CFA Level I
精研考点

数量分析

Time Value of Money

- PV and FV

$$FV_t = PV(1 + r)^t$$

$$FV_t = PVe^{rt}$$

- PV(Coupon Bond)

$$=PMT_1/(1+r)^1+PMT_2/(1+r)^2+\ldots+(PMT_N+FV_N)/(1+r)^N$$

- PV(Perpetual Bond)

$$= PMT/r$$

Time Value of Money

- **Periodic annuity cash flow**

$$A = \frac{r \times PV}{1 - (1 + r)^{-t}}$$

Statistical Measures

If kurtosis is	then excess kurtosis is	Therefore, the distribution is	And we refer to the distribution as being
above 3.0	above 0	fatter-tailed than the normal distribution	fat-tailed (leptokurtic)
equal to 3.0	equal to 0	similar in tails to the normal distribution	mesokurtic
less than 3.0	less than 0	thinner-tailed than the normal distribution	thin-tailed (platykurtic)

Statistical Measures

- Properties of Correlation
  - 相关系数取值在正负一之间：$-1 \leqslant r_{XY} \leqslant +1.$
  - 相关系数为0，说明变量之间没有线性关系
  - 相关系数为+1，说明变量之间完全线性正相关
  - 相关系数为-1，说明变量之间完全线性负相关

Probability and Expectations

- **Expected value for a discrete random variable X**

$$E(X) = P(X_1)\,X_1 + P(X_2)\,X_2 + \cdots + P(X_n)\,X_n = \sum_{i=1}^{n} P(X_i)\,X_i$$

- **Total probability rule for expected value**

$$E(X) = E\left(X\middle|S_1\right)P(S_1) + E\left(X\middle|S_2\right)P(S_2) + \cdots + E\left(X\middle|S_n\right)P(S_n)$$

Probability and Expectations

- **Bayes´ Formula**

$$P(Event|Information) = \frac{P(Information|Event)}{P(Information)} P(Event)$$

Probability and Expectations

- **Safety-first ratio (SFRatio)**

$$SFRatio = [E(R_P) - R_L]/\sigma_P$$

Sampling and Estimation

- **Standard Error of the Sample Mean**
  - when we know σ, the population standard deviation

$$\sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}}$$

  - when we do not know the population standard deviation

$$s_{\bar{X}} = \frac{s}{\sqrt{n}}$$

$$s^2 = \frac{\sum_{i=1}^{n}(X_i - \bar{X})^2}{n-1}$$

Hypothesis Testing

- 假设和备择假设
  - 双侧检验
    - $H_0: \theta = \theta_0$
    - $H_a: \theta \neq \theta_0$
  - 单侧检验
    - $H_0: \theta \leq \theta_0$ $H_a: \theta > \theta_0$
    - $H_0: \theta \geq \theta_0$ $H_a: \theta < \theta_0$

Linear Regression

- SST = SSR + SSE
- Sum of squares total (SST)

$$SST = \sum_{i=1}^{n} (Y_i - \bar{Y})^2$$

- Sum of squares error (SSE)

$$SSE = \sum_{i=1}^{n} (Y_i - \hat{Y}_i)^2$$

- Sum of squares regression (SSR)

$$SSR = \sum_{i=1}^{n} (\hat{Y}_i - \bar{Y})^2$$

Linear Regression

- Coefficient of determination (R^2)

$$R^2 = \frac{SSR}{SST}$$

Linear Regression

- Mean square regression (MSR)

$$MSR = \frac{SSR}{k}$$

$$MSR = \frac{\sum_{i=1}^{n}(\widehat{Y_i} - \bar{Y})^2}{1} \text{ for simple linear regression}$$

- Mean square error (MSE)

$$MSE = \frac{SSE}{n-k-1}$$

$$MSE = \frac{\sum_{i=1}^{n}(Y_i - \widehat{Y_i})^2}{n-2} \text{ for simple linear regression}$$

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经济学

四个市场特点总结

Market Structure	Number of Sellers	Degree of Product Differentiation	Barriers to Entry	Pricing Power of Firm	Non-price Competition
Perfect competition	Many	Homogeneous/ Standardized	Very Low	None	None
Monopolistic competition	Many	Differentiated	Low	Some	Advertising and Product Differentiation
Oligopoly	Few	Homogeneous/ Standardized	High	Some or Considerable	Advertising and Product Differentiation

