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New Public Offerings, Information, and Investor Rationality: The Case of Publicly Offered Commodity Funds*

In a recent issue of this Journal (Elton, Gruber, and Rentzler 1987) we analyzed the performance of publicly offered commodity funds. The conclusion of this research was that publicly offered commodity funds were not attractive either as stand-alone investments or as additions to a portfolio containing stocks and/or bonds. A natural question arising from this study, and one that we have often been asked, is, Why do investors continue to choose to purchase commodity funds and why are these funds such a fast growing segment of investors’ portfolios?

While one potential explanation is that investors are irrational, a second and more plausible explanation is that potential investors in a fund are systematically given misleading and biased information and have no ability to evaluate its inaccuracies. The resolution of this puzzle has important implications not only for understanding the growth of limited partnerships like commodity funds but also for the kinds of informational assumptions that are plausible in general model building in finance.

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The types of commodity funds we examine in this article are limited partnerships that are offered to the public by prospectuses with the investment "opportunity" offered over a specified period of time, usually less than 6 months.\(^1\) The principal information the potential investor has at the time of the purchase decision is the description of the fund and the historic performance of the fund's investment adviser or advisers and pool operators as presented in the prospectus.\(^2\) In this article, we examine whether the evidence provided in the prospectus, which purports to measure the ability of the investment adviser and pool operator, has any relationship to the performance of the fund after it goes public. We also examine the discussion of commodity funds by a sample of the financial press to see whether it corrects or reinforces the general conclusion that investors might draw from examining prospectuses.

Anticipating our result for a moment, we find that the returns reported in the prospectus are so much higher than the subsequent returns earned on the public funds that, not only are the differences statistically significant, but they are also of a sufficient size that the reported data are misleading as a basis for an investment decision. We find the reasons for this discrepancy to be in part a function of the self-selection process in going public and in part a function of the regulations concerning what data can and must be included in the prospectus. In addition, the reasons for these discrepancies are unlikely to be detected by investors over time. Thus, the process is unlikely to be self-correcting.

While the research in this article concerns publicly offered commodity funds, we believe the implications of the research go far beyond this particular type of investment. The reasons we find for the discrepancy between return data in the prospectus and subsequent earned returns should apply to other types of limited partnerships, such as those found in real estate, venture capital, and oil and gas, and should in general cause prospectus return data to be viewed with extreme caution.

This article is divided into six sections. In the first section we discuss

\(^1\) Occasionally funds are reopened after the initial public offering and new capital is sought. However, the normal procedure is to simply start a new commodity fund.

\(^2\) The other sources of information an investor has are word-of-mouth and newspaper and magazine articles. We did a search of references in the press. The details are discussed later. However, an idea of how limited this discussion is can be seen from our search of 34 business magazines from June 1979 to February 1987. There were only 28 references. Furthermore, 15 of the 28 references were in the specialized magazines, Futures and Commodities. While our search surely missed some references, the numbers are suggestive, and for most investors the sole or principal information source is the prospectus.
our sample and the regulations governing the inclusion of performance data in the prospectus. In the second section we discuss the relationship between the performance data as reported in the prospectus and subsequent actual public fund performance. In the third section we examine the reasons for the differences found in the second section. In the fourth section we examine whether newspaper and magazine articles reinforce or contradict the information contained in the prospectuses. In the fifth section we examine the improvement in information for the investor due to the passage of time. Finally, in the conclusion we present some policy implications of this research.

I. Background

In this section we discuss background material needed to understand the latter analysis. We first discuss the rules concerning the reporting of performance figures in prospectuses. We then discuss the sample used in this study.

Publicly traded commodity funds are offered by prospectus to potential investors. The rules governing the reporting of past performances are clearly delineated. Both the commodity pool operator (CPO) and the commodity trading adviser (CTA) must provide at least 3 years of performance history, if available, for all pools and accounts that they have operated (or in the case of an adviser, advised) during the previous 3 years. Note that, while at least 3 years of data are required if available, the CPO and CTA are at liberty to include any period of time longer than 3 years. It is also worth noting that performance figures cannot end more than 3 months before the date of the disclosure document.

