

This book is a great work that systematically summarizes the important notes of the CFA (Chartered Financial Analyst) Level 3 exam. This book has a clear structure and is easy to understand. Both CFA Level 3 candidates and practical portfolio managers can benefit from this book. This book can also be used as a training guide by companies or business schools in the portfolio/investment management area.



Xuan Feng

Chartered Financial Analyst Level 3 Notes

A Guide for Portfolio Managers



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Chapter 1 - Fixed Income

Role of fixed income securities:

- Diversification
- Usually provide regular cash flow
- Potentially hedge inflation

Investment Strategy:

- [Liability Driven Investment](#)
 - Cash flow Matching
 - Duration Matching
 - Derivative Overlay
 - Contingent Immunization
- Total Return Strategy
 - [Index Based Strategy](#)
 - Pure Index
 - Index Enhancing
 - Active Strategy:
 - [Yield Curve Strategy](#)
 - [Credit Strategy](#)

Terminology:

- Macaulay Duration: Precisely hedge the interest risk with reinvestment risk
- BPV: Base point value: - *Principle *Modified Duration (the value)*
*0.0001
- Convexity has positive relationship with Dispersion

Decomposing Expected Returns (the sum of:)

- Coupon income (coupon/current price)
- Roll-down return

- $\Delta\text{price}\%$ due to investor's view of benchmark yield (parallel, slope, shape change)
- $\Delta\text{price}\%$ due to investor's view of yield spread (individual risk, such as credit)
- $\Delta\text{price}\%$ due to investor's view of currency exchange rate change

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Liability Driven Strategy

1. Single Liability Strategy

- Cash Flow Matching: Exact offset the price risk and reinvestment risk
- Duration Matching:
 - Matching the Macaulay duration of portfolio with the horizon date of liability
 - Market value of portfolio \geq market value of liability
 - Minimize portfolio convexity (make dispersion = 0, the dispersion of liability)

2. Multiple Liability Strategy

- Cash Flow Matching: cash in advanced constraint: sufficient funds must be available on or before each liability payment date to meet the obligation
- Duration Matching:
 - Asset BPV = Liability BPV
 - Market value of portfolio \geq market value of liability
 - Dispersion/Convexity a bit greater than those of liabilities

3. Derivative Overlay: There are already some assets, add some derivatives to hedge the BPV of liabilities.

- **Futures BPV = BPV of CTD / CF** (Conversion Factor)
- **Receive-fixed swap has positive duration**
- Swap BPV is usually quoted by 100, so $NP \cdot \text{Swap BPV}/100 + \text{Asset BPV} = \text{Liability BPV}$

Why minimizes dispersion?

- To minimize **structural risk** (especially if yield curve steepening and positive butterfly)

Risks in LDI:

- Model risks – Assume all yields change by the same number of basis points
- Spread risk – bond quality difference
- Counterparty credit risk

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Index-Based Strategy

Index-based strategy: greater diversification and lower fees and avoid downside risk

- Pure Indexing: Full replication, minimize tracking error
- Enhanced Indexing: Match primary risk factors, still close tracking index performance, purchasing fewer securities
- Active Management: Seeking high Information ratio

Challenges of Matching:

- Fixed-income markets are much larger and broader than equity markets
- Fixed-income markets are largely over-the-counter markets, illiquid
- Relancing of bond market indexed usually occurs more frequently

Benchmark Selecting (at least:)

- Clear
- Transparent
- Investable

Alternative Methods:

- Mutual Funds (open and close)
- ETFs – greater liquidity than mutual funds
- Total Return Swap

Yield Curve Strategy

Yield curve change:

- Level change: parallel shift
- Slope change: Flattening or steepening
- Change in shape or curvature: butterfly movement
(positive butterfly: negative butterfly spread; negative butterfly: positive butterfly spread)

1. Statistic Yield Curve: the fundamental point is **decreasing real rate, so increase duration**

- Cash based strategies:
 - Buy and hold
 - Rolling down the yield curve
 - Repo carry: borrow in the short-term low rate and buy future higher rate
- Derivatives based strategies:
 - Futures strategy
 - Swaps strategy

2. Dynamic Yield Curve: **if the rate decrease, need to increase duration, vice versa**

- Barbell trade: duration neutral
- Bear Flattener/strengthening: net negative duration
- Bull Flattener/strengthening: net positive duration
- Negative butterfly: long barbell, short bullet
- Positive butterfly: long bullet, short barbell

3. Yield Curve Volatility Strategies:

- Cash based strategy:
 - **Volatility increase -> buy options ->sell callable bond or buy putable bond**
- Derivative-based strategy:

- Bond option/interest rate swaption -> Duration/Convexity
increase if 'buy in' underlying duration

4.Active Management across Currencies

- Covered/uncovered interest rate parity
- Carry trade across currencies – buy low rate to invest in higher rate
- Cross-currency basis swap

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Credit & Spread Concepts & Strategies

1. Spread=LGD(1-recover rate)*POD
2. Credit spread measures:
 - Fixed-rate bond:
 - Yield spread: YTM(corporate bond)-YTM(government bond), duration can not match
 - G-spread: YTM(corporate bond)-YTM(government bond), duration must match
 - I-spread: corporate interest rate – fixed rate of interest rate swaps
 - Asset Swap Spread: corporate bond's **coupon rate** - fixed rate of interest rate swaps
 - Z-spread: corporate bond's yield curve – government bond's yield curve
 - Credit Default Swap (CDS) basis: **Z-spread – CDS spread , should be close to 0**
 - Option-Adjusted Spread – remove the influence of options
 - Floating-rate notes:
 - Quoted margin: **fixed**, set at beginning, **coupon payment = MRR+Quoted margin**
 - Discount margin: change over time, **discount rate = MRR+ Discount margin**
 - Z-Discount margin: **discount rate= MRR forward rate + Z-discount margin**
- Properties: **Z-Discount margin < Discount margin**
3. Empirical duration – usually less than effective duration
4. Spread duration: usually near the modified duration for non-callable fixed-rate bonds
5. Excess spread:

E(excess spread)

$$= \text{Spread}_0 \times t - \text{EffSpreadDur} \times \Delta \text{Spread}$$
$$- \text{POD} \times \text{LGD} \times t$$

6. CDS:

- CDS spread: fee/premium of insurance that buyer **should** pay, not actually pay
- Fixed coupon: buyers of CDS **actually** pay **1%** for investment-grade bonds and **5%** for high-yield/junk bonds
- Buy CDS = buy insurance = pay fixed cash flow = sell risk out = sell/issue bond = benefit from CDS price decrease
- Sell CDS = sell insurance = receive fixed cash flow = buy risk in = buy bond = benefit from CDS price increase
- CDS price:

$$\text{CDS Price} = \text{Notional} \times [1 + (\text{Fixed Coupon} - \text{CDS spread}) \times \text{EffSpreadDur}_{\text{CDS}}]$$

7. CDS Strategies: **when economy is good, do some gamble!** ->buy HY bonds = sell CDS (HY bonds)

- Economy is good: short CDS on junk bonds (gamble) and buy CDS on investment-grade bonds, vice versa when economy is not good
- CDS curve trade: credit spread curve steeper (flatter), than buy (sell) long-term CDS and short (buy) short-term CDS (think in bond way!!!)

