Econ 156
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Final Examination Answers

1. Analysts had expected them to lose far more subscribers (2 million)

2. a. The interest paid on the loan would increase and the demand for homes would decrease.
   b. The CEO wants to take actions that will be profitable if interest rates rise (and bond prices fall): sell Treasury bond futures and buy Treasury bond puts

3. The term structure depends not only on Fed policy but also on investor preferences and expectations—specifically interest rate expectations and risk premiums. All the empirical evidence is that long-terms bonds have risk premiums relative to short-term bonds. So, a downward-sloping term structure could only be a permanent market equilibrium if investors continually think interest rates are going to fall drastically in the future.

4. a. A 10-year Treasury zero
   b. A 30-year Treasury bond
   c. A stock paying a $1 annual dividend that will grow by 3% a year
   d. A perpetuity
   e. An apartment building with rent and price growing by 3% a year forever

5. Logically, A implies B does mean the B implies A. Abnormally high or low stock returns could be due, for example, to unpredictable swings in investor psychology ("animal spirits").

6. a. We should use the current Treasury-bill return, not the historical average.
   b The standard deviation of the return on 10-year Treasury bonds measures uncertainty about the total return (coupons plus capital gains), not the volatility of the yield to maturity.
   c. The expected value of the return on the S&P 500 should include dividends as well as price changes.
   d. This is an argument for a positive correlation between stock and bond returns. (In addition, stock returns are affected by the economy.)

7. The efficientfrontier.app does not give efficient Markowitz frontier, just the means and standard deviations of various portfolios.

8. The $10 million market investment strategy will either be $13 million or $9 million. After making the down payment, Madison will have either $12 million or $8 million, with an expected value of $10 million. For the $9 million stocks/$1 million cash strategy, the $1 million cash can be used to make the down payment. The stocks will be worth either 1.30($9 million) = $11.7 million or 0.90($9 million) = $8.1 million, with an expected value of $9.9 million.

   In general, as long as the expected value on a stock investment is positive, its expected value will be larger than the 0% return that cash earns.

9. a.

$$V = \frac{£3.5}{(1+0.035)^1} + \frac{£3.5}{(1+0.035)^2} + \frac{£3.5}{(1+0.035)^3} + \ldots$$
$$= \frac{£3.5}{0.035}$$
$$= £100$$

b.

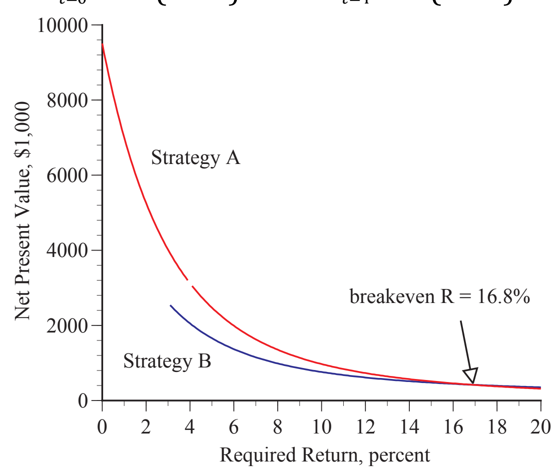
$$V = \frac{£3.5}{(1+0.035)^1} + \ldots + \frac{£3.5}{(1+0.035)^6} + \frac{£3}{(1+0.035)^7} + \ldots + \frac{£3}{(1+0.035)^{117}}$$
$$+ \frac{£2.75}{(1+0.035)^{118}} + \ldots + \frac{£2.75}{(1+0.035)^{152}} + \frac{£2.5}{(1+0.035)^{153}} + \ldots + \frac{£2.5}{(1+0.035)^{264}} + \frac{£100}{(1+0.035)^{264}}$$
$$= £88.28$$

10. In theory, dividends and share purchases are equally attractive ways of giving cash to shareholders—except that dividends incur higher taxes. Shareholders who receive dividends and use the money to buy shares are worse off because of the taxes paid on the dividends. [Shauna O'Brien, Share Repurchase vs. Dividend: It's a No Brainer, dividends.com, https://www.dividend.com/dividend-education/dividends-vs-share-buybacks-its-a-no-brainer/]

11. a. No, even bank accounts pay more than zero.
    b. Yes, investors could earn abnormal profits.
    c. Yes, investors could earn abnormal profits.
    d. No, municipal bonds are tax advantaged

12.

$$PV_a = \sum_{t=0}^{51} \frac{\$50{,}000(1.03)^t}{(1+R)^t}$$
$$PV_b = \sum_{t=0}^{3} \frac{-\$75{,}000(1.05)^t}{(1+R)^t} + \sum_{t=4}^{51} \frac{\$70{,}000(1.04)^t}{(1+R)^t}$$



13. Future dividends. The John Burr Williams valuation model is the present value of future dividends, discounted by required returns. Future stock prices are not considered and the required returns depend on *current* interest rates.

14. The correlation between the returns is surely not so close to 1.

15. They are correct. Ceteris paribus, high returns on capital allow companies to grow faster and growth stocks have a relatively long duration. [Michael J. Mauboussin and Dan Callahan, 2020, The Math of Value and Growth, Morgan Stanley Counterpoint Global Insights, June 9]

16. Debt is a tax shield.

17. Rent should increase over time while mortgage payments are constant and then will stop.

18. Yes, it is profitable tax-harvesting.

19. Stocks seemed to offer a higher return and he is not concerned about short-term fluctuations in stock prices.

20. Regression toward the mean. There is a lot of uncertainty about earnings, so forecasts that are far from the mean are generally farther from the mean than are actual earnings.