GDP计算

- Expenditure approach

$$GDP = C + I + G + (X - M)$$

- Income approach

$$GDP = C + S + T$$

- Total income equals total expenditures:

$$C + I + G + (X - M) = C + S + T \rightarrow S = I + (G - T) + (X - M)$$

- GDP平减指数

$$\text{GDP deflator} = (\text{Nominal GDP}/\text{Real GDP}) \times 100$$

AD、AS曲线的移动

- 单条曲线移动

Type of Change	Real GDP	Unemployment	Price Level
Increase in AD	Increase	Decrease	Increase
Decrease in AD	Decrease	Increase	Decrease
Increase in AS	Increase	Decrease	Decrease
Decrease in AS	Decrease	Increase	Increase

财政政策和货币政策的结合

Monetary Policy	Fiscal Policy	Interest Rates	Output	Private Sector Spending	Public Sector Spending
Tight	Tight	higher	lower	lower	lower
Easy	Easy	lower	higher	higher	higher
Tight	Easy	higher	higher	lower	higher
Easy	Tight	lower	varies	higher	lower

汇率计算

- Real exchange rate = Nominal exchange rate $\times \left(\frac{\text{CPI}_{\text{base currency}}}{\text{CPI}_{\text{price currency}}} \right)$

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企业发行人

NPV & IRR计算

- Net present value (NPV)

$$NPV = CF_0 + \frac{CF_1}{(1+k)^1} + \frac{CF_2}{(1+k)^2} + \cdots + \frac{CF_n}{(1+k)^n} = \sum_{t=0}^{n} \frac{CF_t}{(1+k)^t}$$

- Internal rate of return (IRR)

$$NPV = CF_0 + \frac{CF_1}{(1+IRR)^1} + \frac{CF_2}{(1+IRR)^2} + \cdots + \frac{CF_n}{(1+IRR)^n} = \sum_{t=0}^{n} \frac{CF_t}{(1+IRR)^t} = 0$$

NPV & IRR对比

- NPV的优缺点
  - Advantages
    - Represents the absolute increase in shareholder wealth
    - More realistic reinvestment rate assumption
    - Consistent with the goal of shareholders wealth maximization
  - Disadvantage
    - Size of project ignored
- IRR的缺点
  - Multiple IRRs or no IRR under unconventional CF
  - Unrealistic reinvestment assumption

NPV & IRR对比

- Conflicting project rankings
  - 当NPV和IRR选择的结果冲突时，选择NPV

- Implicitly assumptions in both method
  - NPV: 现金流以折现率进行再投资→ 现实
  - IRR: 现金流以IRR进行再投资 → 不现实

资本回报率

- Return on invested capital

$$ROIC = \frac{after - tax\ net\ profit}{average\ book\ value\ of\ total\ capital}$$

- Weight average cost of capital

$$WACC = w_d r_d (1 - t) + w_{ps} r_{ps} + w_e r_e$$

MM理论

- MM Proposition I (No Taxes): 资本结构不影响公司价值
- MM Proposition II (No Taxes): 随着借债增加，股权资金的成本上升

$$r_e = r_0 + \frac{D}{E}(r_0 - r_d)$$

MM理论

- MM With Taxes: 资本全部由借债组成时公司价值最大（不考虑costs of financial distress）

$$r_e = r_0 + \frac{D}{E}(r_0 - r_d)(1 - T)$$

- Static Trade-Off Theory

$$V_L = V_U + (t \times debt) - PV(costs\ of\ financial\ distress)$$

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财报分析

金融资产对比表

GAAP Categories	IFRS Categories	Measurement	Unrealized G/L	Realized G/L	Include
Trading	Measured at Fair Value through Profit and Loss	Fair value 公允价值	Investment income (I/S)	I/S	Equity, debt
AFS	Measured at Fair Value through Other Comprehensive Income	Fair value 公允价值	OCI	I/S	Equity (IFRS only), debt
HTM	Measured at Cost or Amortized Cost	Amortized cost 摊余成本	Not available	I/S	Only debt