8. Credit Spread Curve Strategies: **when economy is good, do some gamble!**

- Statistic credit spread curve strategy: economy is good in the future so do some gamble
 - Cash-based strategy: buy some high-yield bond
 - Derivative-based strategy: selling CDS
- Dynamic credit spread curve strategy: (refer to some calculations)

Important Points

1. The value of the **mezzanine tranche** of a CDO increases by more than the senior tranche whenever **default correlations increase**.
2. Credit loss is a lesser consideration than credit migration for investment-grade bonds. **Credit loss** is a primary consideration **for high-yield bonds**.
3. For investment-grade bonds, the risk of credit rating migration (credit deterioration) is greater than the risk of actual credit loss. So, **credit spread volatility**, as opposed to outright credit default loss, is a more relevant consideration as it **relates to investment-grade bonds**.
4. Relative to high-yield bonds, **investment-grade bonds** are more **sensitive to interest rate changes** and **credit migration risk**, resulting in credit spread volatility.
5. For **investment-grade** corporate bonds, the correlation between credit spreads and the risk-free interest rate **is negative**, not positive.
6. An investor buying MBS expects **lower**, not higher, interest **rate volatility**.
7. The interest rate risk has been immunized, which is known as **zero replication**.
8. **Measurement error** for Asset BPV can arise even in the classic passive immunization strategy for Type I cash flows, which have set amounts and dates.
9. A **pure indexing approach** for a broadly diversified bond index would be **extremely costly** because it requires purchasing all the constituent securities in the index.
10. A **value-weighted** index will be more susceptible to credit quality deterioration than an **equally weighted** index will be.
11. Fixed-income securities are more illiquid and trading infrequently than equities, so pricing and valuation of fix-income securities are more difficult than equities.
12. A manager focuses on the interest rate sensitivities of **assets and liabilities** when making asset allocation decisions. – It is **asset-liability management!!!** Vs asset or liability driven.

13. Enhanced indexing is especially useful for investors who consider environmental, social, or other factors when selecting a fixed-income portfolio. ESG investing is more appropriate for an enhanced index strategy relative to a full index replication strategy.
14. Immunization is to minimize the variance in the realized rate of return and to lock in the cash flow yield (internal rate of return) on the portfolio.
15. The use of an index as a widely accepted benchmark requires daily (cannot weekly) valuation.
16. Emerging country's bond markets offer less diversification than similar investment in developed countries.
17. Fixed exchange rate usually results in greater instability and a higher probability of financial distress.
18. Forward rate bias is defined as an observed divergence from interest rate parity conditions under which active investors seek to benefit by borrowing in a lower-yield currency and investing in a higher-yield currency.
19. Trend signals are widely used in systematic tactical asset allocation

Chapter 2 - Equity

Role of equity securities:

- Diversification
- Capital appreciation
- Dividend income
- Hedge against inflation (inflation is a lagging economic indicator, equity price is a leading indicator)

Equity investment universe (how to segment equities):

- By size (large vs small cap) and style (value vs growth):
 - **Adv:** straightforward and manageable way to construct a portfolio, as performance benchmark for equity managers
 - **Dis:** Categories may change over time, may be defined differently among investors
- By geography:
 - **Adv:** Investors who have significant domestic market exposure can better understand how to diversify across international markets
 - **Dis:** May introduce currency risk, may overestimate the diversification benefit
- By economic activity (such as by industry):
 - **Adv:** portfolio managers can analyze, compare, and construct performance benchmarks based on specific industries
 - **Dis:** Some companies may have businesses that cannot simply be assigned to one specific industry

Distinguish **management fee** vs **administrative fee**

Shareholder engagement (can be done by both active and passive managers):

- Advantages:
 - Develop a more effective corporate governance culture
 - Investors will have more information about the company

- Non-financial interests such as ESG considerations
- Disadvantages:
 - Potential conflicts of interest, potential insider trading
 - May focus on short-term goals at the expense of companies' long-term goal
 - May be time consuming and costly for both investor and company

Strategies:

- Passive Strategies: low cost, trade less frequently, but need rebalancing and reconstitution
- Active Strategies: higher trading cost

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Passive Equity Investing

A good index should be ('RIT (POC)'):

- Rule-based – predictable, objective, consistent
- Investable (free-float adjustment, keeping trading cost low – buffering and packeting)
- Transparent

Index constructing methodologies:

- **Market-cap weighting** – can be thought of liquidity-weighted, believe efficient market hypothesis, **heavily weighted large-cap stocks**
- **Price weighted** – one share of each stock, **heavily weighted high-price stocks**
- **Equally weighted** – **heavily weighted small-cap stocks**, may lead to limited investment capacity
- Fundamental weighted – try to exploit possible inefficiencies in market pricing

$$\text{Effective number of stocks} = \frac{1}{\sum_1^n w_i^2} = \frac{1}{HHI}$$

How to gain exposure to the index:

- Pooled investment
 - Open/end mutual fund – fund marketplace or individual financial adviser
 - ETFs – ease of trading, low management fee, tax efficiency (but higher transaction fee and potential illiquidity in some markets)
- Derivative strategies – efficient, liquid and ease to leverage, but may introduce counterparty risk
- Separately-managed index based portfolios

How to construct passive portfolio:

- Full replication – need to regularly reconstitute and rebalance

- Stratified sampling – have higher tracking error than full replication
- Optimization – based on past market data than cannot represent future

Tracking error may occur because:

- Management fee
- Pay commissions (bid-ask spread) to execute trades
- Less liquidity securities with higher transaction cost
- Cash drag

Factor based strategies (factors/risk exposures should be identified and isolated):

- Advantages: less costly than active management but still allow investors' view of the market
- Disadvantages: cost than pure indexing strategy and may **concentrate risk exposure**, leaving investors vulnerable during periods **when the risk factor is out of favor**

Active Equity Investing Strategies

Two broad approaches:

- Fundamental approach: **subjective** in nature, rebalance at **any time**, pitfalls:
 - Value trap
 - Growth trap
 - Behavioral biases: Cognitive error, emotional bias
- Quantitative approach: **objective** in nature, rebalance at **regular intervals**, pitfalls:
 - Based on historical data, survivorship bias
 - Data mining/overfitting
 - Look-ahead bias (using information unavailable at the time of decision making)

- Constraints on turnover
- Transaction cost
- Lack of ability to borrow
- Quant overcrowding

Strategies:

