

**Figure 1: Real Estate Investment Characteristics<sup>1</sup>**

<i>Investment</i>	<i>Factors that Affect Valuation</i>	<i>Principal Characteristics</i>	<i>Risk</i>	<i>Typical Investor</i>
Raw land	<ul style="list-style-type: none"> <li>• Supply/demand</li> <li>• Location</li> <li>• Planning and zoning</li> </ul>	<ul style="list-style-type: none"> <li>• Passive investment</li> <li>• Illiquid</li> <li>• Low leverage</li> <li>• Return from value appreciation only</li> <li>• No tax depreciation</li> <li>• Capital gains tax exposure</li> <li>• Capitalized expenses</li> </ul>	<ul style="list-style-type: none"> <li>• Cost of carry*</li> <li>• Unstable appreciation</li> </ul> <p>*(alligator)</p>	<ul style="list-style-type: none"> <li>• Speculators/developers</li> <li>• Estates and long term horizon portfolios</li> </ul>
Apartments	<ul style="list-style-type: none"> <li>• Population growth</li> <li>• Income growth</li> <li>• Location</li> </ul>	<ul style="list-style-type: none"> <li>• Moderately active</li> <li>• Medium liquidity</li> <li>• High leverage</li> <li>• Return from income plus appreciation</li> <li>• Tax depreciation</li> <li>• Ordinary and capital gains tax exposure</li> <li>• Inflation hedge</li> </ul>	<ul style="list-style-type: none"> <li>• Start up for new construction</li> <li>• Hiring effective management for large investments</li> </ul>	<ul style="list-style-type: none"> <li>• High income in need of tax shelter</li> <li>• Anyone with sufficient initial equity requirement</li> </ul>
Office buildings	<ul style="list-style-type: none"> <li>• Local economic expansion</li> <li>• Location</li> <li>• Tenant mix</li> <li>• Favorable status</li> </ul>	<ul style="list-style-type: none"> <li>• Active if more than one tenant</li> <li>• Medium liquidity</li> <li>• Moderate leverage</li> <li>• Return from income plus appreciation</li> <li>• Tax depreciation</li> <li>• Ordinary and capital gains tax exposure</li> </ul>	<ul style="list-style-type: none"> <li>• Start up for new construction</li> <li>• Hiring effective management for high service needs</li> <li>• Competition</li> <li>• Obsolescence</li> <li>• Business activity location shifts</li> </ul>	<ul style="list-style-type: none"> <li>• High income in need of tax shelter</li> <li>• Anyone with sufficient initial equity requirement if professional management is employed</li> </ul>
Warehouses	<ul style="list-style-type: none"> <li>• Commercial/industrial activity</li> <li>• Location</li> <li>• Design for material handling change</li> </ul>	<ul style="list-style-type: none"> <li>• Passive</li> <li>• Medium liquidity</li> <li>• Medium leverage</li> <li>• Return mostly from periodic income</li> <li>• Tax depreciation</li> <li>• Mostly ordinary income tax exposure</li> </ul>	<ul style="list-style-type: none"> <li>• Oversupply</li> <li>• Obsolescence when material handling procedures change</li> </ul>	<ul style="list-style-type: none"> <li>• Retirees with desire for high cash flow and little management involvement</li> <li>• Anyone in need of tax shelter with sufficient initial equity requirement</li> </ul>
Shopping centers	<ul style="list-style-type: none"> <li>• Community growth</li> <li>• Population and income</li> <li>• Location</li> <li>• Adequate parking</li> <li>• Suitable tenant mix</li> <li>• Lease terms</li> </ul>	<ul style="list-style-type: none"> <li>• Moderately active</li> <li>• Low liquidity</li> <li>• Medium leverage</li> <li>• Return from income plus appreciation</li> <li>• Tax depreciation</li> <li>• Ordinary and capital gains tax exposure</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing proper tenant mix at startup</li> <li>• Service-focused management needed</li> <li>• High vacancy rate</li> <li>• Competition</li> <li>• Obsolescence</li> </ul>	<ul style="list-style-type: none"> <li>• High wealth to make large equity outlay</li> <li>• Anyone in need of tax shelter with sufficient initial equity requirement</li> </ul>
Hotels/motels	<ul style="list-style-type: none"> <li>• Location</li> <li>• Demand by business and tourists</li> <li>• Facility and service mix</li> </ul>	<ul style="list-style-type: none"> <li>• Active</li> <li>• Medium/low liquidity</li> <li>• Medium/low leverage</li> <li>• Return from income plus appreciation</li> <li>• Tax depreciation</li> <li>• Ordinary and capital gains tax exposure</li> </ul>	<ul style="list-style-type: none"> <li>• Maintaining sufficient size</li> <li>• Competent management</li> <li>• Competition</li> </ul>	<ul style="list-style-type: none"> <li>• Anyone in need of tax shelter with sufficient initial equity</li> <li>• Owners/managers for smaller properties</li> </ul>

a. RE Investment characteristics

**47. Investment Analysis**

Valuing real estate investments

- c. Calculate
- b. Evaluate a real estate investment using NPV, IRR
- d. Potential problems with IRR