In order to analyze the performance of public commodity funds compared to prospectus returns, we attempted to obtain prospectuses for all of the 91 public commodity funds examined in Elton, Gruber, and Rentzler (1987). 4

We were successful in obtaining prospectuses for 79 of these 91 funds. However, two of the prospectuses we obtained were not used because the trading adviser did not have any previous experience, and hence there was no history of past returns. This left us with a sample consisting of 77 of the original 91 funds. The obvious way the 12 missing prospectuses could have biased our sample is if performance were a

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4. This includes all public commodity funds that existed over this period except for three. Our sample procedure in Elton, Gruber, and Rentzler (1987) was to include all public funds that existed in June of each fund. The three excluded funds went public after June of one year and dissolved before June of the next.
function of time and if these prospectuses were all issued at or around the same time. This was not a problem: the 12 prospectuses were issued in 5 different years.\footnote{There is a slight tendency for the missing prospectuses to be associated with the older funds. The missing are five for funds that went public in 1978, two in 1979, two in 1981, two in 1982, and one in 1983. We believe that our results are minimally affected by their exclusion. There is also a slight tendency for the missing prospectuses to be associated with funds that went bankrupt. This exclusion will cause an increase in prospectus performance relative to public fund performance.}

To prepare our data we used the following procedure. If a prospectus reported performance for only one commodity trading adviser or pool operator, we utilized the return for that adviser. If a prospectus reported returns for more than one commodity trading adviser and/or one or more commodity pool operator, we calculated an equally weighted average of the return for all advisers and pool operators.

II. Results

Table 1 shows a comparison between the historic returns reported in the prospectuses and the returns on the same set of funds after they went public.\footnote{As discussed in Elton, Gruber, and Rentzler (1987), the reader should not utilize the average monthly return to estimate return over a longer holding period. In our study we found an average monthly return of 7.3%. However, the average monthly return assuming an annual holding period was negative. The average monthly return is an overestimate of what the investor can expect to receive from investing in commodity funds and holding them for a year. The use of average monthly returns, although inaccurate as a projection of longer run returns, is appropriate for comparing relative performance.} The average return shown in the prospectus was 5.59\% per month (annualized 92\% per year). This is much higher than the return earned by these same funds once they went public. For the first year and the first 2 years after going public, only one fund in our sample had returns above the average return shown in all prospectuses. No fund had average performance above the average prospectus return after 2 years. We also examined how many funds outperformed the return shown in their own prospectuses. The answer is, None after 2 years and only two in the first 2 years after going public. Thus, if prospectus returns are an attempt to convey the mean expected return with some funds having actual performance above and some funds below that shown in the prospectus, they fail. Actual fund performance is almost always below and in fact substantially below prospectus return. After funds went public, they earned on average a very small fraction (between 4.1\% and 9.7\%, depending on the time period employed) of the return shown in the typical prospectus.

One possible explanation for the difference in prospectus and public fund return is that performance changed over time, and that the prospectus performance occurred during a period when commodity trading advisers did well and public fund performance was during a period
TABLE 1 Comparison between Historic Returns Reported in Prospectuses and Returns after Funds Went Public

<table>
<thead>
<tr>
<th>Prospectus</th>
<th>Average Monthly Returns as % of Return in Prospectus</th>
<th>No. of Funds with Returns above Own Prospectus</th>
<th>No. of Funds with Returns above the Average of All Prospectuses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public commodity funds:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year public*</td>
<td>73</td>
<td>.23</td>
<td>4.1</td>
</tr>
<tr>
<td>First 2 years public†</td>
<td>51</td>
<td>.36</td>
<td>6.4</td>
</tr>
<tr>
<td>First 3 years public</td>
<td>36</td>
<td>.30</td>
<td>5.4</td>
</tr>
<tr>
<td>First 4 years public</td>
<td>25</td>
<td>.54</td>
<td>9.7</td>
</tr>
</tbody>
</table>

*Four funds were excluded because of missing data in early months.
†Only 51 of the 77 firms in our sample had return data available 2 years after going public. The numbers decrease as we go down the table because funds that went public toward the end of our sample period do not have a long history of performance after going public.