- Bottom-up strategy
 - Growth based: GARP, PEG ratio (the lower the better)
 - Value based: relative value, contrarian investing, deep-value investing, restructuring and distressed debt investing, income investing (focus on dividend yield), high-quality value
- Top-down strategy (country, industry, volatility, thematic)
- Factor based strategy (**rewarded factor** vs **unrewarded factor**), drawbacks:
 - Information contained in the middle quantiles is not used
 - Portfolios tend to be concentrated
 - Very hard to build a 'pure' factor portfolio
 - Assume a linear relationship between factor and stock return
- Activist strategy
- Others (statistical arbitrage, event-driven arbitrage)

Style classification of active strategies:

- Holding based style analysis (look individual stock first and then look portfolio)
 - Advantages: **More accurate**, assess each individual holding's contribution
 - Disadvantages: **Different system has different definition on style**, require all holding positions and **less efficiency**
- Return based style analysis (look portfolio return first and then individual stock)
 - Advantages: **simple and easy** to apply
 - Disadvantages: **less accurate**
- Manager's self identification

Active Equity Portfolio Construction

Active return =

- $R_A - R_B$
- $\sum_1^n \Delta w_i \times R_i$
- $\sum_1^k (\beta_{p,k} - \beta_{B,k}) \times F_k + (\alpha + \varepsilon)$
- $IC \times \sqrt{BR} \times \sigma_A \times TC$

Active share = $\frac{1}{2} \times \sum_1^n |w_{P,i} - w_{B,i}|$

$$\text{Active risk : } \sigma_A = \sqrt{\sigma_{\sum(\beta_{p,k} - \beta_{B,k}) \times F_k}^2 + \sigma_{(\alpha + \varepsilon)}^2}$$

Active Share



Notes:

- Both active share and active risk reflect risks
- Portfolio manager can completely control active share but not active risk
- Lower active share means closer to benchmark portfolio
- Active share does not lead to active risk
- Active risk has **negative** relationship with the correlation coefficient between benchmark and active portfolio, but active share has no relationship with this correlation.

Allocate risk budgets: calculate contribution of risk of each asset and it equals the asset's weight * the covariance between the asset and the benchmark portfolio

- Absolute risk
- Relative risk

Important Points

1. When doing style analysis, if given both holding-based and value-based value, use **holding-based**, which is **more accurate**. Notice: No need to calculate the average of these two values.
2. When doing style analysis, if a portfolio includes many short positions and **derivatives**, the description in the fund's prospectus becomes the key source of information to assign a style. This is **Self-identification method!**
3. 'During the last recession, we rotated into deep-value companies likely to deliver superior returns as a risk-on environment returned.' is a **top-down approach!**
4. Equity return swap does not change voting rights. But security lending transfer voting rights to borrowers.
5. Buffering may lead to portfolio has more stocks than benchmark
6. Compared with mutual funds, only ETF can take **short** positions and purchase shares **on margin**
7. Compared with market-cap weighting, fundamental weighting believe that the market is **not** efficient.
8. Investors are more likely to pay higher fees for higher **active share** as an indicator of greater active management.
9. Targeting low idiosyncratic risk along with low concentrations indicates a **systematic** approach.
10. A **systematic investment approach** is likely to be designed around extracting premiums from a **balanced exposure to known, rewarded factors**, whereas a **discretionary approach** usually searches for **active return from firm-specific factors**, inclusion of non-financial variables, such as pricing power.
11. A **sector rotator typically has high active risk** and could have either high or low Active Share, depending on whether a concentrated or diversified portfolio approach was followed.
12. The active risk attributed to Active Share will be smaller for more diversified portfolios with lower idiosyncratic risk.
13. Active risk does rise with an increase in factor and idiosyncratic volatility.

14. Fundamental approach places an emphasis on **forecasting the future prospects** of underlying companies. Quantitative analysis uses a company's history to arrive at investment decisions.
15. The purpose of back-testing is to identify correlations between the current period's factor scores, **FS(t)**, and the next period's holding period strategy returns, **SR(t + 1)**.
16. Basis risk can arise when the underlying securities pay dividends.
17. An **enhanced indexing strategy will be most efficient to mimic** a broad index
18. Match **Macaulay duration** (not modified duration!!!) to **immunize** the single liabilities using coupon-bearing bonds.

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Chapter 3 - Derivatives

Option Strategies

1. Covered call – sell call and buy the stock
 - Out of the money call – for receiving call premium, enhancing yield
 - At the money call – for target price realization
 - In the money call – for reducing positions, investors gain time value of call option
2. Protective put – buy stock and buy put option – buy downside protection/insurance
3. Spreads (for long, short vice versa) (**direction bet**)
 - Bull spread – **long** call(put) option with **low** strike price and **short** call(put) option with **high** strike price
 - Bear spread – **short** call(put)option with **low** strike price and **long** call(put) option with **high** strike price
 - Butterfly spread – **long one** call(put) option with **low** strike price **and one** with **high** strike price, **and short two** call(put) option with **medium** strike price
 - Calendar spread – **long more distant** call(put) option and **sell near-term** call(put) with the same exercise price
4. Straddle – long call + long put (with same strike time and price)
5. Collars – long stock + long put+ short call (**for risk reducing**)
6. Synthetic positions:
 - Synthetic forward: long call and short put with same strike price and expiration
 - Synthetic long call position: long stock + long a put
 - Synthetic long put position: short stock + long a call
7. Long risk reversal: long call (high strike price) + short put (low strike price)
8. Implied volatility – positive linked with option price
 - OTM puts typically command **higher implied volatilities** than ATM or OTM calls (because **people are more likely to be pessimistic** in reality)

- Volatility smile – U shape, when the implied volatilities priced into both OTM/ITM trade at a premium to implied volatilities of ATM
- Volatility Skew – the implied volatility **increases for OTM puts and decreases for OTM calls**

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Swaps, Forwards, and Future Strategies

Manage Interest rate risk:

- Interest rate swap
- Interest rate forward and futures (short term)
- Fixed income futures (long term) CTD/CF=future price
- Hedge: adjust BPV

Manage Equity risk:

- Equity Swap (equity swap vs total return swap – including dividends)
- Equity forwards and futures – adjust portfolio beta
- **Effective beta**
- Cash equitization

Infer Market Expectations

- Federal funds rate (100-quoted price)
- **Probability of a change in the federal funds rate :**
$$= \frac{\text{Effective federal funds rate implied by futures contract} - \text{current federal funds rate (mean)}}{\text{change of rate}}$$

Derivative on volatility:

- Volatility futures and options (Long position: benefit from volatility increase)
- Variance swaps:
 - Settlement amount (for 'long position')
 - $= \text{variance notional} \times (\text{realized variance} - \text{variance strike})$
 - $\text{variance notional} = \frac{\text{vega notional}}{2 \times \text{strike price}}$
 - **Note: realized (strike) variance use the value before %**
 -
- Two properties:

