1. Common-law system: 对股东和债权人更加有利；

Civil law system: 对股东和债权人相对不利；

判断公司是否存在不同等级的普通股—如果存在，对低等级股东不利；

判断公司是否对董事会组成分开投票—如果存在，对外部股东不利；

1. ESG投资方法：

|  |  |
| --- | --- |
| 负面筛选 (negative screening) | 拒绝没有达到ESG相关要求的特定行业的公司 |
| 正面筛选(positive screening) | 识别达到所有ESG相关要求的公司 |
| 最佳筛选(best-in-class) | 找到同行业中ESG测评最高的公司 |
| 主题投资(thematic investing) | 只考虑某一特定因素，基于长期经济或社会趋势 |
| 影响力投资(impact investing) | 除追求一定的财务回报外，在社会和环境影响力方面也有量化的回报指标 |

1. Conventional cash flow pattern 传统现金流模式：是指现金流的流入和流出的符号只改变一次的现金流模式。即首先出现一次支出性的现金流，随后出现一系列收入性的现金流。

Unconventional cash flow pattern 非正常现金流模式：是指项目存续期内的现金流入和流出发生多次方向变化的现金流模式

1. IRR (Internal rate of return): 是内部收益率， IRR makes PV (inflows) = PV (Outflows), also makes NPV=0

**IRR measures profitability to show the return on each dollar invested. It provides information on the margin of safety that NPV does not.**

**NPV是预计的增量现金流之和 = present value of the expected inflows minus the initial cost of the project**

Determine the required rate of return, which is usually the firm’s cost of capital

If IRR > the required rate of return, accept the project

If IRR < the required rate of return, reject the project

计算NPV & IRR的公式要会用计算器 note page 22-24

1. **Payback period**：优点是 a good measure of project liquidity；

缺点是 useless as a measure of profitability because terminal or salvage value wouldn’t be considered;

Payback period = full year until recovery + (uncovered cost at the beginning of last year / cash flow during the last year) **这里的uncovered cost at the beginning of last year 是上一年的余额，cash flow during the last year, 这里的last year是最后一年**

**Discount payback period** 折现回收期法首先对各期的现金流量按预定的贴现率折现，然后求出累计的折现现金流量总额超过初始投资额的时间

例如，某公司以5 000美元购置五台新机器，在未来三年中，预期产生现金流量分别为5 000美元、4 000美元和4 000美元。其资本成本率为10%，计算折现现金流量表如下所示：

上述投资项目的投资回收期，如果不计算折现现金流量，正好是一年。但如果计算折现，则是1.14年[1+(5000-4545)÷3304]。

|  |  |  |  |
| --- | --- | --- | --- |
| 年度 | 未来现金流量 | 折现系数(10%) | 折现现金流量 |
| 1 | 5 000 | 0.909 | 4 545 |
| 2 | 4 000 | 0.826 | 3 304 |
| 3 | 4 000 | 0.751 | 1. 004 |

资金预算的基本原则—详见手册page 28

投资预算中常见的决策标准包括回收期，贴现回收期，净现值，内部收益率，盈利指数，其中只有回收期不需要考虑现金流的贴现；

例如： 第二年贴现现金流= 当期现金流 \* 1/ （1+K）**2** 例如手册中page 31下面的例题，需要手算每年贴现现金流和累计贴现现金流，从而算出贴现回收期

1. **Profitability Index = PV of future cash flows/ CF0= 1 + NPV/CF0**

**PI > 1, accept the project;**

**PI < 1, reject the project;**

1. Crossover rate: is the discount rate that makes the NPVs of two projects equal, so makes the NPV of the differences between the projects equal to zero. 详见note page 30 例题

前七点总结：

1. 如果 PI >1，接受项目，则NPV 一定大于零，且IRR > return required rate, 反之亦然；
2. PV = NPV + CF0 (初始CF支出)
3. **当NPV 和 IRR冲突时，project排名 的唯一可接受的标准是NPV**
4. For project with conventional cash flow patterns, the NPV and IRR methods produce the same accept/reject decision; but projects with unconventional cash flow patterns can produce multiple IRRs or no IRR;
5. 假设有debt, preferred stock, equity 3种资本，则

WACC =wd \* rd \* (1-t) + wp \* rp + we \* re  **注意只有debt扣税， 另两种不涉及扣税**

最后再除以总金额即为MCC百分比 WACC也叫MCC

1. Cost of common equity can be estimated by below 3 approaches:
2. **The capital asset pricing model approach (包括计算发展中国家)**

**是指计算在CAPM model下计算cost of equity**

**Kce = Rf + β \* [E(Rm) - Rf]**

Kce is cost of equity capital;

Rf is estimated risk free rate;

β is risk measure;

Rm is market expected rate of return, 有时候也是equity 的expected return

Country risk premium (CRP):

**Kce = Rf + β \* [E(Rm) - Rf + CRP]**

1. **The dividend discount model approach**

**是指计算cost of equity**

**Kce = D1 / P0 + g**

P0 当前股价

D1 next year’s dividend

Kce required rate of common equity (cost of capital)

**g firm’s expected growth rate = (retention rate) \* (ROE) = (1- payout rate) \* (ROE)**

1. **After-tax cost of debt = Kd \* (1-t) Kd是 the rate at which the firm can issue new debt (有时是market interest rate), t is tax rate;**

