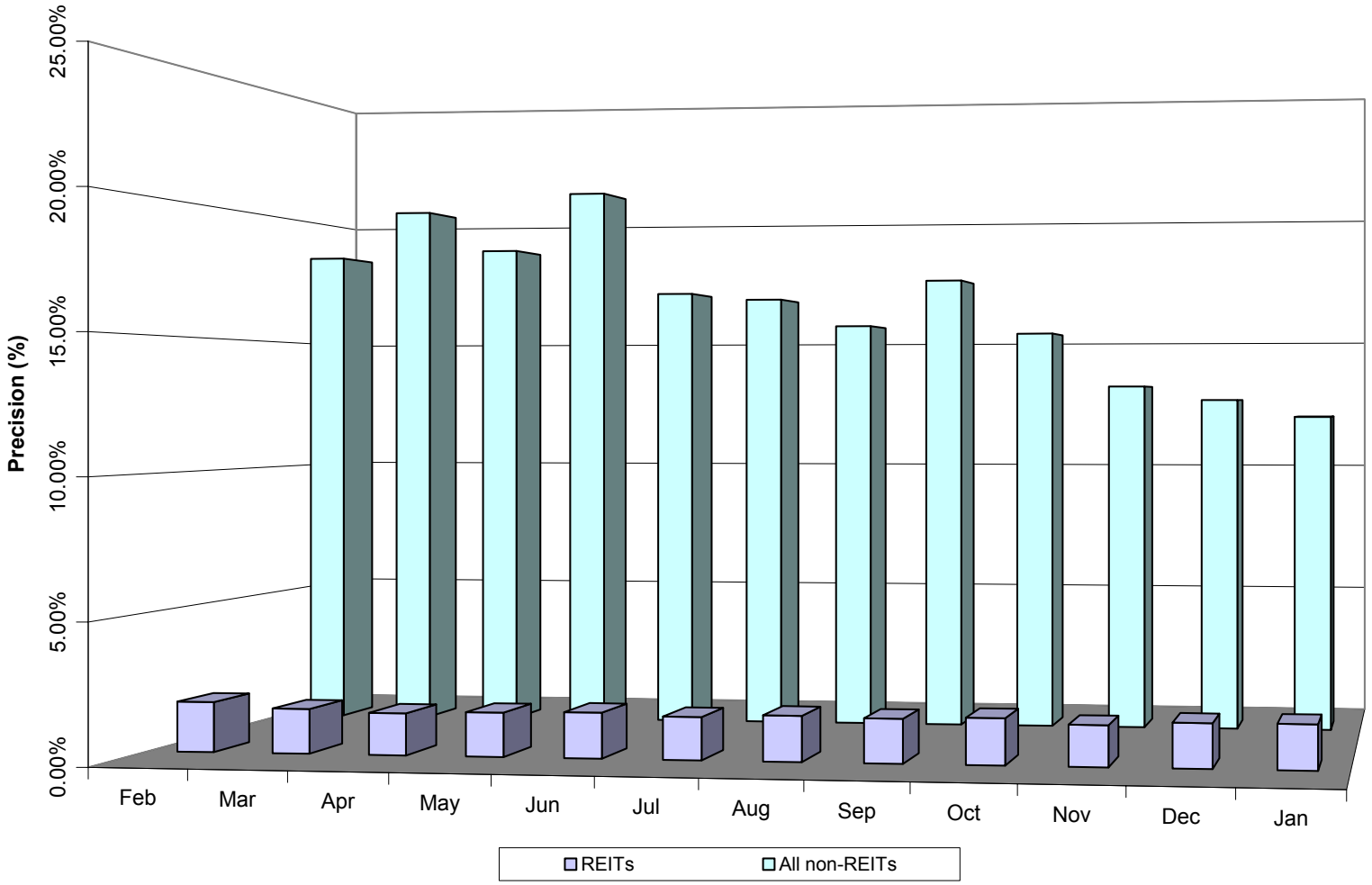

EXHIBIT 5
A Quality Comparison of REIT FFO Forecasts versus non-REIT Net Income Forecasts

	REIT FFO		non-REIT EPS		$H_0: \mu_1 = \mu_2$	
Variable	N	Mean	N	Mean	t stat	p-value
Panel A – Full Sample						
Accuracy (%)	461	7.40	15172	61.37	7.5	<0.00
Precision (%)	430	2.01	12286	18.50	14.6	<0.01
Panel B – Full Sample restricted to firms with stock price greater than or equal to $5 per share						
Accuracy (%)	441	5.82	11959	42.41	7.3	<0.01
Precision (%)	420	1.86	10488	15.15	10.7	<0.01
Panel C – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 3 and number of estimates greater than or equal to 3						
Accuracy (%)	392	4.60	8849	15.50	12.2	<0.01
Precision (%)	392	1.75	8846	14.54	9.0	<0.01
Panel D – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 1, precision less than or equal to .25 and number of estimates greater than or equal to 3						
Accuracy (%)	389	3.93	7965	8.32	7.3	<0.01
Precision (%)	389	1.17	7954	4.47	30.4	<0.01

