HOMEWORK 1

FINA 6325 – BEHAVIORAL FINANCE
SPRING A 2019

Instructions: Type your answer in this Word document then submit via upload on Canvas! You may work in groups to complete the assignment, but *please submit your own write-up.* The due date is February 8 by 11:59 pm. DO NOT LEAVE IT FOR THE LAST MINUTE, LATE SUBMISSIONS WILL NOT BE ACCEPTED.

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1. After combing through the data, you have noticed that firms hiring Carlson graduates earn abnormal returns of +3% per year over the next few years. You are convinced that this is a genuine profit opportunity and so have decided to trade on it. You have $10,000 to invest and two options: (1) invest all $10,000 in one company that has just hired a Carlson graduate; (2) invest $1,000 in each of ten companies that have just hired Carlson graduates. Which choice, if either, is preferable? **(Approximately three sentences total)**

   Answer:

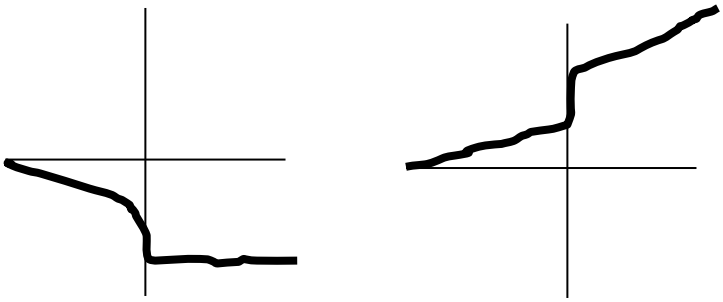
   If I was a rational investor, I would split my $10,000 investment in each of ten companies that have just hired Carlson graduates because diversifying a portfolio is the best way to hedge against market risk/forces. Diversification helps you reduce the variance of the market risk in your portfolio. Putting all of your investment into one company opens you up to the possibility that your portfolio will underperform if you select the wrong company that happens to have a bad year following sustained abnormal returns in previous years.

2. Your friend suggests that a good way to study whether stock prices are informationally efficient is to analyze whether mutual fund managers can earn abnormal returns. Should her study examine the performance of fund managers gross of expenses (i.e., load fees, management fees) or net of expenses? Of course, the return gross of expenses is higher than the return net of expenses. (Approximately three sentences total)

   Answer:

   i. Her study should examine the performance of fund managers gross of expenses; this would ensure that her study is not affected by how much information is available to fund managers and how efficient they are at using that information. If her study looks at fund manager's skill net of expenses, it would not yield a result that truly reflects a fund manager's investment ability because the excess fees (once they are factored in) lower that manager's alpha. In addition, these fees are not included in the benchmark index which is being used to compare fund managers and their skill.

i. Here is the output of two event studies (i.e., CARs from some date before the event through some date after the event). (i) Assuming that the correct E[R] model was used, which result (right graph or left graph or both) is most consistent with semi-strong EMH? (ii) Assuming that an incorrect risk model was used, can we reach any conclusions about the validity of the semi-strong EMH from either graph? (Approximately three sentences total)



Answer:

i. A semi-strong form of EMH states that investors cannot earn superior risk-adjusted returns using *any* publicly available information, and therefore as soon as information becomes public, it is immediately incorporated into prices. Assuming the correct E(R) model was used, we would expect the Cumulative Abnormal Returns (CARs) of the asset (or share price) to flatten out after that event date, because the CARs should equal zero (0) following the news of the event going public. Therefore, the graph on the left is most consistent with semi-strong EMH as we see it flat line after crossing the y-axis.

ii. You cannot test the validity of semi-strong EMH without a hypothesis about E(R) to test against your hypothesis that there are no abnormal returns (the "joint hypothesis" problem). If an incorrect risk model was used, there are no conclusions that can be reached about the validity of the semi-strong EMH for either graph because you have to use the model of "expected" returns to calculate what "abnormal" returns would be for each day before and after the event (and then determine if there were CARs).

4. You analyzed the returns of a sample of stocks. You found that, on average, the firms with high earnings to price (E/P) ratios have higher subsequent returns. (i) Discuss an explanation for this pattern that is consistent with the EMH. (ii) Discuss an explanation that is not consistent with the EMH. (Approximately three sentences per part above.) (iii) If mispricing is the primary reason for this pattern in E/P ratios, what long-short trading strategy will you propose? Justify your proposed strategy. **(Approximately <u>ten</u> sentences total)**

   Answer:

   i. The pattern of firms with a high earnings to price (E/P) ratio having higher returns is explained by the EMH because there is excess risk for "value"/small-cap stocks; a "value" stock has higher cost of capital and greater business risk. Fama and French added HML to their model to account for this discrepancy; their argument was that a smaller firm will, naturally, have a higher beta than larger firms and so that higher risk leads to higher earnings potential.

   ii. Behavioral finance argues that firms with a higher (E/P) ratio have higher returns because market participants are incorrectly pricing the value of these companies. This provides excess return in the long run as the value of the stock adjusts/corrects to its true fundamental value (and goes up).

   iii. The long-short strategy would be to long stocks with high (E/P) ratio ("value" stocks) and short stocks that have a low (E/P) ratio ("growth" stocks). The "value" stocks will gain better returns in the long term and "growth" stocks will be mispriced so as an investor you borrow shares of the "growth" stocks, sell them for the higher price, wait for the price to drop to the correct fundamental value of the stock, and then buy those stocks back at the lower price. The advantage to this strategy is that it is market-neutral, because we're betting on a cross-sectional pattern in order to minimize our beta, and thus generate a higher alpha from getting better returns on our "value" stocks.