**注意 the cost of debt is the market interest rate on new debt, not the coupon rate on the firm’s existing debt;**

Bond yield plus risk premium approach

Kce = bond yield + risk premium

1. **Pure play method 单一业务方法：是指一种估计项目β值的度量项目风险的方法。一般将从事单一业务的公司作为参照标准来估计项目的β值。**

**计算逻辑：先去掉上市公司总风险中的财务风险，保留其行业统一的商业风险：将反映可比上市公司总体风险的股票贝塔值去杠杆化，得到反映商业风险的资产贝塔值：**

β asset = β equity \* {1/ [1+ [(1-t) \* (D/E]]}

D/E is comparable company’s debt-to-equity ratio

**再将商业风险与标的项目的财务风险相结合，确定标的项目的总风险：用标的项目的资本结构与边际税率对资产贝塔值再杠杆化，得到反应项目总体风险的项目贝塔值：**

β project = β asset \* [1+ [(1-t) \* (D/E)]]

注意两个D/E是不同 的：第一个D/E是来自comparable company, 第二个是来自自己的；

**CAPM计算思路：去可比公司的财务风险，得到资产的贝塔值；再杠杆化—与标的项目的财务风险结合，得到项目的贝塔值**

1. **计算marginal cost of capital schedule 的 break-even point**

**Break point = the amount of component’s cost change / weight of component in the capital structure**

例如 60% equity in capital structure , $0-$99 cost of equity = 7%, $100-$199 cost of equity =8%, 则break point of equity = $100 / 0.6

1. DOL (degree of operating leverage): 经营杠杆是个很复杂的问题。营业收入增长可以使营业利润以更大比例增长，也有可能使营业利润以更小比例增长。影响因素主要有两个：产能利用率和学习曲线的作用。随着年产量的增长，工厂会首先经历一个产能释放期，然后到达产能饱和期。在产能初步释放时，营业利润会比营业收入以更大的比率增长；而在产能接近饱和时，营业利润增速将小于营业收入。**这就解释了为什么DOL is highest at low levels of sales and declines at higher levels of sales.**
2. DFL (degree of financial leverage): 对于负债经营的企业，每年要支付一定的财务费用，包括银行利息、企业债利息、优先股股息等。由于这些财务费用的存在，使净利润与营业利润不能同比例增长。财务杠杆可定义为：由于债务的存在使净利润与营业利润不能同比例增长的作用.

财务杠杆系数=净利润增长率/营业利润增长率

理解了经营杠杆就很容易理解财务杠杆。负债运营放大了营业利润对净利润增长的贡献。为了简单的横向比例，用资产总额除以净资产来计算财务杠杆，也是可以的.

1. DOL, DFL & DTL:

DOL = [Q \* (P-V)] / [Q \* (P-V) -F] = (**Revenue – variable cost) /( Revenue – variable cost -Fixed cost)**

Q= Quantity, P= Price per unit, V= Variable cost per unit, F= fixed operating costs

假设DOL =2，则说明如果有10%的sales增长，则EBIT会有20%的增长；

DFL = EBIT or operating income / (EBIT or operating income - interest) **是net income (or EPS) 的变化值与 EBIT变化值的比率**

DFL = [Q \* (P-V)-F] / [Q \* (P-V) -F-C]

F= fixed operating costs, C= fixed financing costs

**有助于记忆公式：对于DOL & DFL的特点，如果no fixed cost, DOL =1, no operating leverage，**固定成本越大，经营风险越大，因为在分母

**如果no interest costs, DFL= 1, no financial leverage**，固定融资成本越大，财务风险越大，因为在分母；

DTL = DOL \* DFL = [Q \* (P-V)] / [Q \* (P-V) -F -I] I= interest expense **是net income的变化值与sales的变化值的比率**

**DOL是Sales的变化除以EBIT的变化**

**DFL是EBIT的变化除以net income的变化**

1. The effect of financial leverage on a company’s net income and return on equity (ROE)

计算过程详见note page 71—72;

结论：不带杠杆情况下，EBIT增幅的百分比和ROE增幅的百分比相同；

带杠杆情况下，ROE增幅的百分比大于EBIT增幅的百分比；

1. Break-even quantity of sales QBE = (fixed operating costs + fixed financing costs) / (price -variable cost per unit)
2. Dividend payment chronology 股息付款时间表： declaration date宣告 --- ex-dividend date除息日---- holder-of-record date股权登记----- payment date
3. Price-to-earning 市盈率 (每股价格/每股盈利) ； dividend yield 股利收益率；

无论是股票拆分还是合并，都不会影响市盈率和股利收益率；

BVPS (book value per share) 每股账面价值:

BVPS will decease if the repurchase price > original BVPS; 费钱回购

BVPS will increase if the repurchase price < original BVPS; 省钱回购

EPS (Earnings per share) 每股收益：

EPS increase: after-tax cost of debt used to buy back shares < EPS before repurchasing;

EPS decrease: after-tax cost of debt used to buy back shares > EPS before repurchasing;

1. 计算EPS & BVPS

**EPS after buyback= (total earnings – after tax cost of funds) / shares outstanding after buyback**

Total earnings = EPS before buyback \* shares outstanding before buyback

After tax cost of funds = buyback shares number \* share price \* after tax cost of borrowing