when commodity trading advisers did poorly. The funds in our study went public over a 6-year period, so this is unlikely to be the explanation, but we did test this directly. Our sample contains 54 months in which both of the following conditions are met: (1) we have returns on at least 10 public commodity funds, and (2) we have returns from at least 10 prospectuses.  The number of commodity funds over the 54-month common period varied from 11 to 72, with an average of 35. The number of prospectuses with returns in these months varied from 10 to 66 with an average of 48. For each month we calculated both the average return on all public commodity funds and the average return from all the prospectuses. Thus, both commodity fund returns and prospectus returns are subject to the same economic influences. We then examined (1) the size and statistical significance of the difference in these paired observations (prospectus returns minus public fund returns), and (2) a regression of the average return on public commodity funds on the average return shown in the prospectuses in the same month (both stated in percent per month). The results are

\[
\text{average (prospectus returns} - \text{public fund returns}) = 2.81, \quad (1)
\]

\[
\text{with a } T\text{-value of } 5.15,
\]

\[
\text{public fund returns} = -1.96 + .79 (\text{prospectus return}), \quad (2)
\]

\[
(0.59) \quad (0.07)
\]

\[R^2 = .71.\]

The values in the parentheses are standard errors.

7. The choice of 10 is arbitrary. Only 2 additional months would have been added if we had used a cutoff of five and 6 additional months if our cutoff was one.
These two results clearly point out that, while the pattern of prospectus returns is very similar to the pattern of public fund returns, the means differ. The high and statistically significant $R^2$ is evidence that the pattern of returns reported in the prospectus is very similar (highly associated with) the pattern of returns earned by public funds. The fact that the public funds earned 2.81% less per month than the returns (in the same month) shown in the prospectus and that the difference is statistically significant clearly demonstrates that prospectus returns are different from the returns on public funds. These results strongly suggest that the difference in public fund return and prospectus return cannot be explained by a different time period or different economic influences.

Our next type of analysis, analogous to a traditional event study in the sense that it examines returns in event time rather than calendar time, examines whether there is a time pattern to the history of returns shown in prospectuses. Once again, to control for conditions in the market we subtract the average return on public funds from each prospectus return in the same calendar month. Thus we will be reporting the average returns shown in the prospectus minus the average returns earned by public funds in the same month. If we require prospectus returns and returns on commodity funds for at least 10 funds, we have 54 months of differential returns.

Figure 1 shows the cumulative differential returns. Time zero is the first month of public fund returns. Thus, the number reported for date $-1$ is the differential return shown in the month before the public fund first reports returns. There are several notable features in the figure. First, of course, is the consistent difference between the returns shown in the prospectus and the returns public funds achieve. The second feature is that the differential return is very high in the early months relative to the later months. This feature will be discussed in some detail in the next section.

These three types of analysis have all indicated that the level of returns reported in prospectuses is not indicative of the level of returns that funds will earn once they are public. Prospectuses might still be useful if they conveyed information about the future relative ranking of commodity funds. For example, if an investor compared a set of prospectuses available at a moment in time, would an investor selecting a

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8. The reader should note that the mean return shown in the prospectus over the period of this analysis was 4.05%, rather than the 5.59% reported in table 1. This difference comes about because in the months included in the comparative analysis there were almost no prospectus returns longer than 36 months before public offering. As we explain in a later section, prospectus returns tend to be much larger in the period of time longer than 36 months (the voluntary period). When we look at prospectus returns for the 36-month period before the offering we find they average 4.14%, a figure close to the 4.05% found for the regression period.
fund with the higher prospectus return increase the odds of holding a better performing fund? Table 2 provides an answer to this question. This table compares the relative performance reported in a prospectus with relative actual fund performance.

In each year we assumed a potential investor could choose among all funds that went public in that year for which we had prospectuses. Our first analysis was a cross-sectional regression of prospectus returns and subsequent performance. We used four different measures of public fund performance: performance the first year after going public, the first 2 years, the first 3 years, and the first 4 years. Since funds that went public in recent years would have fewer than 4 years of actual returns, we had 14 regressions. Of the 14 regressions, eight have positive slopes and six negative slopes. Only one of the $R^2$'s is significant, and in this case subsequent fund performance was negatively related to prospectus performance.

