

VANDERBILT UNIVERSITY
The Owen Graduate School of Management

Management 6435
Applied Investment Management

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ASSIGNMENT 3 (Due: 11AM, Monday, April 3, 2022)

General knowledge questions. (5 points each)

1. As of the end of 2022, what percent of all \$AUM was in the S&P 500 ETFs alone?
 - a. 10.1%
 - b. 11.2%
 - c. 13.9%
 - d. 31.2%
2. John Bogle, founder of Vanguard, explained that the fundamental idea underlying index investing is that:
 - a. Gross return in the stock market, minus the frictional costs of trading, equals the net return shared by all investors as a group.
 - b. The CAPM's security market line underlies the pricing of all risky assets.
 - c. The optimal composition of the stock market portfolio is a market value-weighted average of the prices of its constituent stocks.
 - d. Active fund managers are charging too much for their services.
3. The gross expense ratio includes:
 - a. Annual costs of operation and the management fee.
 - b. Costs to account for potential losses for the investment firm.
 - c. Costs to minimize volatility.
 - d. Management fees and imposed costs due to market volatility.
4. The size of a spread for a security does not depend on which of the following?
 - a. Market liquidity.
 - b. Supply/demand.
 - c. The amount of capital available.
 - d. Inventory holding premium.

5. In recent years, ETF expense ratios have:
 - a. Fallen due to competition.
 - b. Increased to cash inflows.
 - c. Remained relatively constant.
 - d. Remained under the control of the SEC.
6. The two most important price considerations when comparing ETPs are:
 - a. Commission rates and expense ratios.
 - b. Expense ratios and bid/ask spreads.
 - c. Premiums/discounts and commission rates.
 - d. Bid/ask spreads and premiums/discounts.
7. In this era of expense changes:
 - a. only actively managed funds have reduced fees.
 - b. most money sits in the most expensive funds.
 - c. low-cost funds have generally performed better.
 - d. passive funds now have higher average fees
8. Within the parlance of the ETF industry, a redemption occurs when:
 - a. An authorized person delivers the shares of the ETF basket and receives units of the ETF.
 - b. An authorized person receives the shares of the ETF basket and delivers units of the ETF.
 - c. A market maker sells units of the ETF to a customer who wants to buy them.
 - d. A market maker buys units of an ETF from the issuer.
9. The price of an ETF on a stock exchange will not deviate substantially from its NAV because:
 - a. Its holdings are transparent and APs can create and redeem shares.
 - b. The Investment Company Act of 1940 states they are required to be the same.
 - c. The Securities Act of 1933 mandates that full information about the fund must be disclosed.
 - d. The primary market for ETF shares is the stock exchange.
10. The role of the authorized participant (AP) in ETF creation is to:
 - a. Market and advertise the ETF to individual investors.
 - b. Acquire all the securities held in the ETF.
 - c. Choose which securities are held in the ETF.
 - d. Ensure that the ETF adheres to all regulations.

11. Security lending allows ETF providers to lower fees because:
- It is a good marketing tool that connects them to potential investors.
 - They can generate revenue from cash they receive from borrowers.
 - It allows them to re-weight the fund more often.
 - They can take short positions in securities.
12. Stocks will have higher lending rates if they are:
- In short supply.
 - A reasonable substitute for the risk-free security.
 - Not a part of a major ETF.
 - More likely to be subject to recall risk.
13. Which is true regarding lending and rebate rates?
- Lending rates are skewed to the left.
 - Rebate rates are received by the borrower.
 - The minimum lending fee is .25.
 - Hard to borrow stocks have lending fees over 0.75.
14. Which of the following is not true about the sentiment surrounding index mutual funds at their inception?
- The directors of Vanguard unanimously voted to approve Bogle's idea.
 - Active fund managers did not welcome the idea of index mutual funds.
 - Investors fully bought into the idea initially, evidenced by the capital raised for the fund in comparison to its target assets.
 - There were many critics that said index mutual funds would lead to mediocrity.
15. Bogle's primary motivation for creating the first index mutual fund was to make Vanguard the fund industry's:
- Leader in delivering superior returns.
 - Largest manager of assets.
 - Low-cost provider.
 - Leader in quantity of products offered.
16. Active funds' success rate in 2021, measured by surviving and outperforming their average passive peer:
- Was higher compared to the success rate in 2020.
 - Was the same compared to the success rate in 2020.
 - Was lower compared to the success rate in 2020.
 - Active funds' success rate in always 50% each calendar year.

17. Which of the following is not true regarding U.S. stock pickers' one-year success rate in 2021 comparison to 2020?
- a. Success rates increased across all three blend categories.
 - b. Success rates decreased across all three value categories.
 - c. Success rates decreased across all three growth categories.
 - d. All the above are true.
18. What percentage of actively managed funds have topped the average of their passive rivals over the 10-year period ended December 2021?
- a. 19%
 - b. 26%
 - c. 39%
 - d. 52%
19. The cheapest funds succeeded about twice as often as the priciest ones for the 10-year period ended December 31, 2021, mainly attributable to:
- a. Cost advantages.
 - b. Difference in survival.
 - c. Superior stock-picking skills.
 - d. a and b.
20. The "smart beta" or "strategic beta" ETFs that John Bogle discusses are:
- a. Funds that focus on certain sectors or "factors."
 - b. Funds that weight by market capitalization.
 - c. Funds that solely include stocks with individual beta values close to 1.
 - d. Funds that look to maximize value in the long term.

