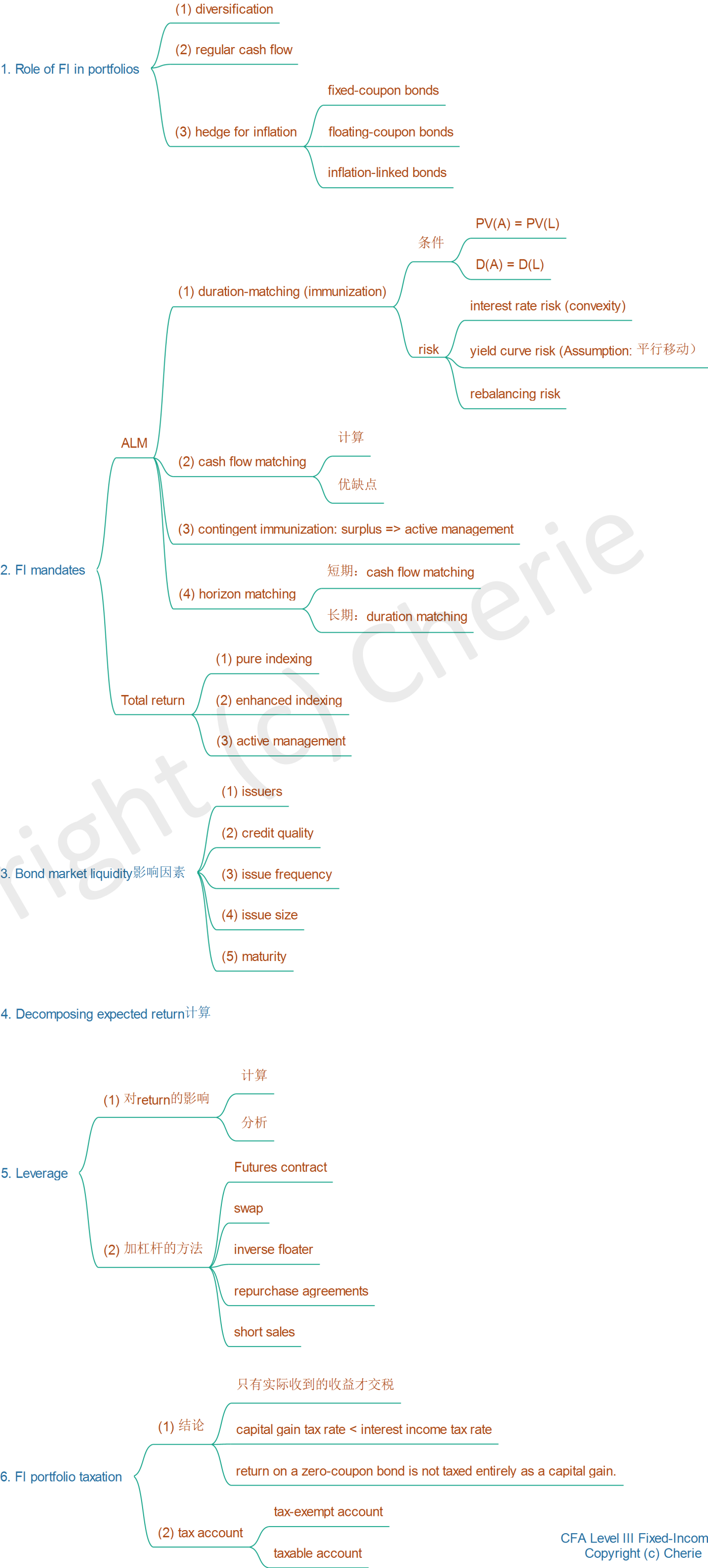


Introduction to Fixed-Income Portfolio  
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# Liability-Driven and Index-Based Strategies Copyright (c) Cherie

## 1. LDI

(1) liability types

(2) manage single liability (immunization)

条件

$$PV(A) = PV(L)$$

$$D(A) = D(L)$$

minimum convexity

risk

interest rate risk (convexity最小)

structural risk (convexity最小)

rebalancing risk (duration gap最小)

(3) manage multiple liability

cash flow matching

计算

优缺点

duration matching

contingent immunization: surplus => active management

horizon matching

(4) derivatives overlay

公式计算

方法

futures

swap

swaption

(5) LDI risk

## 2. Total return

(1) pure indexing: full replication: 优缺点

(2) enhanced indexing

stratified sampling

primary indexing

(3) active management

## 3. Ladder portfolio: 优点

# Yield Curve Strategies Copyright (c) Cherie

## 1. Changes of yield curve

- (1) parallel shift (level)
- (2) change in slope
- (3) change in curvature

## 2. Yield curve strategies

- Yield curve stable
  - (1) buy and hold: 选YTM最高的
  - (2) rolldown / riding the yield curve
    - assumption: upward slope
    - buy long-term bond, sell short-term bond
  - (3) sell convexity
  - (4) carry trade: buy high yield bond, sell low yield bond
- Yield curve movement
  - (1) level
    - 选total return最高的
    - 增加convexity
  - (2) slope
    - steep: long bullet, short barbell. decrease convexity
    - flat: long barbell, short bullet. increase convexity
  - (3) curvature
    - more: long barbell, short bullet. increase convexity
    - less: long bullet, short barbell. decrease convexity
  - (4) volatility change
    - more: long barbell, short bullet. increase convexity
    - less: long bullet, short barbell. decrease convexity

## 3. Derivatives management

- (1) alter duration
  - 公式计算
  - 方法: 4个
- (2) alter convexity
  - 方法: 4个

## 4. Inter-market curve strategy

- (1) 交易策略: 借低r, 投高r, 获得spread
  - 在A国家以低r借钱, 在B国家投高r债券: 计算carry trade return
  - 利用2个yield curve
    - steep: receive fixed, pay floating
    - flat: receive floating, pay fixed
- (2) FX risk hedge
  - hedge or not?: hedge cost/benefit V.S. change in FX
  - hedged return计算:  $\text{hedged return} = \text{bond local market return} + \text{hedge cost/benefit}$

## 5. Evaluating yield curve trades

- (1) expected return: 计算
- (2) risk: standard deviation of return 计算

Fixed-Income Active Management:  
Credit Strategies  
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1. Credit risk基本概念

(1) credit risk

投资级: spread risk, spread duration-based

投机级: default risk, market value-based

(2) empirical duration: 质量越差, empirical duration越小

2. Credit spread

(1) spread

G-spread: 计算

I-spread

Z-spread

OAS

(2) excess return计算

excess return

expected excess return

3. Credit strategy

(1) bottom-up: identify the "best" relative value bond 5个方面

macro factors

desired credit quality determination

assess the credit quality

average credit rating

计算

duration times spread

结论

industry sector allocation

expected excess return in top-down approach

(2) top-down

如何构建portfolio

如何进行risk management

4. Liquidity risk and tail risk

5. International credit market

emerging market credit risk: 3个特点

6. Structural financial instruments

(1) MBS

(2) ABS

(3) CDO

default correlation结论: 3个

优缺点

(4) covered bond