Our second type of analysis computes the average fund return on the half of the funds with the highest prospectus return minus the average fund return for the funds in the lowest half of prospectus return. The results are shown in the last column of table 2. In nine of 14 instances, subsequent performance was higher for those prospectuses that showed the poorer history of returns.\(^9\) Table 2 does not provide any

\(^9\) These are not independent observations since the first year's performance is also part of the performance over the first 2 years, etc.
TABLE 2  Relative Prospectus Performance Compared with Relative
Actual Fund Performance
Public Returns = a + b Prospectus Returns

<table>
<thead>
<tr>
<th>Year Went Public and No. of Years of Performance</th>
<th>Intercept a</th>
<th>Slope b</th>
<th>R²</th>
<th>Returns (Upper Half Minus Lower Half)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>-1.29</td>
<td>-.16</td>
<td>.16</td>
<td>-.55</td>
</tr>
<tr>
<td>1982:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>-1.79</td>
<td>.13</td>
<td>.05</td>
<td>+.59</td>
</tr>
<tr>
<td>2</td>
<td>-.65</td>
<td>.10</td>
<td>.02</td>
<td>+.44</td>
</tr>
<tr>
<td>1981:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>-.92</td>
<td>.15</td>
<td>.09</td>
<td>-.44</td>
</tr>
<tr>
<td>2</td>
<td>-.38</td>
<td>-.00</td>
<td>.00</td>
<td>-.47</td>
</tr>
<tr>
<td>3</td>
<td>.42</td>
<td>-.08</td>
<td>.10</td>
<td>-1.17</td>
</tr>
<tr>
<td>1980:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>-.20</td>
<td>.22</td>
<td>.09</td>
<td>1.94</td>
</tr>
<tr>
<td>2</td>
<td>-.64</td>
<td>.21</td>
<td>.15</td>
<td>1.57</td>
</tr>
<tr>
<td>3</td>
<td>-.58</td>
<td>.11</td>
<td>.08</td>
<td>.46</td>
</tr>
<tr>
<td>4</td>
<td>.02</td>
<td>.06</td>
<td>.02</td>
<td>.10</td>
</tr>
<tr>
<td>1979:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.72</td>
<td>-.71</td>
<td>.84</td>
<td>-2.61</td>
</tr>
<tr>
<td>2</td>
<td>3.12</td>
<td>-.42</td>
<td>.38</td>
<td>-1.92</td>
</tr>
<tr>
<td>3</td>
<td>1.24</td>
<td>-.05</td>
<td>.07</td>
<td>-.73</td>
</tr>
<tr>
<td>4</td>
<td>.33</td>
<td>.07</td>
<td>.06</td>
<td>-.70</td>
</tr>
</tbody>
</table>

*Year is from July to June. Thus, 1979 is for funds that went public from July 1979 to June 1980.
†This column shows the difference in returns actually earned once public. The number is the return on the funds that had the highest returns reported in the prospectus minus the funds which had the lowest returns.

support to the proposition that an investor could use prospectus returns to select the better performing funds.

In the next section we discuss why the difference in return exists between what is shown in the prospectus and what is actually earned on public funds.

III. What Went Wrong

We have now demonstrated that the historic return data reported in the prospectuses of publicly offered commodity funds are not indicative of the return these funds earn once they are public. In fact, the differences in performance figures are so large that the prospectus numbers are seriously misleading. We have shown that this discrepancy cannot be accounted for by a different time period for prospectus returns and public fund returns. The logical question is, What can account for these discrepancies?

There are three reasons why we would expect prospectus return figures to be unrepresentative of future performance.
1. **Transaction Costs and Management Fees.** Public funds in general charge larger commissions and management fees than private pools. While the data as reported in the disclosure document would allow the investor to recalculate some or all of the rates of return based on the new expected commissions, these corrected rates of return are often not presented.

2. **Self-Selection.** Only commodity advisers with successful track records are likely to go public. To the extent that good performance arose by chance, the superior performance is unlikely to continue over time.

3. **Control over Reported Numbers.** The adviser can choose the length (in excess of 3 years) of the performance period placed in the disclosure document (prospectus) and to some extent the ending date. This allows the most favorable period to be selected.