Rebalance retirement fund. It has been five years since you last addressed the asset allocation weightings in your retirement fund. At the time, you had \$200K, and allocated \$120K to stocks, \$75K to bonds, and \$5K to cash equivalents. Being a strong believer in passive investing and a big fan of BlackRock products, you bought shares of IVV for the stock allocation, AGG for the bond allocation, and SHV for short-term Treasuries. You decide it is time to reconsider your allocations. The last 60 months of returns of your three holdings are contained in **Rebalance retirement fund.xlsx**. (21 and 22, 10 points each; 23 and 24, 20 points each).

21. What is the current value of your stock investment most closely equal to?
- a. \$200K
 - b. \$170K
 - c. \$160K
 - d. \$190K

22. Curiously, when you examine the monthly returns of SHV (your Treasury bill investment, you discover the presence of negative monthly returns. The reason that this occurs is:
- a. Inflation uncertainty
 - b. Holding period mismatch
 - c. Excess market volatility
 - d. Fed policy
23. Assuming you decide to re-allocate your retirement wealth to your three previously chosen ETFs, and assuming the realized returns, realized volatilities, and realized correlations are reasonable predictors of the future, what will be your new percentage allocation to SHV be closest to assuming you have a risk tolerance of 10.5%?
- a. 0%
 - b. 2%
 - c. 4%
 - d. 7%
24. Just before implementing your new portfolio allocation scheme, a colleague at work tells you that he is experiencing strong gains in the real estate sector. You check BlackRock's family of funds and are willing to consider IYR as a potential holding, together with your other three ETFs. IYR's past 60 months of returns are also included in **Rebalance retirement fund.xlsx**. What should be your percentage allocation to IYR?
- a. 0%
 - b. 3%
 - c. 8%
 - d. 10%

ISS University endowment asset allocations. Suppose you are the chief investment officer at ISS University and are responsible for overseeing the university's \$6 billion endowment. Over the years you have determined that (a) active managers generally have negative alpha performance, (b) passive investment management is the prudent way to manage the endowment fund, and (c) ETPs provide the cheapest and most liquid way to passively invest in the different asset classes. The investment committee guiding the fund demands a 7.1% risk tolerance. The asset allocation as of the end of December 2019 is given in the spreadsheet, **PD - VSTI**, of the Excel file, **ISS University endowment.xlsx**. The current asset categories are stocks (VOO), money markets (SHV), long-term Treasuries (TLT), and gold (IAU). The endowment's payout rate is 4.75% annually. Based on this information, answer questions 25 through 29. (20 points each)

25. All the schools at ISS have a share of the endowment, and the nursing school's share is 3%. Based on the expected return of the endowment over the next year, the expected contribution of the endowment income to the nursing school's annual operating budget in 2020 is closest to:
- a. \$5.7M
 - b. \$8.1M
 - c. \$9.2M
 - d. \$13.8M
26. The Chancellor at the ISS has been listening to different student group concerns across campus. One raised the issue of ISS's social responsibility and the university's endowment. As a result of this conversation, The Chancellor talks with you and asks for your recommendation. You suggest replacing the endowment's stock allocation in VOO with DSI, a highly popular ETF with DSI whose benchmark is a well-diversified portfolio of socially responsible stocks. She asks, "What is the difference in management fees?" Your response is:
- a. "I'll get back to you on that."
 - b. 22 bps
 - c. 3 bps
 - d. 8 bps
27. The Chancellor then goes on to say "That does not seem very much. I know the allocations will change if we replace VOO with DSI. What would be the change in the university's expected payout at the end of 2020?" You say, "I'm on it.", return to your office, analyze historical data on DSI as well as VOO, SHV, TLT, and IAU (Sheet **All data series** in Excel file), perform an allocation analysis, and return with your results. What is the approximate change in the university's expected payout for 2020?
- a. -\$2.3M
 - b. -\$1.5M
 - c. \$0
 - d. \$1.3M
28. She looks at your results and says, "You're blowing smoke." (Pun intended. She has a wicked sense of humor.) She goes on to say "I examined the construction of the DSI benchmark and found that it contains tobacco stocks. You have should have used SUSA." You are embarrassed by her criticism because you were unaware of the SUSA ETP. You dig up its fact sheet, and find that, indeed, the fund is more

socially responsible. How much higher is the expense ratio of SUSA than that of DSI?

- a. 3 bps
- b. 0 bps
- c. -2 bps
- d. 25 bps

29. Next, you replace DSI with SUSA in the portfolio allocation model and re-optimize. The expected annual incremental contribution to operating budget in 2020 by being more socially responsible conditional upon already being socially responsible is about:

- a. -\$220K
- b. -\$140K
- c. \$240K
- d. \$410K