After tax cost of borrowing = yield of debt \* (1- tax rate)

BVPS = book value after repurchase / remaining shares

1. **Discount-basis yield** = [(face value -price) / face value] \* (360/ days) = % discount \* (360/ days)

**Money market yield** = [(face value -price) / price] \* (360/ days) = holding period yield \* (360/ days)

**Bond equivalent yield** = [(face value -price) / price] \* (365 / days to maturity) = holding period yield \* (365/ days)

1. **Sources of short-term funding from banks:**

Committed line of credit 信用额度的最高授信限额： 是一种短期负债，通常在364天内；

Revolving line of credit 循环信贷协议：短期银行贷款最有力的一种形式，也最可靠。通常3—5 年；

Blanket lien一揽子留置权：银行拥有对一家公司现在和未来资产的权利，以防止抵押品不足；

**Banker’s acceptances 银行承兑汇票**：are used by firms that export foods适用于国际公司；

Factoring 包付代理：把应收账款出售给第三方

**Non- bank Sources of short-term funding:**

**Commercial paper 短期融资券**：large, creditworthy companies can issue short-term securities, 通常利息比银行的低；

1. Primary sources of liquidity: 流动性的主要来源是指立即可以动用的资源，该资源如果动用不会影响公司的经营，主要包括：
2. 备用的现金余额-ready cash balances;
3. Short-term funds短期资金；
4. Cash flow management现金流管理；

Secondary sources of liquidity: 流动性的次要来源是指备用资源，该资源如果动用会影响公司的财务和经营状况，主要包括：

1. Renegotiating debt contracts债务合约的重议；
2. Liquidating assets 资产变现；
3. Bankruptcy protection and reorganization申请破产保护与重组；
4. 商业信用成本= 【1+ (折扣率/1-折扣率)】365/超过折扣期限的天数 -1：

Cost of trade credit = [1 + (% discount / 1- % discount)] (365/ days past discount) -1

可理解为在天数1借了一笔钱，本金为（1-折扣率）元，利息为折扣率，在天数2一共偿还本利之和1元钱。因此在（天数2 – 天数1）这一期间，期间利率= 利息/本金 = 折扣率/（1-折扣率），公式是针对期间利率进行的1年365天的复利年化

如果在天数1和天数2之间的期间，年化回报率大于商业信用成本的投资项目，则应该选择在天数1不还款，而将其款项进行投资，之后在天数2还款，否则应该选择在天数1还款

Account payable management: 2/10 net 60 代表的是如果在10天内付款，享受2%的优惠，如果不想享有优惠，60天内付款；

公式是针对期间利率进行1年365天的复利年化

注意：上面的公式适用于已知的discount rate，而针对 money market yield and bond equivalent yield的计算，则需要先已知discount-basis yield，详见note page 100

1. ETFs VS close-end funds

|  |  |
| --- | --- |
| **ETF** | **Closed-end funds** |
| match a particular index (passively managed) | Actively managed |
| market price closed to NAVs | market price differs from NAVs |
| can be sold short, trady at intraday price | sold and redeemed daily |
| receive dividend income in cash | offer the alternative of reinvesting dividends in additional fund shares |
| produce less capital gains liability compared to open-end index funds |  |

1. Portfolio management—execution step:

Top-down analysis: based on IPS and expectations about macroeconomic variables such as inflation, GDP growth;

Bottom-up analysis: based on valuation estimates from security analysis;

资产配置在投资组合管理流程中具有重要地位，其重要性超过证券选择和再平衡政策；

战略性和战术性资产配置定义详见手册page 142—143

区分哪些是financial risks，哪些是non-financial risk 详见note page 126

1. A defined **contribution** pension plan: is a retirement plan in which **the firm contributes** a sum each period to the employee’s retirement account. **Employee bear all investment risk;**

A defined **benefit** pension plan: the firm promises to make periodic payments to employees after retirement. **Employer bears the investment risk**;

1. 投资者面对的主要风险分为两大类型：金融风险和非金融风险；

金融风险：是指来自金融市场活动的风险：

市场风险/ 信用风险/ 流动性风险

非金融风险：是指来自企业内部或者金融金融市场活动以外的风险：

监管风险/ 清偿风险/ 税收风险/ 结算风险/ 操作风险/ 法律风险/ 会计风险/ 模型风险/尾部风险/ 主权或政治风险

1. 算术平均值回报率是用来计算多个期间的**单利**回报率；

几何平均值回报率是用来计算多个期间**复利**回报率，适合买入并持有；

**如何开3次方**：例如1000的开3次方。按1000---按Yx键---按3---按1/X键—按等于键；

思路是1000的三分之一立方；

1. Covariance:

Positive covariance means that the variables tend to move together;

Negative covariance means that two variables tend to move in opposite direction;

A covariance of zero means there is no linear relationship between the two variables;

Standard deviation σ也就是portfolio的风险；

**相关性correlation ρ越高，则portfolio风险越高---参考公式note page 143；**

**A zero-variance portfolio can only be constructed if the correlation coefficient between asset is -1;**

**Page 146—150几个图：**

Risk and return for different values of ρ: 说明在给定的收益率情况下，相关性越大，则风险越大；

Minimum-variance portfolio：说明最低风险的投资组合在有效前沿的那个点；

Indifference curves: 无差别曲线是指一条线上的每个点的斜率反应投资者对风险饿的规避程度，随着风险增加，曲线斜率越大，**同一条曲线上的所有点给投资者带来的效用没有差别**