现金流分类

Items	U.S. GAAP	IFRS
Interest received	CFO	CFO or CFI
Interest paid	CFO	CFO or CFF
Dividends received	CFO	CFO or CFI
Dividends paid	CFF	CFO or CFF

财务指标计算

- Liquidity ratio
  - Current ratio = Current assets / Current liabilities
  - Quick ratio = [cash + Short-term marketable securities + receivable] / Current liabilities = [current asset - inventories] / Current liabilities
  - Cash ratio = [cash + marketable securities] / Current liabilities
  - Defensive interval = (cash + marketable securities + receivables) / average daily expenditures
  - Cash conversion cycle=DOH + DSO -Number of days of payables

财务指标计算

- Profitability ratios
  - Return on Sales
    - Gross profit margin = Gross profits / net revenue
    - Operating profit margin = EBIT / net revenue
    - Pretax margin = EBT / net revenue
    - Net profit margin = NI / net revenue

财务指标计算

- Solvency ratio
  - Coverage
    - Interest coverage = EBIT / Interest
    - Fixed charge coverage = (EBIT + lease payments) / (Interest + lease payments)

存货减值

	IFRS	US GAAP
减值标准（较低值）	Cost and net realizable value (NRV)	LIFO和零售存货：Cost and market value; 其他：Cost and net realizable value (NRV)
减值处理过程	1. 确定存货当前账目成本cost 2. 计算NRV = estimated selling price - estimated selling cost 3.如果账目成本更高,就要减值到NRV	1.确定存货当前账目成本cost 2.确定replacement cost 3.确认RC是不是在以下范围 NRV - normal profit margin < market value ≤ NRV
减值的处理	减值的部分单独计入费用或者COGS	减值的部分计入COGS

存货减值

	IFRS	US GAAP
减值回转的处理	Reversal (limited to the amount of the original write-down) is required for a subsequent increase in value of inventory previously written down 允许，但是回转的部分不得超过减值前，冲减当期的COGS或expense	reversal of a write-down is prohibited 不允许回转
减值影响	reduces both profit and the carrying amount of inventory negative effect on profitability, liquidity, and solvency ratios. positive effect on activity ratios	

资产化和费用化对报表的影响

F/S	Items	Capitalizing	Expensing
B/S & ratios	Total assets	Higher	Reverse
	Shareholders´ equity	Higher	
	Leverage ratios (debt/equity & debt/assets)	Lower	
I/S & ratios	Income volatility	Lower	
	Net income - first year (ROA & ROE)	Higher	
	Net income - later years (ROA & ROE)	Lower	
CFS	Total cash flow	same	Same
	Cash flow from operating	Higher	Reverse
	Cash flow from investing	Lower	

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权益投资

Margin Call

$$\text{Margin call price} = P_0\left(\frac{1-\text{initial margin}}{1-\text{maintenance margin}}\right)$$

Michael Porter Five Forces

- Rivalry among existing competitors
- Threat of entry
- Threat of substitutes
- Power of buyers
- Power of suppliers

Dividend Discount Models

- 单阶段模型

$$V_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+r)^t}$$

$$V_0 = \sum_{t=1}^{n} \frac{D_t}{(1+r)^t} + \frac{P_n}{(1+r)^n}$$

Dividend Discount Models

- 多阶段模型

$$V_0 = \sum_{t=1}^{n} \frac{D_0(1+g_s)^t}{(1+r)^t} + \frac{V_n}{(1+r)^n}$$

$$V_n = \frac{D_{n+1}}{r - g_L}$$

$$D_{n+1} = D_0(1+g_s)^n(1+g_L)$$

Preferred Stock Valuation

- 优先股估值计算

$$V_0 = \frac{D_0}{r}$$

$$V_0 = \sum_{t=1}^{n} \frac{D_t}{(1+r)^t} + \frac{F}{(1+r)^n}$$

Gordon Growth Model

- $V_0 = \sum_{t=1}^{\infty} \frac{D_0(1+g)^t}{(1+r)^t} = \frac{D_0(1+g)}{r-g} = \frac{D_1}{r-g}$