- The sensitivity of variance swap to change in volatility **diminishes over time.**
- Variance swaps are **convex** in volatility (profit more from increase in volatility than it will lose for a corresponding decrease in volatility)

➤ Market-to-market valuation

$$VarSwap_t = \text{variance notional} \times PV(T \text{ to } t) \times$$

$$\left\{ \frac{t}{T} \times \text{RealizedVol}(0, t)^2 + \frac{T-t}{T} \times \text{ImpliedVol}(t, T)^2 - \text{Strike}^2 \right\}$$

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Currency Management

1. Basic trading tools

- Currency Swap (change interest)
- FX (foreign exchange) Swap (spot change + forward change)
- Futures and forwards
 - Institutional investors prefer forward contract, because:
 - Forwards are customized
 - Futures may not be available in the desired currency pair
 - Currency forwards are more liquid than futures for trading in large size
 - Futures need margin
 - It is useful to do mark-to-market valuation for a forward position
- Dynamic hedge vs static hedge
 - Dynamic hedge increase transaction cost but will keep the actual hedge ratio close to the target hedge ratio
 - Static hedge will avoid transaction cost but will accumulate unwanted currency exposures
- Roll Yield
 - Roll yield will be positive if
 - Buy base currency at a forward discount
 - Sell base currency at forward premium
 - Positive roll yield will encourage hedging, because it will decrease hedging cost

2. Effects of currency movement

- Return: $R_{DC} = (1 + R_{FC})(1 + R_{FX}) - 1$
- $\sigma^2(R_{DC}) \approx \sigma^2(R_{FC}) + \sigma^2(R_{FX}) + 2\sigma(R_{FC})\sigma(R_{FX})\rho(R_{FC}, R_{FX})$
- If R_{FC} is risk-free rate: $\sigma(R_{DC}) = \sigma(R_{FX}) \times (1 + R_{FC})$

3. Why currency management:

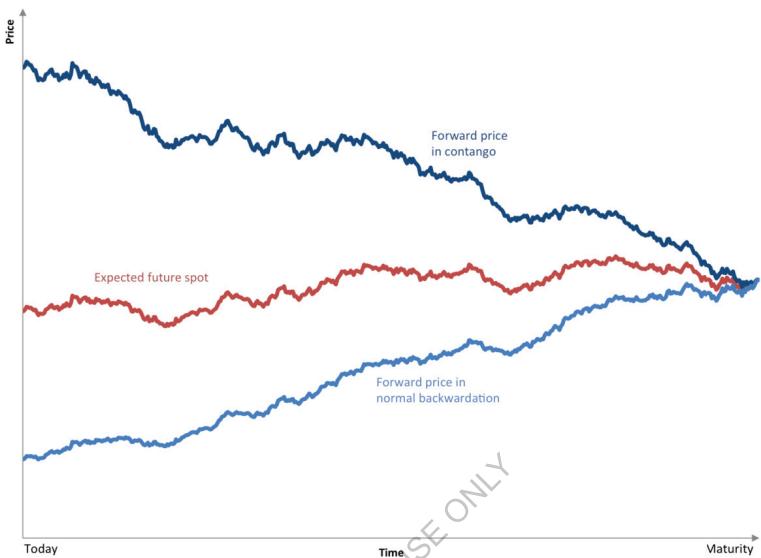
- Pros: In short term, currency movement can have dramatic impact on return and risk, there are pricing inefficiencies in currency markets (potential for ‘harvesting alpha’)

- **Cons:** In long term, currency effects cancel out to zero, management and transaction cost will increase
 - **Cost consideration:** trading cost, opportunity cost (forgo any possibility of favorable currency rate moves)
4. Strategies for currency management
- **Passive** hedging (needs **dynamic** hedging, periodic rebalancing needed)
 - **Discretionary** hedging (semi-active, portfolio manager has limited discretion)
 - **Active currency management – withing mandated risk limits**
 - Goal: protect the portfolio from currency risk, then pursue profit (alpha)
 - Economic fundamentals
 - Technical analysis
 - Carry trade – generally profitable in long periods of stable market, but potentially large losses in financial crisis
 - Volatility trading – long(short) straddle in volatile(stable) market, forwards, options
 - **Currency overlay** – outsourcing

Important Points

1. If the correlation between foreign currency asset returns and foreign currency returns is negative, then there may be no need to hedge all foreign currency exposure because some currency exposure is desirable from a portfolio diversification perspective.
2. Regarding the **currency overlay** program, it will add value to the portfolio only if the currency alpha has a low correlation with other asset classes in the portfolio.
3. High implied volatility does not benefit a carry trade.
4. **Forward rate does not equal forecast spot rate.**
5. If manager expect base currency will **depreciate** (forecast spot rate), then **over-hedge** through a short position in forward contract.
6. If manager expect base currency will **appreciate** (forecast spot rate), then **under-hedge** through a short position in forward contract.
7. **long risk reversal** strategy of selling the OTM put and buying the OTM call **if the put implied volatility is considered to be too high** compared with the call implied volatility.
8. a volatility skew in which implied volatility increases for out-of-the-money (OTM) put options and decreases for OTM call options. While a volatility smile occurs when the curve is U-shaped—that is, implied volatility increases for OTM puts and calls.
9. Options are wasting assets. They lose value over time and this phenomenon is called **time decay**. The rate at which the time value of an option is eroded is known as **theta**. So **smaller absolute value of theta means smaller time decay**.
10. The credit risk underlying an non-deliverable forwards (NDF) is **lower than** an outright forward contract since the notional size of the contract is not exchanged at settlement.
11. NDFs are cash settled in the **non-controlled** currency of the currency pair.
12. Compared with the parametric approach, both **historical simulation** and **Monte-Carlo simulation** are suited for option-based portfolios.

13. Positive theta – benefit from time decay; negative theta – exposed to time decay
- 14. equity swaps are relatively illiquid contracts.**
- 15. Typical end-of-month (EOM) activity by large financial and banking institutions often induces “dips” in the effective federal funds (FFE) rate that create bias issues when using the rate as the basis for probability calculations of potential Federal Open Market Committee rate moves. If EOM activity increases the price for the relevant fed funds contract, the FFE rate would decline. A decline in the FFE rate would decrease the probability of a change in the fed funds rate.** To overcome this EOM bias, data providers have implemented various methods of “smoothing” EOM dips.
- 16. The probabilities inferred from the pricing of fed funds futures usually do not have strong predictive power, especially for the longer-term horizon.**
- 17. To derive probabilities of Fed interest rate actions, market participants look at the pricing of fed funds futures, which are tied to the FFE rate—that is, the rate used in actual transactions between depository institutions, not the Fed’s target fed funds rate.**
- 18. Basis: Spot price - Future Price !!!! notice direction**
19. If the basis is positive, a trader would make a profit by “**selling the basis**”—**that is, selling the bond and buying the futures**. In contrast, when the basis is negative, the trader would make a profit by “**buying the basis**” - **purchase the bond and short the futures**.