Efficient frontiers：在不同Level的风险中，各自最大收益率连成的一条线；

Capital allocation line：是一条由无风险资产与风险资产投资组合所形成的直线，取决于risk portfolio的风险；

1. Gross return: total return after deducting commissions on trades and other costs necessary to generate the returns, but before deducting management & administration fee;

Net return: the return after management & administration fees have been deducted;

Pretax nominal return: without consider tax and inflation;

After-tax nominal return: after tax deducted;

Real return: roughly equal to nominal return – inflation

1. Passive investment strategy (被动投资策略)：理解为跟着大盘指数投资；

Active portfolio management (积极型投资策略)：理解为可以超越大盘指数平均收益的操作；

**Systematic risk**：不能被diversification risk 化解掉的风险；例如和市场密切相关的行业，奢侈品，哈雷摩托等；

**Unsystematic risk**：能被diversification risk 化解掉的风险；例如生物技术(biotech)行业，研制出成功药物，则股价大涨，反之大幅跌；与整个资本市场 (systematic risk) 关系不大，更多程度上取决于自身；

1. **Lending portfolio(贷款投资组合)**：无风险资产权重大于等于0，市场投资组合权重小于等于0，代表同时投资于无风险资产和市场投资组合；例如25% on risk-fee security, and 75% on other portfolio of security;

**Borrowing portfolio(借款投资组合)**：无风险资产权重小于0，市场投资组合权重大于0，

代表以无风险利率借钱，并将借来的钱全部投资于市场投资组合，相当于使用杠杆投资；

例如125% on portfolio of security, so -25% on risk-fee security;

1. 贝塔系数和相关系数：

β (风险系数)：它是反映某一投资对象相对于市场的波动情况，其绝对值越大，显示其收益变化幅度相对于市场的变化越大。如果是负值，表示其变化的方向和市场变化的方向相反；

ρ：是投资对象与市场的相关系数；

1. Portfolio return相关公式：

* Holding period return = (Pt – P0 + Divt)/P0

Pt是end value，P0 是beginning value, Div是dividend；

* 当回报率变化很大时，几何平均回报会小于算术平均汇报；
* 计算money-weighted rate of return: 是在NPV=0的条件下计算，也就是说PV inflow = PV outflow

考虑cash inflow的事项用加号：beginning value, buy shares;

考虑cash outflow的事项用减号：sell shares, paid dividends;

IRR= Beginning value + the amount of buying shares/ (1+R) = total outflow/ (1+R)2

详见note page 137例题

* 计算variance, covariance of return 公式详见note page 140—141 page 143

Correlation coefficient = +1, positive correlated;

Correlation coefficient = -1, negative correlated;

Correlation coefficient = 0, no linear relationship;

* **当市场对期望的回报是一致的时候** (they all have the same estimates of risk, return)，under this assumption, all investors face the same efficient frontier of risky portfolios and have the same optimal risky portfolio and CAL. **This optimal CAL is termed the capital market line (CML)** 计算expect return of portfolio

**E(Rp) = WA \* E(RA) + WB \* E(RB) or E(Rp) = WF \* E(RF) + WM \* E(RM) risk free & market**

**E(Rp)= Rf + (E(Rm)- Rf) (σp/ σm) 是portfolio risk 的线性函数**

其中Rm是市场回报率

* 计算beta

βi= Covim/ σm2

βi= ρim \* σi/ σm

ρim表示证券i与市场m的相关系数， βi 是风险系数：衡量个别股票或基金相对于整个市场的价格波动，两种计算公式都需要掌握。

**CAPM (Capital asset pricing model): 资本资产定价模型：是指根据资产系统风险水平来计算风险资产预期收益率的一种模型，公式如下：**

Security market line (SML): E(Ri) = Rf + βi \* [E(Rmkt) -Rf]

* **CAL VS CML VS SML**

**CAL: 以个人投资者为单位，表明每个人最优的投资组合 (risk free asset + risky asset)**

**CML: 以整个市场为单位，所有个人投资者的最优投资组合合在一起，面对市场形成的一个最优市场组合；相当于CAL上的一个点--optimal CAL;**

**use total risk;**

**SML: use systematic risk;**

**Only efficient portfolios 会落在CML线上，那些diversified/ efficient portfolios只会在CML的有效边界里面；**

**由于CAPM只考虑expected return 和securities 的系统风险之间的线性关系，所以所有的portfolios/ securities 都会在SML线上；**

**只有mispriced 的security 才会出现不在SML上：**

**If the estimated return plots “over” the SML, the security is “under” values;**

**If the estimated return plots “under” the SML, the security is “over” values;**

**CAL: Investors have different expected return; the various combinations of a risky asset and the risk-free asset form the CAL;**

**CML: investors have same expected return and in special case where the risky asset is the market portfolio, the combinations of the risky asset and the risk-free asset form CML;**