Justified Price Multiples

$$\text{Justified Leading } \frac{P}{E} = \frac{P_0}{E_1} = \frac{D_1/E_1}{r-g} = \frac{\text{Dividend Payout Ratio}}{r-g}$$

$$= \frac{1 - \text{Retaintion ratio}}{r-g}$$

$$\text{Justified Trailing } \frac{P}{E} = \frac{P_0}{E_0} = \frac{D_1/E_0}{r-g} = \frac{D_0(1+g)/E_0}{r-g}$$

$$= \frac{(1 - \text{Retaintion ratio})(1+g)}{r-g}$$

$$g = (1 - div.payout\ ratio) \times ROE$$

Enterprise Value计算

- Enterprise Value

= MV of shares + MV of preferred stocks + MV of debt - Cash & equivalents - Short-term investments

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固定收益

债券分类

- 按照本金偿还方式分类

Bond Type		Characteristic
Bullet structure		到期之前不付本金，到期时一次性支付本金
Amortizing loan	Fully amortizing	本金在到期时全部偿还完毕
	Partially amortizing	到期前偿还部分本金，到期时一次性偿还剩余本金
Sinking fund provision		要求发行方在到期之前的特定时间回购一部分债券

Credit Enhancement信用增级

- Internal credit enhancement
  - Overcollateralization：抵押物总价值超过债券总额
  - Cash reserve fund：设立储备基金，用于应对意外情况
  - Excess spread account：底层资产的收益高于向投资者承诺的收益
  - Waterfall structure：将债券划分为优先级证券和次级证券或更多的级别

Credit Enhancement信用增级

- External credit enhancement
  - Surety bond：保险公司提供的一种保险，当对投资者的给付资金出现缺口时，保险公司负责填补这部分损失
  - Bank guarantee：功能和surety bond一致，只不过保障由银行提供而不是保险公司
  - Letter of credit：信用证具有明确金额的信用支持，一般由银行出具，承诺在满足预先确定的要件下，提供无条件的偿付
  - Cash collateral account：发行人期初从第三方借入一笔资金，一旦借款人发生违约，就可以直接用这笔资金进行偿还

Convertible Bonds

- Conversion price: 可转换债券转换成普通股的股价
- Conversion ratio = par value/conversion price
- Conversion value = market price of the share×conversion ratio
- Conversion premium: convertible bond price和conversion value的差
- Conversion parity:
  - conversion value = convertible bond's price
  - conversion value < bond price, below parity
  - conversion value > bond price, above parity

债券价格计算

- Using spot rates

$$PV = \frac{C_1}{1+S_1} + \frac{C_2}{(1+S_2)^2} + \cdots + \frac{C_n + FV_n}{(1+S_n)^n}$$

- Using forward rates

$$PV = \frac{CF_1}{(1+S_1)} + \frac{CF_2}{(1+S_1)(1+1y1y)} + \cdots + \frac{CF_n}{(1+S_1)(1+1y1y)\cdots(1+(T-1)y1y)}$$

久期计算

- Approximate modified duration $= \frac{V_- - V_+}{2 \times V_0 \times \Delta YTM}$
- Money duration = Annual modified duration × Full price of bond position
- *Duration gap = Macaulay duration – Investment horizon*

凸性计算

- $Approximate\ Convexity = \frac{V_- + V_+ - 2V_0}{(\Delta YTM)^2 \times V_0}$

债券价格变化计算

- 综合久期和凸性

$$\Delta PV^{Full} \approx -(MoneyDur \times \Delta Yield) + [\frac{1}{2} \times MoneyCon \times (\Delta Yield)^2]$$