   We now discuss each of these in more detail.

**A. Transaction Costs and Management Fees**

The first reason that the historic returns reported in the prospectus are not indicative of future performance is because transaction costs and management fees will be different after the public offering than they were before. Some prospectuses include a return figure utilizing the new fee schedule. Other prospectuses contain enough data to allow an investor with a calculator and some time to approximate the returns that would have been earned had the new commission costs and management fees been in existence. However, the time period covered by the transaction and management fee data is often different from, and shorter than, the return history in the prospectus. Furthermore, the level of sophistication and the time required to perform the necessary calculations is not insignificant. We have recalculated returns for a sample of 23 prospectuses. If these new fees had been in effect the average monthly return shown in the prospectus would have been lowered by .13% (from 5.59 to 5.46%). Furthermore, only one prospectus had a change in return of more than .75%. Thus the change in the fee schedule as reported in the prospectus accounts for only a small part of the difference in returns before and after going public.

**B. Self-Selection**

There are a large number of commodity trading advisers registered with the National Futures Association. In 1980 there were 1,866 such advisers. As of February 1987, there were 2,080 such advisers. The vast majority of these advisers manage private, as opposed to publicly traded, accounts (there were only 94 public funds in our sample period).
Since the prospectus on any publicly offered account must, by law, contain past performance figures, it is logical that those advisers who have done well over a recent period are the advisers who are going to be selected to manage a public account.

One possible explanation for the results we found is that commodity trading advisers' performance is random and that the ones who are selected as advisers to public funds are the ones who, by pure chance, had a sequence of good returns. To examine this hypothesis we first determine whether the returns shown in the prospectus could have arisen by chance given the actual performance of public commodity funds. Then we examine evidence of randomness.

By law, the disclosure document must include at least 36 months of data if it exists. The average return shown in the prospectus over the last 36 months of reported data is 4.14% per month. In our earlier study we found that public commodity funds had an average return of .73% per month with a standard deviation of 11.30% per month.\(^10\) Assuming that the average return is normally distributed, the probability of finding an average monthly return for any fund over a 36-month period higher than 4.14%, given that the true mean is .73%, is .035.\(^11\) This number is calculated by taking the difference between the mean return shown in prospectuses and the mean return earned by public funds (4.14% - .73%) and dividing by the standard deviation of the mean return (11.30/\sqrt{36}). The probability of exceeding this computed value of 1.81 is ascertained from the cumulative normal table to be .035. Given the number of advisers managing private pools (between 1,886 and 2,080), we would expect to find more than 65 advisers at any time who have a return greater than 4.14% over the prior 36 months.\(^12\) The number of funds that went public averaged 15½ per year over our sample period. Thus prospectus performance is consistent with the performance we find for public commodity funds if managers of such funds are selected from the private pools with high performance and

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10. Arithmetic means rather than holding-period returns (geometric means) are used throughout this study. This makes comparisons over different horizons easier but overstates all returns. We once again caution the reader not to use average monthly returns as indicative of returns over a longer period. See Elton, Gruber, and Rentzler (1987) for more details.

11. The assumption of normality would follow from the Central Limit Theorem if all funds were drawn from the same distribution. Heterogeneity among fund managers would in general lead to more funds having average returns above the 4.14% cutoff rate.

12. These numbers are approximations because we have not considered new entries and exits from the population of advisers and the overlapping 36 months of data for our calculations. The only simplification that would reduce the number of potential high return advisers is the lack of adjusting for overlaps. But even if we allowed no overlap, there would still be more than a sufficient number of advisers. Thus the prospectus returns, while misleading, are consistent with the true performance of private pools being the much lower return of publicly traded funds rather than that shown in the prospectus, and there is no predictability of future return from past return.
performance is random. In fact, the number of prospective managers is much larger than 65. We have computed this number by assuming that each fund going public has an average monthly return greater than 4.14% when all we required was that the average for all funds going public was greater than 4.14%.

