Stocks, Dividends, and Bonds: Theory and Applications

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1 Introduction to Stocks

A **stock** represents ownership in a company and a claim on a portion of its assets and earnings. It is also referred to as "equity."

- **Common stock:** Grants voting rights and residual claims after debt is paid.
- **Preferred stock:** Pays fixed dividends, typically without voting rights.

2 Dividends

Dividends are periodic payments made to shareholders, usually from profits. Not all stocks pay dividends.

- **Cash Dividends:** Direct cash payment to shareholders.
- **Stock Dividends:** Additional shares issued instead of cash.
- **Dividend Yield:**
$$\text{Dividend Yield} = \frac{\text{Annual Dividend}}{\text{Stock Price}}$$

Dividend Discount Model (DDM)

$$P_0 = \frac{D_1}{r - g}$$

Where:

- P_0: Current stock price
- D_1: Expected dividend next year
- r: Required rate of return
- g: Constant growth rate of dividends

3 Difference Between Stocks and Bonds

Characteristic	Stocks	Bonds
Ownership	Represents ownership in a company	Represents a loan made to a company or government
Returns	Dividends + Capital Gains	Fixed interest (coupon) + repayment of principal
Risk	Higher, residual claim after debt	Lower (for investment-grade), priority in liquidation
Maturity	Perpetual (unless bought back)	Fixed maturity date
Voting Rights	Common stockholders vote	Bondholders do not vote
Price Volatility	Generally more volatile	Less volatile (especially gov. bonds)
Income Stability	Uncertain	Predictable cash flows

4 CQF and CFA Practice Questions

CQF Q1

Q: A firm's stock is trading at \$50, expected dividend next year is \$2, and dividends grow at 4% annually. What is the implied cost of equity?

$$r = \frac{D_1}{P_0} + g = \frac{2}{50} + 0.04 = 0.08 = 8\%$$

CFA Q1

Q: What is the key difference in the risk-return profile between stocks and bonds?

A: Stocks offer higher potential returns but come with higher risk due to their residual claim on assets, whereas bonds provide fixed income with priority in claims.

CQF Q2

Q: If a company stops paying dividends unexpectedly, how is the stock price likely to react?

A: The stock price will likely fall significantly, especially for income-focused investors relying on the dividend.

CFA Q2

Q: A firm's stock has a dividend yield of 3% and capital gains of 5%. What is the total expected return?

$$\text{Expected Return} = \text{Dividend Yield} + \text{Capital Gain} = 3\% + 5\% = 8\%$$

CQF Q3

Q: What happens to the value of a bond and a stock when interest rates rise?

A: Bond prices fall due to higher discounting of fixed payments. Stock valuations may also drop, particularly if future cash flows are expected further in the future.

CFA Q3

Q: Why might an investor prefer preferred stock over bonds?

A: Preferred stock offers fixed income and potential appreciation while sometimes offering tax advantages and higher yields than bonds, but with more risk.

CFA Q4

Q: What is the primary reason investors may prefer dividend-paying stocks?
A: Dividend-paying stocks offer regular income and signal financial stability and strong cash flows, which may reduce perceived risk.

CQF Q4

Q: An investor buys a bond at \$950 with a face value of \$1,000 and receives annual coupon payments of \$40. What is the current yield?

$$\text{Current Yield} = \frac{40}{950} \approx 4.21\%$$

CFA Q5

Q: A firm pays a \$1.50 dividend, has a required return of 10%, and dividend growth of 3%. What is its intrinsic value using the Gordon Growth Model?

$$P_0 = \frac{1.50}{0.10 - 0.03} = \frac{1.50}{0.07} = \$21.43$$

CQF Q5

Q: Which of the following would typically increase the price of a stock?

(A) An increase in dividend payout

(B) A decrease in required return

(C) An increase in expected growth rate

(D) All of the above

A: (D) All of the above

CFA Q6

Q: In the event of a company's liquidation, list the priority of claims.
A: Debt holders (senior and junior) > Preferred shareholders > Common shareholders.

CQF Q6

Q: Why do bond prices fall when interest rates rise?
A: Because existing bonds pay a lower fixed coupon than what is available in the market, making them less attractive, leading to a decrease in their price.

CFA Q7

Q: What are two key risks associated with investing in bonds?
A: Interest rate risk and credit/default risk.

CQF Q7

Q: Which equity valuation model assumes a company reinvests a constant fraction of earnings at a constant return on equity (ROE)?
A: The Gordon Growth Model (assuming constant ROE and payout ratio) or sustainable growth model.

CFA Q8

Q: What is the key formula for sustainable dividend growth?

$$g = \text{ROE} \times \text{Retention Ratio}$$

CQF Q8

Q: A stock has a beta of 1.2, the risk-free rate is 2%, and the expected market return is 8%. What is the required return based on CAPM?

$$r = 2\% + 1.2 \times (8\% - 2\%) = 2\% + 7.2\% = 9.2\%$$

CFA Q9

Q: What happens to the equity value when the cost of capital increases?
A: The equity value typically decreases because future cash flows are discounted at a higher rate.

Conclusion

Understanding the fundamental differences between stocks and bonds is critical for investment analysis, portfolio construction, and risk management. Stocks offer ownership and potential growth; bonds offer fixed income and capital preservation.