- PVBP

$$PVBP = \frac{PV_- - PV_+}{2}$$

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衍生品

Forward Pricing and Valuation

- **Pricing**

$$F_0(T) = S_0(1 + r)^T$$

$$F_0(T) = [S_0 - PV(I) + PV(c)](1 + r)^T$$

$$F_{0,f/d}(T) = S_{0,f/d} \times e^{(r_f - r_d)T}$$

$$F_{0,f/d}(T) = S_{0,f/d} \times \left(\frac{1 + r_f}{1 + r_d}\right)^T$$

Forward Pricing and Valuation

- **Valuation**

$$V_{t\,long} = S_t - \frac{F_0(T)}{(1+r)^{T-t}}$$

$$V_{t\,long} = S_t + PV_t(C) - PV_t(I) - \frac{F_0(T)}{(1+r)^{T-t}}$$

Futures Pricing

- 持有现货没有成本和收益

$$f_0(T) = S_0(1+r)^T$$

- 持有现货有成本和收益

$$f_0(T) = [S_0 - PV(I) + PV(C)](1+r)^T$$

Futures vs. Forward

- 利率和期货价格之间正相关：投资者更喜欢买期货
- 利率和期货价格之间负相关：投资者更喜欢买远期
- 利率和期货价格之间不相关：期货和远期没有区别

Interest Rate Futures vs. FRAs

Contract Type	Gains from Rising MRR	Gains from Falling MRR
Interest rate futures	Short futures contract	Long futures contract
Forward rate agreement	Long FRA: FRA fixed-rate payer (FRA floating-rate receiver)	Short FRA: FRA floating-rate payer (FRA fixed-rate receiver)

Swap Valuation

- Periodic settlement value

$$= (\text{MRR} - S_N) \times \text{Notional amount} \times \text{Period}$$

- For fixed-rate payer

$$V = B(\text{floating}) - B(\text{fixed})$$

- For fixed-rate receiver

$$V = B(\text{fixed}) - B(\text{floating})$$

Option Value

- Call Option Exercise Value

$$\text{Max}[0,\ S_t - X(1 + r)^{-(T-t)}]$$

- Put Option Exercise Value

$$\text{Max}[0,\ X(1 + r)^{-(T-t)} - S_t]$$

- Option price = Exercise value + Time value

Options No-Arbitrage Price Bounds

- For call option

$$\text{Max}[0,\ S_t - X(1+r)^{-(T-t)}] < C_t \leqslant S_t$$

- For put option

$$\text{Max}[0,\ X(1+r)^{-(T-t)} - S_t] < P_t \leqslant X$$

Factors Affecting Option Value

Factor	Call Value	Put Value
Value of the underlying	+	−
Exercise price	−	+
Time to expiration	+	+/−
Risk-free interest rate	+	−
Volatility of the underlying	+	+
Income/cost related to owning the underlying	−/+	+/−

Parity

- **Put-Call Parity**

$$S_0 + p_0 = c_0 + \frac{X}{(1+r)^T}$$

- **Put-Call Forward Parity**

$$\frac{F_0(T)}{(1+r)^T} + p_0 = c_0 + \frac{X}{(1+r)^T}$$

Binomial Model

- **Hedge ratio**
  - **Call option**

$$h^* = \frac{C_1^u - C_1^d}{S_1^u - S_1^d}$$

  - **Put option**

$$h^* = \frac{P_1^u - P_1^d}{S_1^u - S_1^d}$$

Binomial Model

- **Riskless portfolio**
  - **Call option**

$$V_0 = h \times S_0 - C_0 = PV(V_1)$$
$$V_1 = h \times S_1^u - C_1^u = h \times S_1^d - C_1^d$$

  - **Put option**

$$V_0 = h \times S_0 + P_0 = PV(V_1)$$
$$V_1 = h \times S_1^u + P_1^u = h \times S_1^d + P_1^d$$

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另类投资

Direct Investment, Co-investment, and Fund Investment

- Direct investing直接投资：投资者自行投资
- Fund investing集合投资：众多投资者的钱汇集到一起，由基金经理统一管理
- Co-investing共同投资：投资者不仅投入资金到一个投资基金中，而且还可以与基金经理一同直接投资于基金经理所投的项目中

Fee Structures

- Management fee管理费：与业绩无关，一般为1%-2%
- Incentive fees激励费：与业绩挂钩
- Hurdle rate门槛率：业绩超过门槛才能获得激励费
- Soft hurdle rate：只要收益超过了收益门槛，激励费的支付基于所有的收入
- Hard hurdle rate：激励费的支付基于超过门槛率的收益

Hedge Funds

- Periods
  - Lockup period锁定期：一定时间内不能赎回
  - Notice period通知期：赎回之前提前一段时间通知基金经理或基金公司

- Bias
  - Survivorship bias幸存者偏差：会使Index高估
  - Backfill bias回填偏差：新加入指数的基金，在被纳入指数之前的业绩也会被纳入指数业绩计算，从而造成指数偏差