CFAT = NOI - debt service - taxes payable  
 EART = selling price - selling costs - mortgage balance - taxes on sale

Multiple IRRs  
 Ranking conflicts

$$MV_0 = \frac{NOI_1}{r-g} = \frac{NOI_1}{R_0}$$

where:

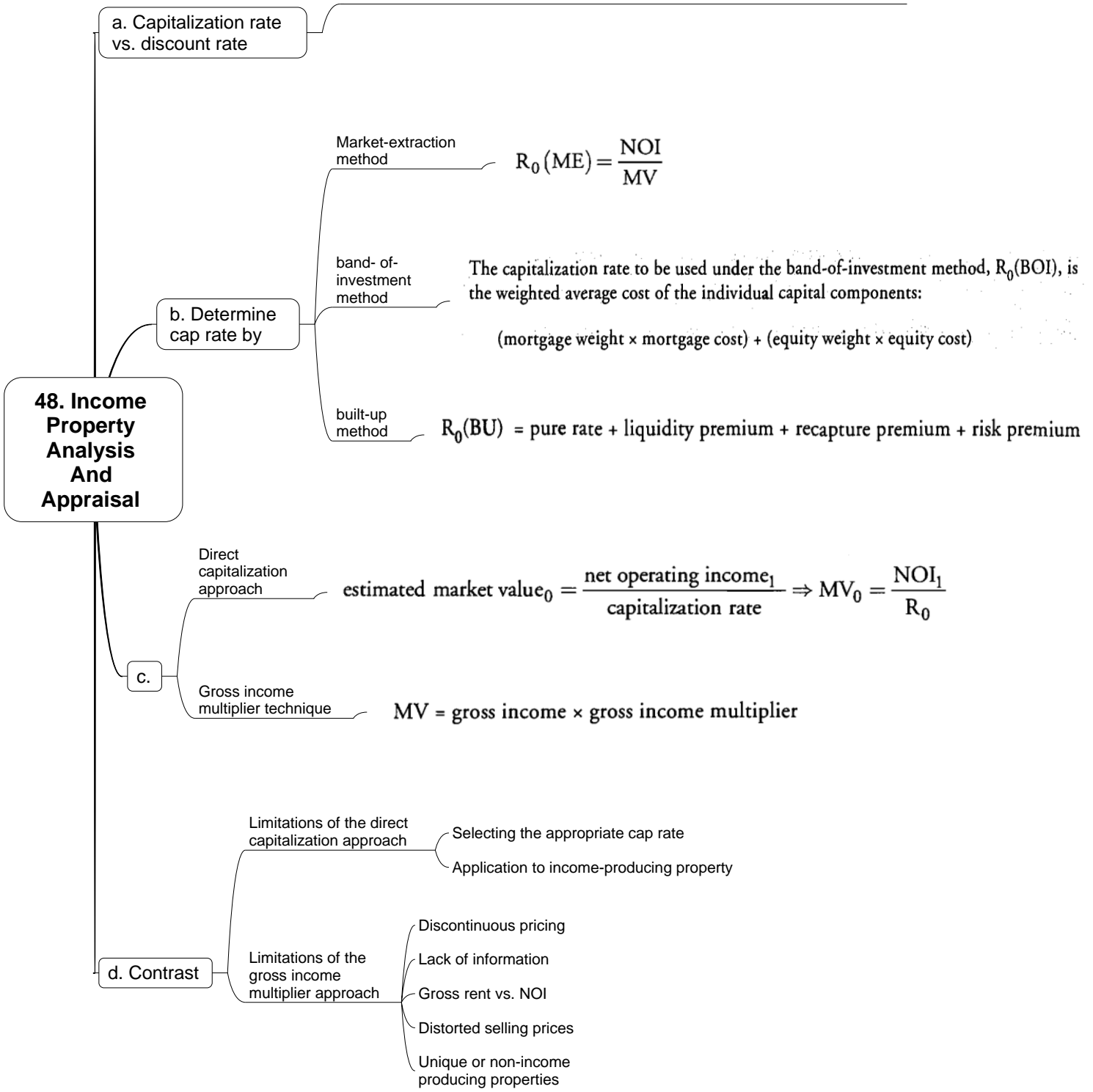
$MV_0$  = current market value

$NOI_1$  = the net operating income expected from a real estate investment

$r$  = the rate that equity investors require for similar real estate investments

$g$  = the growth rate of NOI (assumed to be constant)

$R_0$  =  $r - g$  = the market capitalization rate



a. Capitalization rate vs. discount rate

b. Determine cap rate by

Market-extraction method

$$R_0(ME) = \frac{NOI}{MV}$$

band-of-investment method

The capitalization rate to be used under the band-of-investment method,  $R_0(BOI)$ , is the weighted average cost of the individual capital components:

$$(mortgage\ weight \times mortgage\ cost) + (equity\ weight \times equity\ cost)$$

built-up method

$$R_0(BU) = \text{pure rate} + \text{liquidity premium} + \text{recapture premium} + \text{risk premium}$$

**48. Income Property Analysis And Appraisal**

c.