**Sharpe ratio related to CAL & CML**

**Treynor measure & Jensen’s alpha are related to SML;**

1. **Sharpe ratio: is its excess returns per unit of total portfolio risk 用来排名**

**Sharpe ratio = (Rp -Rf) / σp**

**Higher Sharpe ratio indicate better risk-adjusted portfolio performance**

**M-squared for a portfolio 是百分比**

M-squared=(Rp – Rf) \* σm/ σp – (Rm - Rf) 注意公式是和sharpe ratio类似，可以说是延伸，去和market的return比较；

(Rp-Rf)\*σm/σp这一项是 把投资组合p的收益与无风险收益Rf的差，换做在总风险为m时投资组合能得到的收益，通过除以σp再乘以σm得到。之所以这样算，是为了与Rm-Rf进行比较，因为Rm-Rf是总风险为σm（即CML与efficient frontier切点处对应的标准差）。用（Rp-Rf)\* σm/σp相当于把p对应的CAL线上的横轴处在m时，对应的Rp-Rf算出来，正好可以和CML上对应的Rm-Rf比较了。收益率的高低就很清楚了。

Treynor measure 特雷诺测度：是指一种将投资组合收益与风险作对比的相对衡量方法。

公式 = (Rp -Rf) /βp

Jensen’s alpha: αp = Rp – [Rf + βp (Rm -Rf)]

比拥有相同β的portfolio which lies on the SML ，多出的超额收益的百分比

如果只有一个manager, 考虑总风险，则Sharpe ratio & M-squared 适合使用；

如果有多个managers 管理多个投资组合 and well diversified (has no non systematic risk) or maximizing risk-adjusted return则performance based on systematic risk, Treynor measure & Jensen’s alpha 适合使用；

Market risk βi = pim \* (/m)

|  |  |  |
| --- | --- | --- |
| **评估指标** | **公式** | **用途** |
| 夏普比率 | (Rp -Rf) / p | 考虑总风险，比率越高的投资组合业绩越好 |
| M-Squared | (Rp – Rf) \* σm/ σp – (Rm - Rf) | 考虑总风险，排序与夏普比率相同，大于0时打败市场 |
| 特雷诺比率 | (Rp -Rf) /βp | 考虑系统风险，excess return per unit of systemic risk, 比率越高的投资组合业绩越好 |
| Jensen's alpha | p = Rp – [Rf + βp (Rm -Rf)] | 考虑系统风险 ，在同一β下，高出其他portfolio的百分比，与CAPM直接相关，大于0时打败市场 |

1. 绝对风险目标：通常是指资本不受损失，**或在一定时期内损失不超过一定百分比；**

**相对风险目标：通常是与一个或几个行业标准进行的对比；**

1. Payments-in-lieu 取代支付：payments the short seller must pay all dividends or interest that lender would have received from security that loaned to the short seller;

Short rebate rate 短仓回扣率：broker earns interest on these funds, and return a portion of this interest to the short seller at a rate referred to as the short rebate rate; typically, = 0.1% - overnight interest rates. If security is difficult to borrow, the short rebate rate maybe low or even negative;

1. In a short sale, the investor must deposit initial margin equal to a percentage of the value of the shares sold short to protect the broker in case the share price increases. 股票价格涨了会导致保证金比例降低从而引发追加保证金;

Margin call price = P0 \* (1-initial margin)/(1- maintenance margin)

Initial margin = 1/ leverage ratio

P0= initial purchase price

例题详见note page 208

1. Order 的类型

* **Marketable or aggressively priced**: buy order above the best ask or sell order below the best bid; at least part of the order is likely to execute immediately;
* **Standing limit orders**: limit price between the best bid and the best ask;
* **Behind the market**: buy order below the best bid or sell order above the best ask;
* **Far from the market**: buy order considerably lower than the best bid or sell order significantly higher than the best ask;
* **Marketable limit order**: 报价优于市场当前指令的条件时，称为可执行的限价委托指令；
* **Standing limit order or behind the market limit order**: 报价优于市场当前指令的条件时，称为不可执行的限价委托指令；
* **All-or-nothing order**: execute only if the whole order can be filled;
* **Hidden orders**: only the broker or exchange knows the trade size;
* **Iceberg orders**: because part of most of order is hidden from view;
* **Good-till-cancelled**: orders last until they are filled;
* **Immediate-or-cancel (fill or kill)**: orders are cancelled unless they can be filled immediately;
* **Good-on-close**: orders are only filled at the end of the trading day;
* Stop order: 停止交易指令；
* Stop loss orders：止损指令；
* Stop-sell order: 止损卖单；它和short sell 的区别就在于stop-sell 表明现在还没有卖的意思，而short sell 已经做好了卖的准备；
* Stop buy：entered with at stop above the current market price;

**Stop orders reinforce market momentum. Stop-sell orders execute when market prices are falling, and stop-buy orders execute when the market is rising.**

**例如一只股票原价20，为了防止下降，在15元的位置安排一个stop-sell order；**

**同理，为了防止上升，在25元的位置安排一个stop-buy order;**

**前提要记住：bid price（买） 要选limit order最高值，offered price（卖）要选limit order 最低值**

**Make a market: 是指买方而言，buy limit order’s price 正好等于bid price的情况；**

**Make a new market: 是指买方而言，buy limit order’s price 大于bid price的情况；**

**Take a market：是指卖方而言，sell limited order’s price 低于offered price 的情况；**

1. 市场组织架构知识点:

* Large bid-ask decreases market liquidity;
* 初始杠杆比率= 1/ 初始保证金要求
* 套利者(arbitrageurs)：将同一种证券在不同地点的买卖双方在同一时间连接起来，以获取价差利润；
* 清算所(clearing houses)：他们充当了所有买方的卖方，以及所有卖方的买方，降低了对手方的风险，保障了市场诚信；
* 市场买卖价差(market bid-ask spread)：是指最高买价(Best bid)和最低卖价(best offer)之间的差异，价差越小，交易成本越低；
* Underwritten offering 承销：如认购不足，投资银行**有义务**买下还没有卖出的证券；
* Best offering 尽力推销：如认购不足，投资银行**没有义务**买下还没有卖出的证券；
* Call market **集合竞价市场**：在一个特定时段和地点进行，所有的交易者参与竞价，流动性很好，最终决定统一的成交价格，**通常用于市场上开盘价的决定**；
* Continuous market 连续竞价市场：在市场开放的任意时间进行，不会形成一个统一的成交价格；
* **报价驱动市场(**quote-driven markets)：常用于债券，货币，大宗商品现货等；
* **指令驱动市场**(order-driven markets)：常用于股票，期货等交易所和自动交易系统的资产交易；
* **经纪市场**(brokered markets)：包括大宗股票，房地产，艺术品等；
* **Operational efficiency: trading costs are low;**
* **Informational efficiency: prices reflect fundamental information quickly;**
* **Allocational efficiency: capital is directed to its highest valued use;**

1. **Different weighting methods used in Index construction**:

**Price-weighted index**: 优点是计算简单；

缺点是高价股影响力更大，还有如果涉及股票拆分，回购，分红等影响股价的活动，都会影响其在指数中的权重；

**Equal-weighted index**: 优点是和价格权重指数相比，均等权重更简单；

缺点是1. 由于价格的变动，导致每隔一段时间需要调整一回，调整过程中的high transactions costs would decrease portfolio return;

2. the weights on the returns of large capitalization firms are smaller than their proportions of the overall market value of the index stocks; 换言之小盘股的回报率大于它们所占的比重；

**Market capitalization-weighted index (or value-weighted index):**

简言之就是采取和市场总体配置相同的比例来配置投资组合，所以当股票拆分或者分红时，不影响其在Portfolio的权重；

**Float-adjusted market capitalization-weighted index**：与market capitalization-weighted index类似，不过是基于stocks available to investors 来说的；

上面这两种类型的指数优点是：index security weights represent proportions of total market value;

**Fundamental weighting**: uses weights based on firm fundamentals, such as earnings, dividends, or cash flow. 优点是不会由于股价的估值偏差而造成index的偏差；

**Note that a firm with a high earnings yield (total earnings to total market value) relative to other index firms will have a higher weight in an earnings-weighted index, because its earnings are high relative to its market value;**

缺点是权重会随股票价格的增长而增加，下降而减少；

计算部分：

价格权重指数价值= 指数成分证券的价格总和/ 指数成分证券的个数（股票拆分调整后）

**Current index value = (current total market value of index stocks / base year total market value of index stocks) \* base year index value**

**通常base year index value =100, 计算详见note page 230-231**

相等权重指数期末指数= （1+ 指数成分股的平均回报率）\* 相等权重股指数期初价值

具体例题详见note Page 232

|  |  |  |  |
| --- | --- | --- | --- |
|  | **价格权重** | **相等权重** | **市值权重** |
| **代表策略** | 在每支成分股上都购买相同的股数 | 在每支成分股上分配相同金额的资金 | 按市值比例买入并持有每只成分股 |
| **计算方法** | 两年的所有股票价格的平均数之比 | 先算每支股票的回报率，再算所有的 平均回报率，加上1后，乘以起初指数 | 先计算期末成分股整体市值，再除以期初成分股的整体市值，最后乘以起初指数 |
| **偏差影响** | 价格高的股票 | 小公司的股票（价格波动大） | 市值大的股票 |

计算price return: 不考虑dividend 部分

1. 在市值权重情况下，期末市值= end of period price\* shares outstanding
2. 在价格权重情况下，end of period只考虑期末价格为计算要素即可 ；
3. 在相等权重情况下，end of period只考虑期末价格相对于期初价格的回报率为计算要素即可 ；

计算total return：一定考虑dividend 部分

1. 在市值权重情况下，期末市值= (end of period price + dividends paid) \* shares outstanding；
2. 在相等权重情况下，end of period price + dividend paid - beginning of period price

1. Alternative investments 另类投资

* Commodity indexes: based on the prices of commodity futures contracts, not the spot prices of commodities. For those reasons, the return on commodity futures differs from the returns on a long position in the commodity itself;
* Real estate indexes: are quite illiquid;
* Hedge funds: are largely unregulated and are not required to report their performance to index providers; funds have reported in the past but have recently had poor returns may stop reporting their performance. The result is an upward bias in index returns with hedge funds appearing to be better investments than they actually are, which may cause survivorship bias;

1. **Three forms of market efficiency:**

* Weak-form market efficiency弱式有效市场： current security prices **fully reflect** all currently **available security market data**; **市场的价格仅反映与过去的价格和交易量有关的市场信息；**