Venture Capital Funds

- Formative stage形成阶段
  - Angel investing天使投资阶段
  - Seed stage种子阶段
  - Early stage早期阶段
- Later-stage investment后期阶段
- Mezzanine-stage financing上市之前的融资

Private Equity Exits Strategies

- Trade sale卖给同行业的竞争公司或战略买家
- IPO上市
- Recapitalization重组
- Secondary sale卖给其他私募基金或投资者
- Write-off/liquidation清算

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组合管理

DB VS. DC Pension Plan

	DC	DB
Definition	员工退休前，雇主定期向养老金账户缴款	员工退休后，雇主定期支付养老金
Who assume risk	Employee （make investment decisions）	Employer
Which kind of investor	Individual Investors （雇员负责投资，雇主只交钱）	Institutional Investors （雇主负责投资）

Risk Tolerance

Client	Time Horizon	Risk Tolerance	Liquidity Needs
DB pension plans	Typically long term	Typically quite high	Quite low
Endowments and foundations	Very long term	Typically high	Typically quite low
Banks	Short term	Quite low	High to meet repayment of deposits
Insurance companies	Short term for property and casualty; Long term for life insurance companies	Typically quite low	High to meet claims

Mutual Funds

	Open-end mutual fund	Closed-end mutual fund	ETF
Trade	NAV	Premium or Discount on NAV	Premium or Discount on NAV (but very close to NAV)
Secondary Market	No	Yes	Yes
Fully Invested	No	Yes	Yes
Transaction Cost	High	High	Low

TWR & MWR计算

- **Time-Weighted Rate of Return**

$$TWR = \sqrt[n]{(1 + HPR_1) \times (1 + HPR_2) \times \cdots (1 + HPR_n)} - 1$$

- **Money-Weighted Return**

$$CF_0 + \frac{CF_1}{(1 + MWR)^1} + \frac{CF_2}{(1 + MWR)^2} + \cdots + \frac{CF_n}{(1 + MWR)^n} = 0$$

Portfolio Return & Risk (2 risky assets) 计算

- **Return**

$$R_P = w_1 R_1 + w_2 R_2$$

- **Risk**

$$\sigma_P^2 = w_1^2\sigma_1^2 + w_1^2\sigma_1^2 + 2w_1 w_2 Cov_{12}$$
$$= w_1^2\sigma_1^2 + w_1^2\sigma_1^2 + 2w_1 w_2 \sigma_1 \sigma_2 \rho_{12}$$

$$Cov_{12} = \sigma_1 \sigma_2 \rho_{12}$$

β计算

$$\beta_i = \frac{Cov_{i,m}}{\sigma_m^2} = \frac{\rho_{i,m}\sigma_i\sigma_m}{\sigma_m^2} = \frac{\rho_{i,m}\sigma_i}{\sigma_m}$$

Portfolio Performance比率计算

- **Sharpe ratio**

$$Sharpe\ ratio = \frac{R_p - R_f}{\sigma_p}$$

- **M-Squared**

$$M^2 = (R_p - R_f)\frac{\sigma_m}{\sigma_p} - (R_m - R_f) = (SR_P - SR_M)\sigma_m$$

Portfolio Performance比率计算

- Treynor ratio

$$Treynor\ ratio = \frac{E(R_p - R_f)}{\beta_p}$$

- Jensen's alpha

$$\alpha_P = R_P - \{R_f + \beta_P[E(R_m) - R_f]\}$$

CFA Level I
百点斩

职业伦理

Independence and Objectivity——Gifts

- 是否接受的判断标准：是否会影响客观独立性
- 可接受的礼物：
  - 价值低，不足以影响客观独立性
  - 基于过去的业绩的奖励，不会影响分析师未来的行为
- 任何礼物都不接受是best practice

Material Nonpublic Information

- Material
  - 足以影响股价
  - 信源可靠，例如：CEO等高管透露的内容
- Nonpublic
  - 在小规模的会议上透露的内容也是Nonpublic

Loyalty, Prudence, and Care

- 确定真正的客户
  - 信托基金的客户是受益人，不是委托人
  - 养老基金的客户是未来拿养老金的员工，不是公司

- Soft Commission Policies (soft dollar)
  - 软美元必须用在产生这笔软美元的客户身上，例如用于购买该客户可用的研报等。不可以用于其他客户、基金经理、基金公司。