Chapter 4 - Alternative Investment

Hedge Fund Strategies

1. Equity Strategy
 - Long/short – concentrated position
 - Dedicated short selling (**pure short**)/short bias
 - Equity market neutral – highly quantitative, more diverse, shorter horizon, non-trending/decline market
 - Pairs trading (similar undervalued/overvalued stocks)
 - Stub trading (buy and sell stocks of a parent company and its subsidiaries)
 - Multi-class trading (buy and sell different classes of shares of the same company)
 - Quantitative market neutral
2. Event-driven strategy
 - **Merger arbitrage** – binary payoff
 - Distressed securities – capital structure arbitrage (long more safety asset and short unsafety asset)
3. Relative value strategies
 - Fixed income arbitrage – believe mean reversion, yield curve trade, carry trade
 - **Convertible bond arbitrage** – long convertible short stock
4. Opportunistic strategies
 - Global macro – heterogeneous, use of leverage (to amplify return), top-down analysis
 - Managed futures – highly liquid, natural positive skewness (due to strict loss limit)
5. Specialist strategies
 - Volatility trading – time zone arbitrage, cross asset volatility trading, or single direction
 - Reinsurance/life settlement – cash flow estimates, reinsurance market
6. Multi-manager

- FOF – inability to net incentive, double fee
- Multi-strategy – ability to net incentive (benefit investor not manager), reallocate capital quickly

- In short term, bonds are a more effective volatility mitigator than alternatives.
- In long term, a heavy allocation to bonds would reduce the probability of achieving the investment goal. So, use hedge fund/alternative in long horizon.

Investment opportunity set

- Risk-based approach – risk factors
- Traditional approaches
- Liquidity-based approach

	Equity type	Fixed income type	Real estate type
Public/liquid	<ul style="list-style-type: none"> • Public equity • Long/short hedge funds 	<ul style="list-style-type: none"> • Fixed income • Cash 	<ul style="list-style-type: none"> • Public real estate • Commodities
Private/illiquid	<ul style="list-style-type: none"> • Private equity 	<ul style="list-style-type: none"> • Private credit 	<ul style="list-style-type: none"> • Private real estate • Private real assets

- Macroeconomic environment-based approach

	Deflation	Moderate inflation	High inflation
High growth rate		<ul style="list-style-type: none"> Public equity Private equity High yield bonds Private credit 	<ul style="list-style-type: none"> Real estate Commodities
Low growth rate or recession	<ul style="list-style-type: none"> Government bonds 		<ul style="list-style-type: none"> Inflation-linked bonds Gold

Important Points

1. Global macro investing may introduce natural benefits of asset class and investment approach diversification, but they come with naturally **higher volatility** in the return profiles typically delivered.
2. No matter the small change of stock price, the profit/loss of convertible bonds strategy **is fixed**.
3. Three characteristics that hedge fund managers look for when investing in life settlements:
 - The **surrender value** offered to the insured individual is relatively **low**
 - The **ongoing premium** payments to keep the policy active are relatively **low**
 - There is a **high probability** that the designed insured person is likely **to die before** the period predicted by standard actuarial methods.
4. Private Equity is subject to J-curve, with low or even negative return early on and high returns later on – making it **difficult to increase the spending rate in short time**.
5. Private Equity is very illiquid, thus, rebalancing to a model allocation on an **annual** basis will be infeasible.
6. Systematic risk-factor approaches typically explain most or all of the risk and return patterns of public assets but far less of those patterns for private assets (widespread use of appraisal-based valuation and idiosyncratic risks)
7. For public equity, **private equity** has a **moderate** potential to diversify, while **fixed-income assets** have a **strong** potential to diversify.
8. Short-biased equity strategies generally **provide alpha** when used to diversify public equities and are expected to **mitigate the risk** of public equities **by reducing the overall portfolio beta** of the fund.
9. Activist short-selling funds take short positions and **publicly share their negative fundamental views**.
10. Merge arbitrage is a **liquid** strategy
11. **Equity and volatility are negatively correlated**. In order to hedge the equity exposure in the portfolio, a long volatility (option) position is necessary.

- 12.The convertible bond strategy is taking advantage of option mispricing. (the embedded option). The embedded option tends to trade at relatively low implied volatility levels than the historical volatility level of the underlying equity.
- 13.**Multi-strategy funds** typically use more leverage and have more volatile return profiles than FOF.
- 14.FOF potentially offer a more diverse mix of strategies than multi-strategy funds.
- 15.Risk-based approach identify a single set of common risk factors but risk factor sensitivities are not stable over time.
- 16.A difference between the publicly traded and alternative assets is the need for the portfolio manager to monitor alternative investment managers and processes (key-person risk, conflict of interest., etc.).
- 17.Commodities act as a hedge against a core constituent of inflation measures.
- 18.When projecting expected returns, the order of returns from highest to lowest is typically regarded as private equities > hedge funds > bonds.
- 19.Compared with mean-variance optimization, risk factor-based approaches to asset allocation produce more robust asset allocation proposals.
- 20.multi-strategy fund have higher manager-specific operational risks than FoFs.
- 21.Equity market-neutral strategies use a relative value approach.
- 22.Cross-sectional momentum strategies generally result in holding a net zero or market-neutral position. In contrast, positions for assets in time-series momentum strategies are determined in isolation, independent of the performance of the other assets in the strategy and can be net long or net short depending on the current price trend of an asset.

Chapter 5 - Private Wealth Management

Private Client Goals:

- Planned goals: retirement, children education, wealth transfer, etc.
- **Unplanned goals:** medical/health expense, house repairment, other unforeseen spending.

Private Client Risk Tolerance:

- Risk Capacity
- Risk Perception/willingness
- If there is a conflict between risk capacity and risk perception:
 - State the conflict and possibly discuss it with clients
 - Choose the more conservative between the two

IPS – at least review **annually**

Goal quantification

Goal Prioritization – **the timing of a need should not be the sole determinant of goal prioritization**

Life annuities help to mitigate **longevity risk**

Portfolio construction:

- Traditional approach
- Goal based approach
 - Adv: easier for clients to express their risk tolerance on a goal-specific basis
 - Dis: may not lead to mean-variance efficiency for the whole portfolio