In a weak-form efficient market, an investor **can’t achieve** positive risk-adjusted returns on average by **using technical** **analysis**; 但是可以采用technical analysis to estimate intrinsic value;

* Semi-strong form market efficiency 半强式有效市场: current security prices **fully reflect** all **publicly available information**; **市场的价格反映所有公开信息；**

An investor **can’t achieve** positive risk-adjusted returns on average by **using fundamental analysis**; 但是在inefficient semi-strong form market情况下就可以利用fundamental analysis;

* Strong-form market efficiency 强式有效市场: security prices **fully reflect** all information **from both public and private sources**; **市场价格反映所有公开与私下信息；**

**None** should be able to consistently **positive abnormal returns**;

* **The weak form is based on past security market information; the semi-strong form is based on all public information (including market information); and the strong form is based on both public information and inside or private information;**
* **If a market is semi-strong-form efficient, Passively managed portfolio will be outperformed than actively managed portfolio**

1. **Time-series data anomalies 时间序列异常**

**Overreaction effect 过度反应效应**：是指投资过去回报较差，接下来回报会好；

**Momentum effect 动量效应**：指投资过去回报较好，接下来回报也会好；

**January effect** or turn-of-the-year effect**一月效应**: investors sell losing positions in December to realize losses for tax purpose and then repurchase stocks in January, pushing their prices up, and window dressing （粉饰报表）;

1. **Cross-sectional data anomalies 截面数据异常：**

**Size effect:** small-cap stocks outperform large-cap stocks;

**Value effect:** value stocks价值型股票 outperform growth stocks成长型股票;

1. **Loss aversion 损失规避：**投资者在面临潜在损失时会表现出更多的风险规避倾向，而在面临潜在收益时则会表现出更少的风险规避倾向，也就是说，投资者不喜欢损失的程度，要超过他们喜欢同样数额收益的程度；

Impediments (阻碍)to arbitrage and short selling and high costs of trading and gathering information tend to make markets less efficient

1. Book value of equity securities 权益的账面价值：是资产负债表中资产减去负债的价值；它反映了公司过去的融资和决策；

Market value of equity securities 权益的市场价值：指股票的每股市价与其在外流通股份数量的乘积。它反映了投资者对公司未来现金流的预期；

Book value很少等于market value，因为book value 不能反映投资者对公司未来的预期；

1. Puttable shares are the least risky and callable shares are riskier;

Puttable shares are less risky because if the market price drops, the investor can put the shares back to the firm at a fixed price;

Callable shares are the most risky because if the market price rises, the firm can call the shares, limiting the upside potential of the shares.

**Preferred stock typically does not measure, does not have voting rights, and has dividends that are fixed in amount but are not a contractual obligation of the firm.**

Cumulative preferred shares are less risky than non-cumulative preferred shares, as any dividends missed must be paid before a common stock dividend can be paid;

**Sponsored DR(参与型存托凭证) provides investors voting rights. 前提是firm is involved in issues;, otherwise, it is an unsponsored DR, which depository bank retains the voting rights;**

1. Venture capital风险投资: VC is financing at early stage, seed or start-up stage. VC is illiquid and investors commit funds for three to ten years before they can exit their investment;

Leverage buyout (LBO): investors but all of a firm’s equity debt financing.

Management buyout (MBO): if the buyers are the firm’s current management to buyout.

1. Michael Porter’s five forces that determine industry competition:

* Rivalry among existing competitors;
* Threat of entry;
* Threat of substitutes 替代品的威胁;
* Power of buyers;
* Power of suppliers;

1. Two competitive strategies:

**Cost leadership (low cost) strategy**: firms seek to have the lowest costs of production in its industry, offer the lowest prices and generate enough volume to make a superior return;

**Product or service differentiation strategy**: should be distinctive in terms of type, quality or delivery.

1. Greater concentration typically reduces competition and results in greater pricing power;

Greater unused capacity in an industry, results in greater price competition and less pricing power;

Greater stability in market share is typically associated with greater pricing power;

行业产能才是定价的重要决定因素。产能过剩 (overcapacity) 通常导致价格战，产能不足 (under capacity) 通常导致定价权的产生。

Non-cyclical industries or firms can be classified as defensive and growth;

**In industries with greater ease of entry, firms have little pricing power because new competitors can take away market share;**

**High costs of exiting result in overcapacity and likely price wars. Greater ease of exit (i.e. low costs of exit) increases pricing power;**

1. Major categories of equity valuation models: present value model/ multiplier models/ asset-based valuation models refer to 手册 page 151
2. **现值模型计算：以下所有公式中如果涉及sell price or par value，才在分母中显示1+K，否则只用K—required return;**

**A. Dividend discount model (DDM) 计算公式 V0= 求和 Dt/ (1+Ke)t  refer to note page 292**

比如One-year holding period DDM:

Value= dividend to be received/ (1+ Ke) + year-end price/(1+ Ke)

以此类推two-year holding period DDM:

Value= D1/ (1+ Ke) + D2/(1+ Ke)2 + P2 / (1+ Ke)2

**此公式也适用于multistage DDM**. 如果是N个period的话，Pn/（1+K）n 默认趋近于0 或者等于0

Think of P2 is the price at the end of year 2. Think of it as the selling price of a share, immediately **after** D2 is received. 注意D1是第一年年末预计收到的dividends，不是现在收到的dividends.