Probably the strongest indication that fund performance is random and, hence, that selection bias accounts for the results is provided by examining the random nature of the relative performance of funds. In our prior study, we showed that there was no predictability in the year-to-year performance of publicly traded commodity funds. In the previous section of this study we showed that the relative ranking of prospectus returns could not be used to predict subsequent relative performance of public funds. This evidence of unpredictability is exactly what would be expected if performance were random and prospectus return were the return of managers who performed well by chance in the prior period.

The presence of selection bias has implications for other types of investments offered by prospectus. Due to self-selection by the managers of any type of public offering, the historical data in prospectuses are likely to be highly misleading and inflated indicators of future performance.

C. Control over Reported Numbers

While the number of months of reported performance data must be no less than 36 months if such data exists, the manager is free to present additional data. We would expect, since the prospectus is in a real sense a sales document, that a length of time would be chosen to make the fund managers have as high a return as possible. There are two ways of demonstrating that this is in fact the case. There were 77 prospectuses in our sample. Their average reported monthly return for the latest 36 months was 4.14%. Of these 77 funds, 69 presented data for more than 36 months. The average monthly return for the added period that was selected voluntarily was 8.85%. Even more dramatic is the average return reported for the first month in the prospectus for all funds reporting more than 36 months of data. Recall that the funds can choose any starting point they desire. The average return in the starting month was 14.6%, or an annualized rate of better than 400%. Clearly, allowing the adviser to select the length of the time series to be included in the prospectus leads to an upward bias in the performance figures. The average monthly return reported by funds was 5.59% while, if they had been restricted to reporting a uniform length of 36 months, it would have been 4.14%.13

13. We also examined a break at 40 months since some of the latest results shown in the prospectus may be included because of a delay in prospectus issuance. No difference in the type of results was detected.
Once again this has connotations for other public offerings. Any time the issuer is allowed to select the time period over which returns are reported, the result is bound to be an average an overstatement of what the future will bring.

IV. Information on Commodity Funds in the Press

The other source of information on commodity funds is articles in the financial and popular press. We performed two computerized searches of references to commodity funds. The first examined references in 34 business magazines from June 1979 through February 1987. The second examined the New York Times and the Wall Street Journal over the same period.

Our search of 34 business magazines yielded 28 references to commodity funds. Although any classification scheme is somewhat subjective, we divided the articles as follows: 12 articles provide a general discussion about investing in commodity funds, 9 articles presented general performance results, 4 discussed the results of an individual manager, and 3 were classified as miscellaneous.

Almost all of the 12 articles discussing general investment in commodity funds were highly favorable both in the selection of the numbers they reported and in their general comments on commodity funds. Indeed, some of the statements were stronger than anything contained in any of the disclosure statements.14

Of the nine articles presenting general results, five were highly favorable. Even those articles that did not present totally favorable results almost always closed with a success story. Typical is an April 26, 1982, story in Business Week. After talking about the fact that half of the commodity funds suffered losses in 1981, it explains that the industry is continuing to grow probably because of the outstanding performance of some funds. The article then goes on to discuss in some detail the performance of Heinhold, which earned a 75% rate of return in the prior year. Articles like this provide biased information to the investor because they almost always discuss the performance of the one to five funds that did well over some time period and they almost never discuss the funds that did badly, nor do they ever caution the reader that there is no evidence that past performance of a commodity fund is related to future performance.

Of the seven remaining articles, four discussed the success of some individual managers. Of the last three articles, one discussed our study (Elton, Gruber, and Rentzler 1987), one discussed the Bodie and Rosansky (1980) study on the performance of buying futures long, and one

discussed the factors that would lead to a large increase in new money invested in commodity funds.

The second data search was of the *Wall Street Journal* and the *New York Times*. Every month, the *Wall Street Journal* reports the prior month's performance for commodity funds. Separate from this, there were eight articles on commodity funds in the *Wall Street Journal* and the *New York Times*. Four of these were favorable discussions of funds' usefulness, three were a discussion of results, of which only one reported poor performance in the prior year, and one discussed the success of a single fund.

While the computerized search may not have located all articles on commodity funds, there is no reason to believe it systematically excluded certain types of articles. Anyone reading these articles as a whole would get the impression that commodity funds had excellent performance and were good investments. Although impressions are necessarily subjective, only one article mentioned that a fund had poor performance and dissolved. The overwhelming majority read like a sales presentation. The newspaper and magazine articles support and reinforce the favorable impression of the prospectuses.