Topics in Private Wealth Management

Tax Consideration

- Tax
 - Income tax
 - Gain tax
 - Stamp tax
 - Wealth or Property tax
 - Wealth transfer tax
- Tax Efficiency
 - After-tax holding period return $R' = R - \frac{\text{tax}}{\text{value}_0}$
 - After-tax post liquidation return $R_{PL} = [(1 + R'_1) \dots (1 + R'_T) - \frac{\text{Lqd tax}}{\text{value}_{final}}]^{\frac{1}{T}} - 1$
 - Tax alpha = $(R' - B') - (R - B)$
 - Tax-Efficiency Ratio = R'/R
- Types of tax accounts
 - Taxable account $FV = (1 + R')^n$
 - Tax exempt account (usually have up-limit) $FV = (1 + R)^n$
 - Tax differed account $FV = (1 + R)^n \times (1 - t)$
- Asset location (VS asset allocation)
 - Put assets with less tax burden into taxable account
 - Put assets with more tax burden into tax-efficient account
- Investment vehicles
 - Partnership – taxes passed through to the underlying partners
 - **ETF – more tax efficient**
 - Separately-managed accounts (SMAs) – **most flexibility** for tax management
 - Mutual Fund – taxes passed through to individual investors

- Capital gains for tax \neq benefit, note the tax base for mutual fund
- Potential Capital Gain Exposure (PCGE) = $\frac{\text{net gains/losses}}{\text{total net assets}}$

➤ Tax management strategy

- **Tax loss harvesting** – realize a loss first and then buy in – to capture time value of currency (reinvestment return). Taxes are deferred to the final time.
- **Tax lot accounting** – use HIFO (highest in, first out) **is usually the most tax-efficient** accounting methodology

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Concentrated Position

- **Public shares**
 - Risk and tax considerations
 - Company-specific risk
 - Lack of diversification
 - Liquidity risk
 - Huge tax bill
 - Strategies for managing concentrated positions
 - Outright sale – directly sell all
 - Staged diversification strategy – sell in different steps
 - Completion portfolios – **sale part** and buy in some other assets for diversification
 - **Equity Monetization – get money from bank through collateral**
 - First step: hedge a large portion of risk
 - Create a short position for the security
 - Short a forward contract
 - Use options to build a synthetic short position
 - Enter into a total return swap
 - Second step: borrow money from bank against the hedged position
 - Collar strategies – **put strike < current stock price < call strike**
 - Covered call
 - Tax-free exchanges
 - Charitable remainder trust (within the trust, the shares can be sold without tax)
- **Private owned business**
 - General considerations:
 - Liquidity is difficult
 - May trigger a taxable event
 - Loss of control or dilution of ownership
 - Strategies

- Public – IPO – usually trigger broad scrutiny
 - Personal line of credit secured by company shares – ‘put’ arrangement
 - Sell to PE/VC and keep some shares
 - Employee stock ownership plan
- **Real estate**
- Mortgage Financing vs sale and lease back
 - Donor advised fund

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Gift and Estate Planning

- Basic concept and concerns:
 - Common law vs civil law
 - Will (testament), testator, probate
 - **Forced Heirship Regime** (civil law)
 - **Community property regime**
- Lifetime gift and/or testamentary bequest – depends on the future value
 - Relative value
$$RV = \frac{FV_{gift}}{FV_{bequest}} = \frac{(1 - T_g) \times [1 + r_g \times (1 - t_g)]^n}{[1 + r_e \times (1 - t_e)]^n \times (1 - T_e)}$$
- Estate Planning tools
 - Trust
 - Revocable trust vs Irrevocable trust (can protect assets from claims against the settlor and settlor's creditors)
 - Fixed trust vs Discretionary trust (can protect assets from claims against the beneficiaries and beneficiaries' creditors)
 - Foundations
 - Life Insurance – usually tax-exempt
 - Companies

Family Governance

- Planning for the unexpected
 - Divorce
 - Incapacity

Risk Management for Individuals

1. Human Capital vs Financial Capital

- Stock-like Human Capital vs Bond-like Human Capital
- Human Capital: net present value of an investor's future expected labor income weighted by the probability of surviving to each future age.
- Life insurance protects human capital, which is defined as the present value of future labor income
- For DB pension benefits:
 - Vested DB benefits is financial capital
 - Unvested DB benefits is human capital
- Human capital is illiquid, and it may not keep pace with inflation rate

2. Individual's balance sheet

- Traditional Balance Sheet:
 - Net Worth = Asset – Liabilities
- Economic (holistic) balance sheet:
 - Asset: include human capital (including unvested pension)
 - Liability: include present value (PV) of Lifetime consumption needs and bequest
 - Net Wealth = Net worth + [PV(future earnings)+PV(unvested pension)]
 - [PV(consumption goals)+PV(bequests)]

3. Asset Allocation influenced by human capital

- For stock-like human capital: invest less aggressive portfolio
- For bond-like human capital: invest more aggressive portfolio
- Human capital is generally largest for younger individual
- Financial capital is generally largest when an individual is retiring

4. Individual Risk Exposures:

- Premature death risk – insured with life insurance
- Longevity risk – insured with annuities

- Earning risk (use disability insurance), property risk (use property insurance), liability risk (use liability insurance), health risk (use health insurance)

5. Life insurance:

- Temporary life insurance
- Permanent life insurance
 - Whole life insurance vs **universal life insurance (more efficient)**
- Gross premium = net premium + loading
- **Cash value**
- Cost index
 - Net payment cost index
 - Net **surrender** cost index

6. Annuities:

- **Annuitant** (who receives money) VS **beneficiary** (who receives remained annuitant died)
- Immediate vs deferred - Variable vs fixed
- **Deferred variable annuities are more likely to allow withdraw,** immediate variable usually do not.

Important Points

1. The “**annuity puzzle**” describes the phenomenon that retirees tend to avoid annuity investments, which may be appropriate to best help them reach their financial goals. reluctance to lose control over her assets is one explanation for her reluctance, and she may also believe that an annuity would minimize the chance of a substantial improvement in her lifestyle.
2. Soft skills involve interpersonal relationships and include communication skills, social skills, education and coaching skills, and business development and sales skills. **Language skills is hard skills.**
3. **unemployment is a risk relative to both human capital and financial capital.** Financial capital could also be affected because assets may need to be sold to make up for any loss of income. **Universal life is thus most appropriate** because it is a form of permanent insurance that can remain in force until Perrin’s death and typically **has more options for investing the cash value** than do whole life policies.
4. Goals based approach - either a **stated level of max volatility** or a **given level of success** is needed for portfolio construction
5. A wealth manager can help shape a client’s **risk perception**. But doing so **will not increase** the client’s risk tolerance.
6. perform a capital needs analysis:
 - The **Monte Carlo model** can incorporate customized input data, such as **life expectancy, taxes, inflation, and investment management fees**, but the deterministic model does not have that capability.
 - Both models should use **forward-looking** capital market assumptions.
 - The **Monte Carlo model** assumes a **simple average return and a standard deviation of returns** for the portfolio, whereas the deterministic model assumes **linear portfolio growth**.
7. The **marginal contribution to total risk (MCTR)** is the beta relative to the portfolio multiplied by the standard deviation of the portfolio.

8. Because the **portfolio is optimal**, the ratio of the excess return to the marginal contribution to total risk (MCTR) is equal to the Sharpe ratio for the portfolio.