**B. Free cash flow to equity (FCFE)计算V0= 求和 FCFEt/ (1+ Ke)t refer to note page 294 衡量支付股利的能力；**

**C. Preferred stock value= Dp/ Kp  适用于无限期情况下**

如果是半年付一次dividend，则Value= D1/ (1+ KP/2) + D2/ (1+ KP/2)2 + F2/ (1+ KP/2)2  其中F2是一年后到期par value, 与DDM公式中的price不同

1. Gordon growth model计算V0= D1/ Ke- Gc 最适合计算成熟企业，其中Gc是grow rate of dividend,

**Gc=(1- dividend payout ratio) \* ROE 利润留存率 \* 权益回报率**

戈登增长模型必须满足以下条件，否则公式不成立：

1. Gc和Ke 不能改变；
2. Ke 必须大于Gc；

**When doing stock valuation problems on the exam, watch for words like “forever”, “infinitely”, “indefinitely”, “for the foreseeable future” 可预知的未来, and so on. This will tell you that the Gordon growth model should be used. Also watch for words like “just paid” or “recently paid”. These will refer to the last dividend, D0. Words like “will pay” or “is expected to pay” refer to D1;**

1. **Amount of estimated stock value due to dividend growth的算法是**assume the growth rate is zero and calculate a value. Then, subtract this value from the stock value estimated using a positive growth rate—refer to note page 297;
2. **A firm with no current dividend 计算要点是如果从第四年开始pay dividend，就要先计算出V3之后通过DDM算出V0 详见例题note page 299;**
3. **Multistage growth计算stock value的要点同上，首先计算出P3 （如果是4年 expected to grow）之后通过multistage dividend discount model 公式算出stock value 详见note page 300例题;**
4. The Gordon growth model is most appropriate for valuing stable and mature, non-cyclical, dividend-paying firms;

In any case where future dividends can’t be estimated with much confidence, valuation based on FCFE is appropriate as long as growth rates of earnings can be estimated;

1. **乘数模型计算：**

**Price multiples includes: price-to-earnings, price-to-cash flow, price-to-sales, and price-to-book value ratios.**

**Low multiples associated with higher future returns**

**P0/E1= (D1/E1)/ (k-g); 其中D/E是expected dividend payout ratio**

从公式中可以看出P/E增长的条件是if other things equal：

1. A higher dividend payout rate;
2. A higher growth rate;
3. A lower required rate of return;

**Enterprise value (EV)** = market value of common and preferred stock + market value of debt – cash and short-term investments;

**其中market value of debt =long term debt + short term debt 详见例题note page 307-308**

**EV/EBITDA是比较常见的企业价值乘数，乘数越高，则企业价值越可能被高估**

1. **根据资产的估值模型：**

**Asset-based model是用来estimate market value of asset 例题详见note page 309;**

更多经典例题详见：手册page 156；

**现值模型，乘数模型和基于资产的价值模型的比较详见如下**

|  |  |  |  |
| --- | --- | --- | --- |
| **方法** | **现值模型** | **乘数模型** | **基于资产的估值模型** |
| **优势** | 容易计算 分析师广泛认可 FCFE模型适用于可预见未来不分红的公司 戈登增长模型适用于成熟稳定的公司 多阶段模型适用于后期比前期稳定的公司 | 容易计算 分析师广泛认可 可应用于时间序列和截面数据的比较 经常用于预测股票回报率 企业价值乘数模型适用于盈利为负的公司 | 具有保底价值 适用于具有很大比例的短期有形资产，资产市值容易确定，以及破产清算的公司 越来越多地应用于报告公允价值的上市公司 |
| **劣势** | 输入参数需要预测 结果对参数很敏感 | 基于基本面的乘数对输入参数很敏感 很难用于跨国比较 容易受经济状况影响 | 资产的市值难以获取，与账面值相差很大 不适用于无形资产多的公司 |

1. **杂点统计**

* 易错题：note page 36-1/2, page 62-14/16, page 78-9, page 121-4/11, page 181-3, page 222-4, page 255-5, page 268-2/7, page 287-4/5/6 第六题要看解释反过来理解，page 316-1/13
* The before-tax cost of fixed-rate debt capital, Kd, is the rate at which the firm can issue new debt;
* The cost of equity capital Kce, is the required rate of return on the firm’s common stock;
* If a market YTM is not available, the analyst can use the debt rating approach, estimating the before-tax cost of debt capital based on market yields for debt with the same rating and average maturity as the firm’s existing debt; 债务评级法 (debt-rating approach): 使用评级和期限相似的债券收益率，前提是新债务的市场价格难以获取。

Yield to maturity approach 到期收益率法：使用新债务发行（而不是当前已有债务）的市场利率（不是票面利率）

* Risk budgeting is the process of **allocating firm resources to asset** by considering their various risk characteristics and how they combine to meet the organization’s risk tolerance
* **Risk shifting** is a way to change the distribution of possible outcomes and is accomplished with **derivative contracts**;

**Risk transfer: insurance** is a type of risk transfer;

* **Pull on liquidity: occurs when disbursements are made too quickly (e.g current liabilities are paid instead of being held or when credit availability is reduced or limited)**
* **A drug on liquidity occurs when receipts lag (i.e. non-cash current assets do not convert to cash quickly)**