EXHIBIT 6
A Quality Comparison of REIT FFO Forecasts versus High Tech Firm Net Income Forecasts

	REIT FFO		High Tech EPS		$H_0: \mu_1 = \mu_2$	
Variable	N	Mean	N	Mean	t stat	p-value
Panel A – Full Sample						
Accuracy (%)	461	7.40	2495	54.52	7.8	<0.01
Precision (%)	430	2.01	2007	18.04	9.9	<0.01
Panel B – Full Sample restricted to firms with stock price greater than or equal to $5 per share						
Accuracy (%)	441	5.82	1779	38.01	10.4	<0.01
Precision (%)	420	1.86	1621	16.25	7.8	<0.01
Panel C – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 3 and number of estimates greater than or equal to 3						
Accuracy (%)	392	4.60	1405	18.60	11.0	<0.01
Precision (%)	392	1.75	1404	15.79	6.9	<0.01
Panel D – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 1, precision less than or equal to .25 and number of estimates greater than or equal to 3						
Accuracy (%)	389	3.93	1245	10.64	9.2	<0.01
Precision (%)	389	1.17	1242	4.87	20.7	<0.01

EXHIBIT 7
A Quality Comparison of REIT FFO Forecasts versus Utility Firm Net Income Forecasts

	REIT FFO		Utility EPS		$H_0: \mu_1 = \mu_2$	
Variable	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 – Full Sample restricted to firms with stock price greater than or equal to $5 per share						
Accuracy (%)	441	5.82	861	48.61	3.7	<0.01
Precision (%)	420	1.86	828	16.80	6.1	<0.01
Panel C – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 3 and number of estimates greater than or equal to 3						
Accuracy (%)	392	4.60	749	19.55	8.7	<0.01
Precision (%)	392	1.75	749	16.20	5.4	<0.01
Panel D – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 1, precision less than or equal to .25 and number of estimates greater than or equal to 3						
Accuracy (%)	389	3.93	642	9.12	6.3	<0.01
Precision (%)	389	1.17	641	5.03	16.9	<0.01

EXHIBIT 8
A Quality Comparison of REIT FFO Forecasts versus REIT Net Income Forecasts for 2001

	REIT FFO		REIT EPS		$H_0: \mu_1 = \mu_2$	
Variable	N	Mean	N	Mean	t stat	p-value
Panel A – Full Sample						
Accuracy (%)	37	0.78	35	25.71	4.7	<0.01
Precision (%)	37	0.55	22	12.76	3.9	<0.01
Panel B – Full Sample restricted to firms with stock price greater than or equal to $5 per share						
Accuracy (%)	37	0.78	35	25.71	4.7	<0.01
Precision (%)	37	0.55	22	12.76	3.9	<0.01
Panel C – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 3 and number of estimates greater than or equal to 3						
Accuracy (%)	36	0.80	10	9.93	3.8	<0.01
Precision (%)	36	0.55	10	6.52	3.0	0.01
Panel D – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 1, precision less than or equal to .25 and number of estimates greater than or equal to 3						
Accuracy (%)	36	0.80	10	9.93	3.8	<0.01
Precision (%)	36	0.55	10	6.52	3.0	0.01

EXHIBIT 9
The Number of Forecast Estimates of REIT FFO versus Comparison Group Net Income

	REIT FFO		Comparison Group, Net Income		$H_0: \mu_1 = \mu_2$	
Variable	N	Mean	N	Mean	t stat	p-value
Panel A – Full Sample						
Non-REITs	454	7.62	14780	6.37	6.1	<0.01
High Tech firms	454	7.62	2411	5.99	7.0	<0.01
Utility firms	454	7.62	924	9.71	6.9	<0.01
REITs (Net Inc)	37	9.41	35	1.97	11.5	<0.01
Panel B – Full Sample restricted to firms with stock price greater than or equal to $5 per share						
Non-REITs	441	7.70	11978	7.13	2.7	<0.01
High Tech firms	441	7.70	1785	7.16	2.1	0.03
Utility firms	441	7.70	862	10.09	7.7	<0.01
REITs (Net Inc)	37	9.41	35	1.97	11.5	<0.01
Panel C – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 3 and number of estimates greater than or equal to 3						
Non-REITs	392	8.46	8863	9.03	2.8	<0.01
High Tech firms	392	8.46	1410	8.55	0.4	0.71
Utility firms	392	8.46	750	11.26	8.9	<0.01
REITs (Net Inc)	36	9.61	10	3.20	10.3	<0.01
Panel D – Full Sample restricted to firms with stock price greater than or equal to $5 per share, accuracy less than or equal to 1, precision less than or equal to .25 and number of estimates greater than or equal to 3						
Non-REITs	389	8.49	7971	9.22	3.5	<0.01
High Tech firms	389	8.49	1248	8.88	1.4	0.16
Utility firms	389	8.49	642	11.95	10.4	<0.01
REITs (Net Inc)	36	9.61	10	3.20	10.3	<0.01