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Chapter 6 - Institutional Wealth Management

➤ Investment models/approaches:

Common Investment Approaches

Investment Approach	Description
Norway Model	Traditional style: 60%/40% equity/fixed-income allocation, few alternatives, passive investments. Pros: Low cost, transparent, suitable for large scale, easy. Cons: Limited value-added potential.
Endowment Model	High alternatives exposure, active management and outsourcing. Pros: High value-added potential. Cons: Expensive and difficult to implement for most sovereign wealth funds because of their large asset sizes.
Canada Model	High alternatives exposure, active management, and insourcing. Pros: High value-added potential and development of internal capabilities. Cons: Potentially expensive and difficult to manage.
LDI Model	Focus on hedging liabilities and interest rate risk including via duration-matched, fixed-income exposure. Pros: Explicit recognition of liabilities as part of the investment process. Cons: Certain risks (e.g., longevity risk, inflation risk) may not be hedged.

➤ Pension Funds

DB & DC

Characteristics/Features	DB	DC
Benefit payments	Benefit payouts are defined by a contract between the employee and the pension plan.	Benefit payouts are determined by the performance of investments selected by the participant.
Contributions	The employer is the primary contributor. The size of contributions is driven by several key factors.	The employee is typically the primary contributor.
Investment decision making	The pension fund	The employee
Investment risk/Longevity risk	The employer bears the risk.	The employee bears the risk.

Sovereign Wealth Fund

Major Types of Sovereign Wealth Funds

Type	Objective
Budget stabilization funds	Set up to insulate the budget and economy from commodity price volatility and external shocks.
Development funds	Established to allocate resources to priority socioeconomic projects, usually infrastructure.
Savings funds	Intended to share wealth across generations by transforming non-renewable assets into diversified financial assets.
Reserve funds	Intended to reduce the negative carry costs of holding reserves or to earn higher return on ample reserves.
Pension reserve funds	Set up to meet identified future outflows with respect to pension-related contingent-type liabilities on governments' balance sheets.

Liabilities, Investment Horizons and liquidity needs

Type	Liability	Investment Horizon	Liquidity Needs
Budget stabilization funds	Uncertain	Short	High
Development funds	Uncertain	Uncertain(Long or Medium)	Usually low
Savings funds	Long	Long	low
Reserve funds	Monetary stabilization bonds	Long	Relatively low
Pension reserve funds*	Pension-liability	Long	Change over time

University Endowments and Private Foundations

Comparison Between Foundations and Endowments

	US Foundation	US University Endowment
Purpose	Grant-making for social, educational, and charitable purposes; principal preservation focus.	General support of institution or restricted support; principal preservation focus.
Liabilities/Spending	Legally mandated to spend 5% of assets + investment expenses + 100% of donations (flow-through).	Flexible spending rules (headline spending rate between 4% and 6% of assets) with smoothing.
Investment time horizon	Perpetual (except limited-life foundations).	Perpetual
Risk	High risk tolerance with some short-term liquidity needs.	High risk tolerance with low liquidity needs.
Liquidity needs	Annual net spending is at least 5% of assets.	Annual net spending is typically 2% to 4% of assets, after alumni gifts and donations.

Banks and Insurers

- Primary objectives: manage liquidity and reduce risk mismatches between assets and liabilities
- Balance sheet management and investment considerations:
 - $\% \Delta E = \% \Delta A(M) - \% \Delta L(M - 1)$
 - $D_E = D_A(M) - D_L(M-1) \frac{\Delta i}{\Delta y}$
 - $\sigma_{\frac{\Delta E}{E}}^2 = M^2 \sigma_{\frac{\Delta A}{A}}^2 + (M - 1)^2 \sigma_{\frac{\Delta L}{L}}^2 - 2(M)(M - 1) \rho \sigma_{\frac{\Delta A}{A}} \sigma_{\frac{\Delta L}{L}}$
- Option price theory for valuation:
 - ✓ illiquid asset price = marketable asset price – put price
 - ✓ illiquidity premium = expected return on illiquid asset – expected return on marketable asset

Important Points

1. Small institutional investors do not have the scale to hire or develop this expertise. So not suitable for the Canadian model.
2. The pension plan is incorrectly (PBO understated) using a discount rate based on the returns to its current asset allocation, which includes small-cap equity, private equity, and illiquid real estate investments. These returns are historically much higher than the returns to high-grade bond yields averaged over the last 25 years, which is the maximum discount rate permitted in the United States.
3. In general, the required return for plan assets should exceed the discount rate on plan liabilities.

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Chapter 7 - Trading, Performance Measurement, and Manager Selection

Trading

Trader's dilemma:

- Trading too fast: lead to market impact – depends on the relative size of the order
- Trading too slow: lead to execution risk – mainly depends on price volatility
- Execution risk: POC>VWAP>TWAP

Cash drag, alpha decay

Trade implementation:

- High-touch approach: human involvement, fit for illiquid market
 - Principle trade: dealer
 - Agency trade: broker
- Low-touch approach: electronic trading, fit for liquid market
 - Direct Market Access (DMA) for small orders
 - Algorithmic trading for large orders
 - Schedule algorithms – for small, less urgency orders in liquidity market
 - TWAP – exclude outsiders, but may force trade in illiquid time or insufficient trade in liquid time (because refer historical data)
 - VWAP – minimize market impact, but may force trade in illiquid time or insufficient trade in liquid time (because refer historical data)
 - POV – automatically take advantage of increased liquidity, but is expensive and may not complete the order

- Liquidity-seeking algorithms – for large, urgency orders, less liquid market
 - Arrival price algorithms – for small, urgency orders, liquid market
 - Dark strategies – for large order in illiquid market
 - Smart order routers – comparing platform – for small orders
- Equity markets are most technologically advanced, **fixed-income** markets tend to have **lower liquidity**.

Trade Evaluation

- Implementation Shortfall = paper return – actual return

$$\begin{aligned} &= \text{Execution cost} + \text{Opportunity cost} + \text{Fixed fees} \\ &= \text{delay cost} + \text{trading cost} + \text{opportunity cost} + \text{fixed fees} \end{aligned}$$
- Cost in total dollar
- Cost in basis points
- Market adjusted cost = arrival cost (bps) – beta * index cost
 - Index cost = (index VWAP – index arrival price)/index arrival price -> bps
- Added value = arrival cost (bps) – pre-trade cost (bps)

Performance

- $B(\text{benchmark}) - M$ (market index return) : manager style
 - Portfolio return – $B(\text{benchmark})$: Active return
-
- The Sortino ratio penalizes a manager when portfolio return is less than the MAR (minimum acceptable return) and thus is preferred when the investor's goal is to preserve capital.
 - Sortino ratios use a target return that is based on investor-specific preferences, rather than market conditions.