Diligence and Reasonable Basis

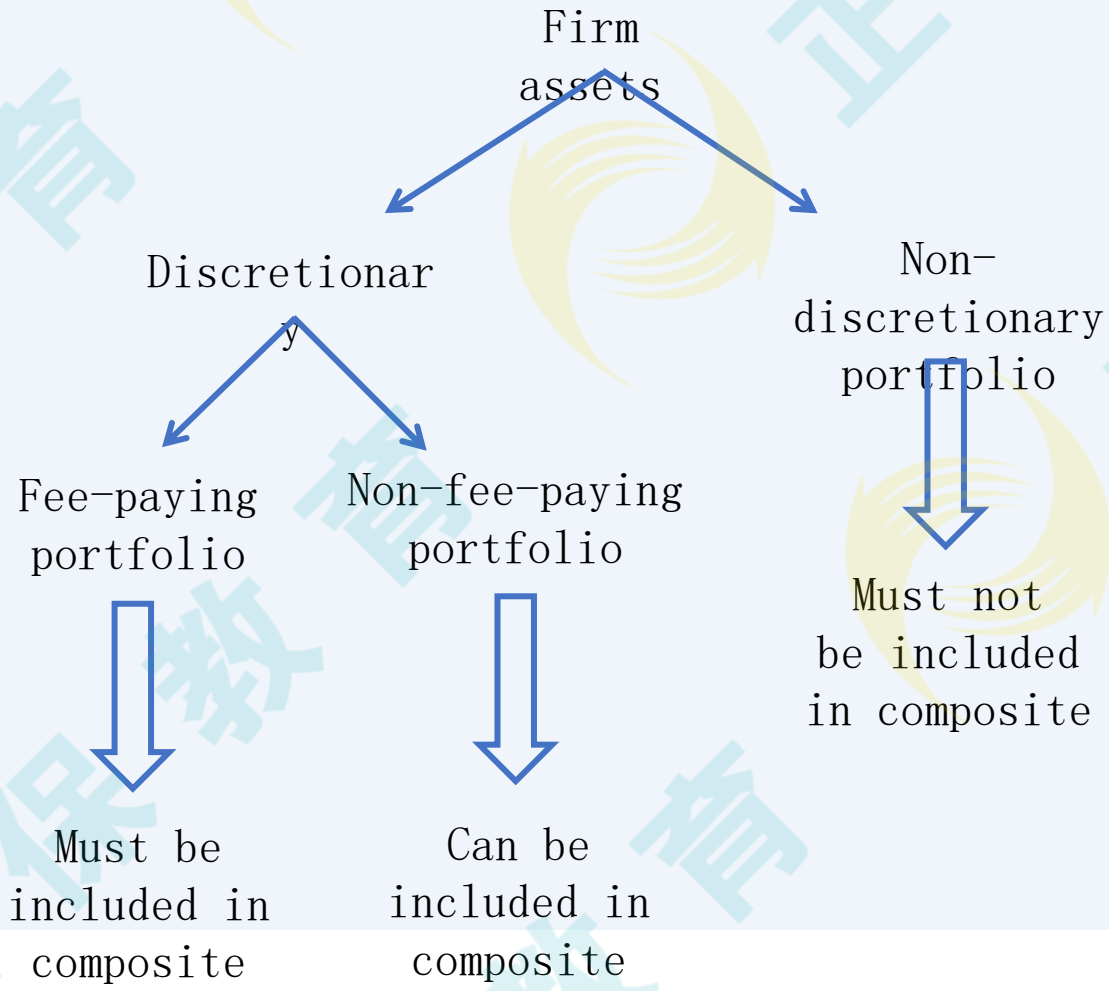
- 使用Secondary or Third-Party Research、External Advisors and Sub-Advisors之前要做尽职调查，他们做出的投资建议如果有问题，选用他们的分析师也不能免责。

- Group Research and Decision Making：当团队意见和个人意见不一致时，只要团队得出结论的过程没有问题，分析师就可以在团队报告上签字。

区分Facts和Opinions

- Facts：例如historical data
- Opinions：例如fundamental estimation, assumptions, statistical projection or forecasting

The GIPS Standards



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