V. Information and Time

Much of the analysis in finance assumes that investors learn over time as more and more information is revealed to them. Thus, although investors may be initially misled, eventually they will adjust their decisions.\(^{15}\)

In prior sections, we showed that the return data in the prospectus provide little guidance in judging the performance of public commodity funds or in choosing between new offerings. Data in the prospectuses may provide useful information to the investor on fund volatility and correlation with other investments, but they do not provide information that would allow an investor to estimate mean returns. Volatility and correlation data can be judged with a few prospectuses, but whether an investor sees one prospectus or a thousand will not lead to an improvement in the ability to forecast subsequent mean returns. Thus, insofar as prospectuses are the principal source of information, investors will not learn over time.

The other principal sources of new information to an investor include newspapers, magazines, and other investors. Our comments

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\(^{15}\) Given the enormous volatility of the returns on public commodity funds, a lengthy time period was necessary before one could be sure that the poor results were not simply a bad sequence of returns but, rather, a very poor mean return. The 6 years of data we analyzed was sufficiently long that the odds that returns are attractive and that we are simply observing a bad sequence was very small.
here must be more speculative. As just discussed, general articles on commodity funds in the press primarily support the impression given in the prospectuses. The types of information sometimes reported in the press that should have reflected the poor performance of commodity funds are indices of past performance of commodity funds and data on the actual performance of individual commodity funds. However, the indices we are aware of are upwardly biased due to exclusion of funds that fail and those that get into financial difficulty. This effect should not be underemphasized since, over our sample period (which contained a total of 91 funds and an average of 44 funds), 11 funds dissolved. Likewise, tables of performance figures of individual funds that we have seen have excluded those that dissolved or had suspended trading due to poor performance. Thus, the press, rather than providing useful information to an investor, is reinforcing the image created by the prospectus.

The final source of information is other investors. Given the information in the press, most investors are likely to believe that they had a bad outcome rather than believe that public commodity funds are a poor investment. Thus, we believe that unlike the assumption we usually make that investors learn quickly over time, investors in commodity funds are likely to be misled for a long time. This has serious implications for the assumptions about the rational allocation of resources.

We believe this is a general problem for investments where potential investors are unable to obtain unbiased data on actual performance and must rely on prospectus data and coverage by the financial press. Real estate, oil, gas, and motion-picture limited partnerships are examples of other types of investments where we would expect similar problems to arise.

VI. Conclusion

Sales of new publicly offered commodity funds have continued to increase over time. This is true despite the poor performance of publicly offered commodity funds. We believe this growth continues because of the grossly misleading information on performance presented in prospectuses and because of the biased press coverage these funds receive.

A natural question to ask is, How can these funds sell at above their economic value in a world of efficient markets? Markets are made efficient by the existence of arbitrageurs who profit from exploiting inefficiencies. But there is no way to trade against these funds in a manner that earns an arbitrage profit. In Elton, Gruber and Rentzler (1987), we showed that the lack of an economic profit from these funds comes about primarily because of high transaction costs and high management fees, not because of taking the wrong side of futures con-
tracts. Since these partnerships cannot be sold short, there is no way to take an arbitrage position to exploit these inefficient securities.

If arbitrageurs cannot restore efficiency to the market, it is necessary for all potential investors, not just a small group of professional investors, to possess correct information about these funds. While we do not have a plan for obtaining this result, surely the first step is correcting the misleading nature of fund prospectuses. We recommend three policy changes.

1. State all rates of return as they would have existed had the future commission charges and transaction costs been in effect. Although the effect is small, the returns would be more indicative of what the investor would have received had the actual fee schedule been in effect.

2. Include a statement with the return data that any returns beyond 36 months are included at the discretion of the CPO or the CTA.

3. Finally, and most important, provide data on actual performance on the same type of investment vehicle and on the ratio of actual returns to prospective returns for funds that have gone public in the past. The fact that in the past commodity funds have earned less than one-tenth of the returns they reported in the prospectus after they went public is a warning that any investor should have and should heed.

References
