Final Examination Answers

1. $40,000(1.1194^{40}) = \$3,643,108$

2. puts, because these can make large profits if the stock price falls.

3. Maybe interest rates rose, which increased the cost of carry for stock futures.

4. Disagree. There would still be a stock market just as there is a thriving market for Treasury bonds even though everyone knows what the coupons will be. If, for example, everybody knew that the fortunes of a certain company were about to improve, the stock price would rise to a point where there is a balance between buyers and sellers.

5. a. This is old news, presumably already reflected in the current market price.
   b. This is old news. (CoolTech has a high stock price because it is expected to be very profitable.)
   c. These expectations are presumably already reflected in stock prices.

6. An increase in interest rates reduces the present value of the future mortgage payments. A decline in interest rates will persuade many homeowners to refinance, and investors will have to reinvest the cash at lower interest rates.

7. With dividends, all shareholders have to pay taxes on the dividends. With buybacks, only those investors who sell have to pay dividends, and, then, only on their capital gains (if any).

8. An unanticipated decline in interest rates. [Jude Wanniski, letter to *The Wall Street Journal*, August 25, 1987.]

9. With fixed-rate mortgages, the lender bets that interest rates will decline; with adjustable-rate mortgages, the borrower is betting on an interest rate decline (and the lender on an interest rate increase). In retrospect, lenders will regret not issuing fixed-rate mortgages if interest rates do, in fact, decline. [Terrence M. Claurette, "Pricing Adjustable Rate Mortgages: A Review of Recent Findings," The Real Estate Finance Journal, Spring 1986, p. 72.]

10. Investors can always invest equally in the two share classes, ensuring they get a fixed share of the profits, regardless of how the profits are divided among the two share classes.

11. The monthly payments X are determined by equating the unpaid balance to the present value of the payments:
$$\$1,000 = \frac{\$X}{(1+0.18/12)^1} + \frac{\$X}{(1+0.18/12)^2} + \ldots + \frac{\$X}{(1+0.18/12)^{24}}$$
The effective annual interest rate R equates the present value of the payments to the initial loan:
$$\$1,000 = \frac{\$X}{(1+0.18/12)^6} + \frac{\$X}{(1+0.18/12)^7} + \ldots + \frac{\$X}{(1+0.18/12)^{29}}$$
The solution is X = \$49.92 and, by trial and error, R = 11.93%.

12. The realized return depends on the return earned on the reinvested coupons. It will equal the yield to maturity if the return on the reinvested coupons is equal to the yield to maturity.

13. Using the constant-dividend-growth model,

a. $V = \dfrac{D}{R-g} = \dfrac{\$4}{0.10-(-0.05)} = \$26.67$

b. The intrinsic value will decline by 5% a year, as dividends fall by 5% a year

c. A negative-growth stock is attractive if the market price is lower than the intrinsic value.

14. An increase in the debt-equity ratio con create a valuable tax shield.

15. Data-mining.

16. a. The number of Bitcoin wallet users has nothing to do with cash paid to investors and, so, is a worthless proxy.

b. It is farfetched to think that Bitcoin prices will quadruple every year because this is an unsustainable compound growth rate; after 10, years the price would be more than $6 billion

17. Comparing the market price P with this investor's present value V, the fast-growth stock is 50% overpriced, the slow-growth stock only 25% overpriced:

$$\frac{P_A}{V_A} = \frac{\left(\dfrac{\$2}{0.10-0.02}\right)}{\left(\dfrac{\$2}{0.12-0.02}\right)} = \frac{\$25}{\$20} = 1.25$$

$$\frac{P_B}{V_B} = \frac{\left(\dfrac{\$2}{0.10-0.06}\right)}{\left(\dfrac{\$2}{0.12-0.06}\right)} = \frac{\$50}{\$33.33} = 1.50$$

18. This advisor suggests using the expectations hypothesis to interpret the term structure, a hypothesis that assumes that bonds are priced so that all strategies are expected to do equally well. If so, there is no reason to pick any particular bond. It is circular (and useless) to choose a bond strategy using the interest rate predictions embedded in the term structure. [Marguerite T. Smith, "Curves the Yield the Shape of Things to Come," Money, December 1988, p. 179.]

19. BigBox might not be very profitable or might have a very large number of shares outstanding.

20. a. Yes, because insiders evidently know about the split before it is announced to the public.

b. Yes, because investors could make money buying the stock on the day the split is announced.

c. Yes, because investors could make money selling the day before a Friday the 13th.

d. No, because the coupons on municipal bonds are tax-exempt.