

15.401 Finance Theory - Lectures 4–6: Fixed-Income Securities Multiple Choice Quizzes (固定收益证券多项选择题)

Please select the most appropriate answer for each question.

1. **Bond Price and Yield Relationship (债券价格与收益率关系)**

What is the relationship between a bond's price and its yield? (债券的价格与其收益率之间的关系是什么?)

- a) They move in the same direction (它们朝相同方向移动)
- b) They move in opposite directions (它们朝相反方向移动)
- c) They are unrelated (它们之间没有关系)
- d) The relationship depends on the bond type (关系取决于债券类型)

2. **Valuation of Corporate Bonds (企业债券的估值)**

Which of the following is NOT a component in the valuation of corporate bonds? (以下哪项不是企业债券估值的组成部分?)

- a) Time value of money (货币的时间价值)
- b) Default risk (违约风险)
- c) Liquidity risk (流动性风险)
- d) Exchange rate risk (汇率风险)

3. **Bond Duration and Coupon Rate (债券久期与息票率)**

How does duration change as a bond's coupon rate increases, all else being equal? (在其他条件相同的情况下, 债券的息票率增加时久期如何变化?)

- a) Duration increases (久期增加)
- b) Duration decreases (久期减少)
- c) Duration stays the same (久期保持不变)
- d) The relationship is non-linear (关系是非线性的)

4. **Yield Curve Interpretation (收益率曲线解释)**

What does a negatively sloped yield curve typically indicate? (负斜率收益率曲线通常表明什么?)

- a) Economic expansion (经济扩张)
- b) Economic recession (经济衰退)
- c) Stable interest rates (稳定的利率)
- d) Increasing inflation expectations (增长的通胀预期)

5. **Credit Ratings in CDOs (CDO 中的信用评级)**

In the context of Collateralized Debt Obligations (CDOs), which tranche typically has the highest credit rating? (在抵押债务义务(CDO)的背景下, 哪个级别通常具有最高的信用评级?)

- a) Equity tranche (股本级)
- b) Mezzanine tranche (夹层级)
- c) Senior tranche (高级级)
- d) All tranches have the same rating (所有级别的评级相同)

6. **Callable Bonds and Interest Rate Volatility (可赎回债券和利率波动)**

How does an increase in interest rate volatility affect the value of a callable bond? (利率波动的增加如何影响可赎回债券的价值?)

- a) Increases the value (增加价值)
- b) Decreases the value (减少价值)
- c) Has no effect on the value (对价值没有影响)
- d) The effect depends on whether the bond is trading at a premium or discount (效果取决于债券是以溢价还是折价交易)

7. **YTM vs. Spot Rates (到期收益率与即期率)**

What is the primary difference between Yield to Maturity (YTM) and spot rates? (到期收益率 (YTM) 与即期率之间的主要区别是什么?)

- a) YTM is for coupon bonds, spot rates are for zero-coupon bonds (YTM 适用于息票债券, 即期率适用于零息债券)
- b) YTM is forward-looking, spot rates are historical (YTM 是前瞻性的, 即期率是历史性的)
- c) YTM assumes reinvestment at the same rate, spot rates don't (YTM 假设以相同的利率再投资, 即期率则不做此假设)
- d) YTM is for government bonds, spot rates are for corporate bonds (YTM 适用于政府债券, 即期率适用于公司债券)

8. **Bond Price Changes and Convexity (债券价格变动与凸度)**

How does convexity contribute to bond price changes for large movements in yield? (凸度如何在收益率大幅波动时对债券价格变化做出贡献?)

- a) It amplifies the price change predicted by duration (它放大了持续时间预测的价格变化)
- b) It reduces the price change predicted by duration (它减少了持续时间预测的价格变化)
- c) It has no effect on price changes (它对价格变化没有影响)
- d) Its effect depends on whether yields increase or decrease (其效果取决于收益率是增加还是减少)

9. **Expectations Hypothesis (预期假说)**

In the context of the expectations hypothesis, which of the following is true? (在预期假说的背景下, 以下哪项是正确的?)

- a) Forward rates are unbiased predictors of future spot rates (远期利率是未来即期利率的无偏预测器)
- b) Long-term rates are always higher than short-term rates (长期利率总是高于短期利率)
- c) The yield curve is always upward sloping (收益率曲线总是向上倾斜)
- d) Investors prefer short-term bonds to long-term bonds (投资者更喜欢短期债券而不是长期债券)

10. **Default Correlation in CDOs (CDO 中的违约相关性)**

How does an increase in default correlation affect the risk of senior tranches in a CDO? (在 CDO 中, 默认相关性的增加如何影响高级级别的风险?)

- a) Decreases the risk (降低风险)
- b) Increases the risk (增加风险)
- c) Has no effect on the risk (对风险没有影响)
- d) The effect depends on the original credit rating of the tranche (效果取决于分层的原始信用评级)

Answer Key and Detailed Explanations (答案与详细解释)

1. Bond Price and Yield Relationship (债券价格与收益率关系)

Correct Answer (正确答案): b) They move in opposite directions (它们朝相反方向移动)

Source (来源): Lecture Slide 35 (讲义幻灯片 35)

Explanation (解释): The relationship between bond price and yield is inverse. As yields rise (interest rates increase), the present value of the bond's future cash flows decreases, leading to a decline in the bond's price. Conversely, as yields decrease, the present value increases, which results in an increase in the bond's price. (债券价格与收益率之间的关系是反向的。当收益率上升(利率增加)时,债券未来现金流的现值减少,导致债券价格下降。相反,当收益率下降时,现值增加,从而导致债券价格上升。)

