14.2 Carhart on funds – questions

The introduction summarizes his conclusions:

1. Momentum in stocks accounts for momentum in funds. Funds that did well last year have stocks that went up and those stocks will keep rising a bit. It is not

   (a) Persistent skill, or
   (b) Good returns for momentum funds.

2. Momentum funds do poorly after transactions costs.

3. There is some persistent under performance.

4. Survivor bias free data – includes funds that die. (Lots of hard work by Carhart, and another great CRSP dataset.)

We need to look for the facts! Find the facts behind these assertions in the paper.

Now Questions for Class:

1. On p.61 Carhart defends the four-factor model as a performance attribution model.

   (a) Why is it OK to use a “momentum factor” even if that is not a “state variable for investment opportunities?”
   (b) What question are we using the multifactor model to answer, and how is that question different from Fama and French’s question?
   (c) Suppose you find, looking at very long samples, that \( E(smb) = 0 \). Might you still use \( sml \) for performance attribution in a shorter sample? If so, why?

2. Does Carhart’s “momentum factor” solve the return puzzles in Fama French’s last table – does it account for returns in momentum-sorted stock portfolios? (There is no table here, but he does report some results verbally. What does he say?)

3. (Hint: table III is the most important. Spend most of your time to understand it.) How does Carhart form portfolios of mutual funds - -what are Portfolio 1A 1B...10C in column 1 of Table III?

4. Do funds that did well last year continue to do well next year? Point to numbers – is this serious or a tiny effect? Is the phenomenon stronger among winners or among losers?

5. Do the funds that went up last year always continue to go up? How much risk is there in this investment strategy? Can you guesstimate, of 100 funds in 1A last year, how many of them will make money this year?

6. Wait a minute. Knowing there are “hot hands” but that individual funds are risky, we could form a portfolio of the funds that went up last year (portfolio I). As we increase the number of funds in the portfolio, the portfolio variance should keep going down and our Sharpe ratios should keep going up. Why is the anticipated risk-reduction of diversification not happening?
7. Perhaps the funds that do better in the test year continue to do well on average because they have high CAPM betas. What does Carhart say about that?

8. Are all the alphas zero after the 4 factor model is done, or is there a puzzle? Who seems still to be outperforming and who is underperforming?

9. Which factor’s betas seems to be accounting for the “hot hands” (spread in average returns)?

10. What puzzle does Table IV address? What is its conclusion?

11. Fund managers claim that fees and turnover do not reduce returns to investors. How could charging more money *not* reduce returns to investors? (Try to be a good salesperson for a high-turnover high-fee fund. Why should I give you my money? Then try to be a good supply-demand economist. What should the equilibrium relationship be between fees, expenses and returns to investors?)

12. (Table V. Make sure you understand how this table was created.) What does Carhart find about fees and turnover? How much does a 1% change in fees change returns to investors? How much does turnover – selling one stock and buying another – change returns to investors?

13. What is the point of Figure 2? (Hint: what would it look like if the sort on one year performance indicated skill?)

14. What does Carhart say about momentum funds – funds that seem to follow a momentum strategy, as revealed by high loadings on the momentum factor? (Hint: no table, but text on p. 73)

15. One year lagged returns are probably mostly luck, not skill. What if you sort funds by the more common 5 year performance averages? (Hint: Figure 3)

16. Does Carhart suggest any trading strategies? (Hint. Look on p. 80)

### 14.3 Fama and French Mutual Fund Performance Questions

So far, we have been looking for “skill” by guessing some characteristic associated with skill – past returns, MBA by manager, etc. – and looking at the return of a sorted portfolio going forward. This paper tells us whether there is any skill at all, *without* us taking a stand on what characteristic can be used to find good funds. It answers the question “sure the average fund is mediocre, but there are some good funds.”

1. What do Fama and French mean by “Equilibrium Accounting? (1915)

2. Table 2 tells us about the performance of mutual funds as a whole – it studies the portfolio of all mutual funds. What does it tell us? Do mutual funds as a whole outperform benchmarks? What kinds of indices are most similar to the performance of all mutual funds? Do mutual funds as a whole generate alpha, before or after fees?

3. Fama and French focus on the alpha t statistic. Why not look at alphas or information ratios?

   Why don’t FF just use the t distribution, to judge how many funds should have alpha t statistics above a certain cutoff? Explain the bootstrap procedure. (Hint, p. 1924)
4. Explain the numbers in Table 3-4.

(a) What would they look like if all funds had zero true alpha, but the pattern of luck fully conformed to the assumptions of the t distribution (normal, independent, etc.)?
(b) What would they look like if there were some funds with +5% alpha and other funds with -5% alpha, so that the average fund was not skilled but some were good and some were bad?
(c) Why is the probability of a t greater than 2 or less than -2 not the usual 5% value that we expect for a t statistic?

14.4 Berk Questions

1. What happens to future returns and flows, according to Berk, if a manager does have some skill?

2. Berk says, unlike FF, that managers do have some skill even though alphas are all zero. How can that be?

3. Berk says that when investors chase past returns, investing in funds that have done well in the past, they are not being irrational, even though future returns are no better than average. How can this be?

4. Berk says that even though skill is permanent, returns will not be persistent. Why not?