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Chapter 8 - Asset Allocation

1. SAA vs TAA

- SAA: Policy Portfolio
- TAA: Short-term deviations from SAA, TAA is active management at the asset class level
- Rebalancing:
 - Benefit: Maintain investor's desired risk exposure and also provides discipline
 - Cost: Transaction cost, the market impact
 - Approaches:
 - Calendar rebalancing
 - a. Benefit: provide discipline and no need for constant monitoring
 - b. Drawback: allocation may differ significantly from optimal weights between rebalancing dates
 - Percent-range rebalancing
 - a. Benefit: minimize the degree to which asset classes can violate their allocation corridors
 - b. Drawback: cost associated with the need to constantly monitor the portfolio

2. Three categories approach:

- Asset-only approach: Maximize Sharpe ratio, use mean-variance optimization
- Liability-relative approach: fund liabilities and invest excess assets for growth
- Goals-based approach: achieve goals with specified required probabilities of success

3. Two categories approach:

- Asset class-based approach
- Factor-based asset allocation

4. Criticisms and related solutions of Mean-Variance Optimization (*MVO) under Asset-Only Allocation:
- Highly sensitive to **inputs**
 - Solution: reverse optimization
 - Asset allocation tends to be **concentrated**
 - Solution: add more constraints
 - Solution: resampled MVO
 - Investors concern about more than the mean and variance of returns
 - Solution: non-normal optimization
 - MVO is a **single-period** framework that does not consider trading/rebalancing costs and taxes
 - Solution: Monte-Carlo simulation
 - The source of risk may not be diversified
 - Solution: factor-based asset allocation
 - Most portfolios exist to pay for a liability or consumption series, which are not accounted in MVO
 - Solution: liability-relative allocation

Chapter 9 - Behavior Finance

Cognitive Error

	Representativeness	Illusion of Control	Conservatism	Confirmation	Hindsight
Definition	Overweight new info.	Believe they can control	Maintain prior views	Look for positive Ignore negative	See event as having been predictable
Consequence	Overweight new info. Overweight small sample	Overconfidence Excessive trading Poorly diversified	Slow update Hold security too long	Develop screening criteria Poorly diversified	Overconfidence Unfairly assess return and risk
Guidance	Focus on long-term Do more research Self-reflection	Recognize problem Seek contrary views Keep record	Properly analyze info Conduct careful analysis Seek advice	Focus on complete info.	Keep record Managed expectations

Cognitive Error

	Framing Bias	Anchoring	Mental Account	Availability Bias
Definition	Based on framing	Overweight the anchor	Treat money differently	Based on first idea
Consequence	Misidentify risk tolerances Suboptimal investments Focus on short-term Excessive trading	Maintain original estimates	Neglect opportunities Chase income streams	Based on advertising Limited opportunity set Poorly diversified Inappropriate asset allocation Overreact
Guidance	Self-reflection Eliminate reference Be neutral Be open-minded	Self-reflection	Focus on total return Combining all assets in a sheet	Develop strategy Focus on long-term results Self-reflection

➤ Solutions for cognitive errors:

- Ask for advice from experts
- Self-reflection
- Invest follow discipline
- Do more complete research

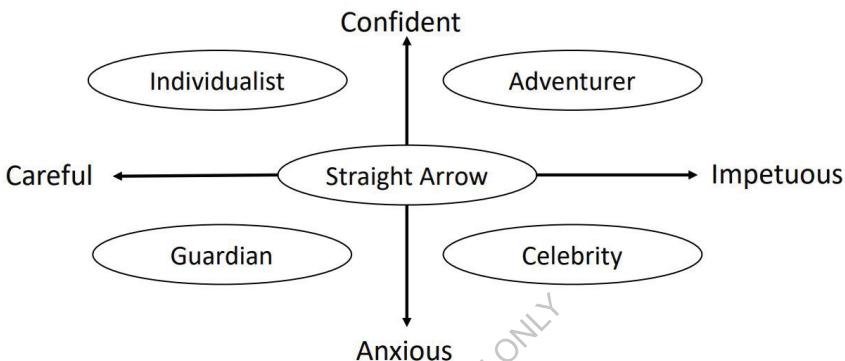
Emotional Bias

	Loss Aversion	Overconfidence	Self-control	Status Quo	Endowment Bias	Regret-aversion
Definition	Hold losers too long Sell winners too quickly	Overstate their ability	Deviate from long term goals	Do nothing	Value more when hold rights to it	Avoid making decisions Avoid regret
Consequence	House money effect Disposition effect Limit the upside potential Trade excessively	Underestimate risks Overestimate expected return Trade excessively Poorly diversified	Insufficient save Accept too much risk Imbalance allocation	Inappropriate portfolio Limited opportunity set	Fail to sell off certain assets Inappropriate portfolio	Too conservative Herd behavior
Guidance	Disciplined approach Adapt to it	Be objective Post-investment analysis Adapt to it	Planning Adapt to it	Education Adapt to it	Self-reflection Adapt to it	Education Adapt to it

➤ Solution for emotional bias: adapt to it

➤ Classifies investors

- Barnewall **two-way approach**
 - Passive investors: accumulating wealth passively
 - Active investors: actively involved in wealth creation
- Bailard, Biehl, and Kaiser **five-way model**



- Pompian **four-way model**

Investor Type	Risk Tolerance	Investment Style	Primary biases
Passive Preserver	Low	Conservative	Primarily emotional
Friendly Follower			Primarily cognitive
Independent Individualist			Primarily cognitive
Active Accumulator	High	Aggressive	Primarily emotional

- Quantitative measures and Risk tolerance questionnaire is **more efficient** for people with **cognitive bias** than emotional bias.

Chapter 10 - Ethics Important Points

1. Standard 4(A) prohibits employees from soliciting the clients of employers **prior to, but no after**, their departure.
2. Before accepting additional compensation, employees must inform employer and obtain **written permission**, oral and brief discussion are not enough.
3. **Omit** important information **is misconduct!**
4. When hear a material non-public information **by change, and then do research**, the manager still is in possession of material nonpublic information, is a **violation**.
5. A member or candidate with supervisory responsibility should enforce investment-related and non-investment-related policies equally, i.e., not concentrated on investment-related over non-investment-related policies.
6. The Asset Manager Code - Disclosure is not required for the payment of bonuses or termination packages to employees.
7. Because the **independent research contractor** provides research **only for** Jacaranda, **he would not** necessarily be considered a third-party research provider. Thus, he would be required to send his **research reports** to the firm **along with his underlying supporting analysis and financial models.**\
8. **A single composite** that includes all client portfolios, regardless of investment objectives (which would likely be different for the retail and institutional clients) **could be considered to be misleading.**
9. **Plagiarizing** violates misrepresentation.
10. In the case of a pension plan, the clients are all the **ultimate beneficiaries**.
11. **Client suitability** for an investment must be reviewed **prior to** allocation, not afterward.



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