2. Valuation of Corporate Bonds (企业债券的估值)

Correct Answer (正确答案): d) Exchange rate risk (汇率风险)

Source (来源): Lecture Slide 11 (讲义幻灯片 11)

Explanation (解释): Exchange rate risk is not typically considered in the valuation of corporate bonds unless they are international. The key components of corporate bond valuation include the time value of money, default risk, and liquidity risk, reflecting the main elements impacting the bond's return and risk profile. (除非是国际债券,汇率风险通常不被纳入企业债券的估值。企业债券估值的关键组成部分包括货币的时间价值、违约风险和流动性风险,这些因素反映了影响债券回报和风险的主要元素。)

3. Bond Duration and Coupon Rate (债券久期与息票率)

Correct Answer (正确答案): b) Duration decreases (久期减少)

Source (来源): Lecture Slide 39 (讲义幻灯片 39)

Explanation (解释): Duration, a measure of bond price sensitivity to interest rate changes, decreases as the coupon rate increases. Higher coupons result in higher early cash flows, thus reducing the weighted average maturity of cash flows (duration). (久期是衡量债券价格对利率变化敏感度的指标,当息票率增加时,久期减少。较高的息票意味着较早的现金流,从而减少了现金流的加权平均到期时间(久期)。)

4. Yield Curve Interpretation (收益率曲线解释)

Correct Answer (正确答案): b) Economic recession (经济衰退)

Source (来源): General Finance Theory (一般金融理论)

Explanation (解释): A negatively sloped yield curve, often referred to as an inverted yield curve, is commonly associated with impending economic recessions. It suggests that investors expect future interest rates to decline as economic conditions worsen. (负斜率收益率曲线,通常被称为倒挂收益率曲线,通常与即将到来的经济衰退相关联。它表明投资者预期随着经济状况恶化,未来的利率将下降。)

5. Credit Ratings in CDOs (CDO 中的信用评级)

Correct Answer (正确答案): c) Senior tranche (高级级)

Source (来源): Lecture Slides 56-57 (讲义幻灯片 56-57)

Explanation (解释): In CDOs, the senior tranche is generally rated highest because it has priority over other tranches in terms of cash flow distribution and bears the lowest credit risk. (在 CDO 中,高级级通常具有最高评级,因为它在现金流分配方面优先于其他级别,并承担最低的信用风险。)

6. Callable Bonds and Interest Rate Volatility (可赎回债券与利率波动)

Correct Answer (正确答案): b) Decreases the value (降低价值)

Source (来源): Advanced Fixed Income Coursework (高级固定收益课程)

Explanation (解释): Increased interest rate volatility generally decreases the value of callable bonds. The embedded call option becomes more valuable to the issuer under volatile conditions, negatively affecting the bond's price from the investor's perspective. (利率波动增加通常会降低可赎回债券的价值。在波动的市场条件下，嵌入的赎回选项对发行人变得更有价值，这会从投资者的角度负面影响债券的价格。)

7. **YTM vs. Spot Rates (到期收益率与即期率)**

Correct Answer (正确答案): c) YTM assumes reinvestment at the same rate, spot rates don't (YTM 假设以相同的利率再投资，即期率则不做此假设)

Source (来源): Lecture Slides 26, 13-18 (讲义幻灯片 26、13-18)

Explanation (解释): Yield to Maturity (YTM) calculates the rate of return assuming all coupon payments are reinvested at the YTM itself. In contrast, spot rates, applying to zero-coupon bonds, reflect the yield for a single period without reinvestment considerations. (到期收益率 (YTM) 计算的是假设所有息票支付都按 YTM 利率再投资的回报率。相比之下，即期利率适用于零息债券，反映了单一期间的收益率，并不涉及再投资假设。)

8. **Bond Price Changes and Convexity (债券价格变化与凸度)**

Correct Answer (正确答案): a) It amplifies the price change predicted by duration (它放大了持续时间预测的价格变化)

Source (来源): Lecture Slides 40-41 (讲义幻灯片 40-41)

Explanation (解释): Convexity measures the curvature of the price-yield relationship of a bond and becomes significant during large interest rate movements. It corrects the linear approximation of duration, generally increasing the bond's price sensitivity to yield changes. (凸度衡量债券价格与收益率关系的曲率，并在利率大幅波动时变得重要。它修正了持续时间的线性近似，通常增加债券价格对收益率变化的敏感度。)

9. **Expectations Hypothesis (预期假说)**

Correct Answer (正确答案): a) Forward rates are unbiased predictors of future spot rates (远期利率是未来即期利率的无偏预测器)

Source (来源): Lecture Slide 30 (讲义幻灯片 30)

Explanation (解释): The expectations hypothesis posits that forward interest rates should equate to expected future spot rates, implying that the financial markets' forward rates are unbiased estimates of future rates. (预期假说认为远期利率应等于预期的未来即期利率，这意味着金融市场的远期利率是未来利率的无偏估计。)

10. **Default Correlation in CDOs (CDO 中的违约相关性)**

Correct Answer (正确答案): b) Increases the risk (增加风险)

Source (来源): Lecture Slides 60-62 (讲义幻灯片 60-62)

Explanation (解释): Higher default correlations increase systemic risk within a CDO structure. If defaults are more correlated, adverse outcomes are more likely to occur simultaneously, thus elevating risk levels for all tranches, especially the senior ones. (较高的违约相关性增加了 CDO 结构中的系统性风险。如果违约更加相关，负面结果更有可能同时发生，从而提高了所有级别，特别是高级级别的风险水平。)