Direct capitalization approach

$$\text{estimated market value}_0 = \frac{\text{net operating income}_1}{\text{capitalization rate}} \Rightarrow MV_0 = \frac{NOI_1}{R_0}$$

Gross income multiplier technique

$$MV = \text{gross income} \times \text{gross income multiplier}$$

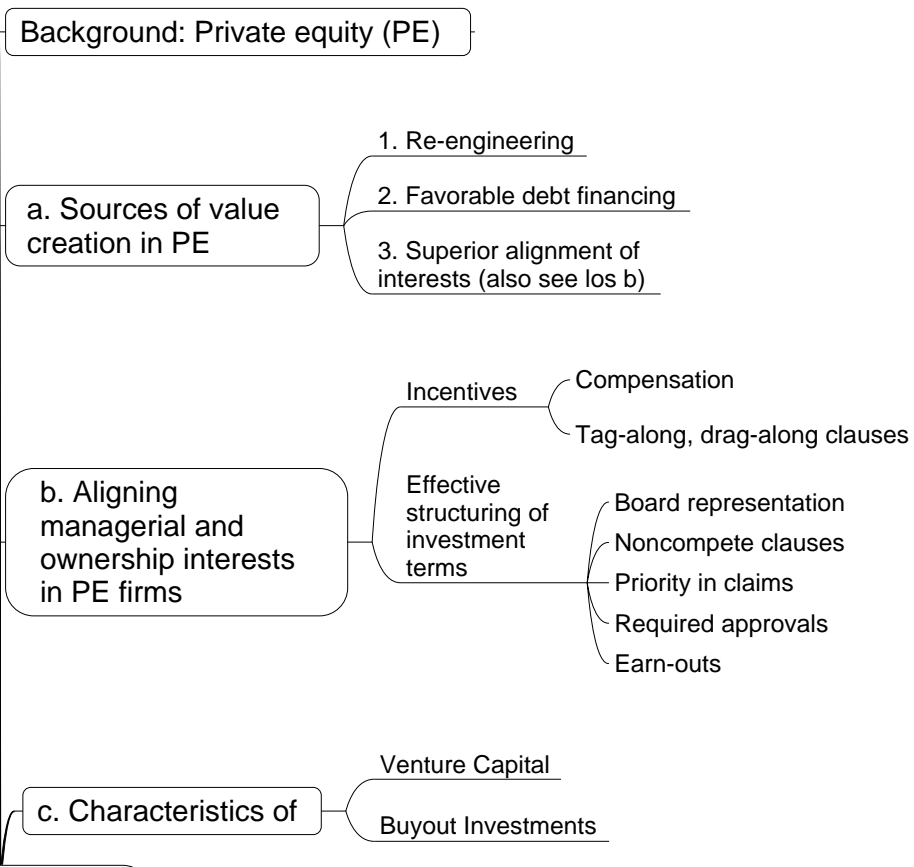
d. Contrast

Limitations of the direct capitalization approach

- Selecting the appropriate cap rate
- Application to income-producing property

Limitations of the gross income multiplier approach

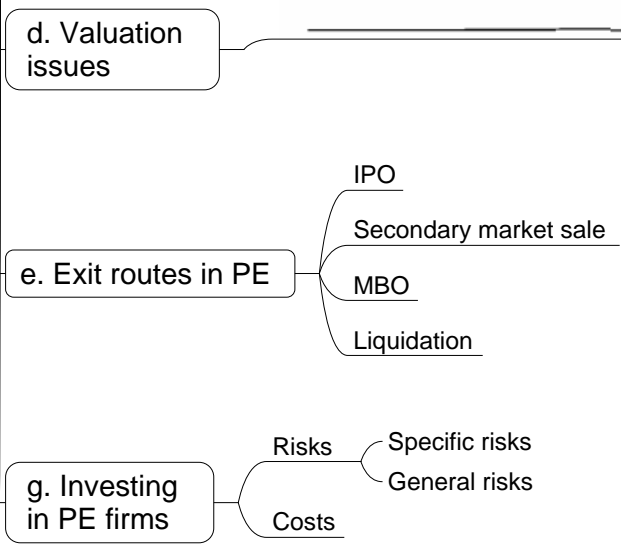
- Discontinuous pricing
- Lack of information
- Gross rent vs. NOI
- Distorted selling prices
- Unique or non-income producing properties



**49.1. Private Equity Valuation**

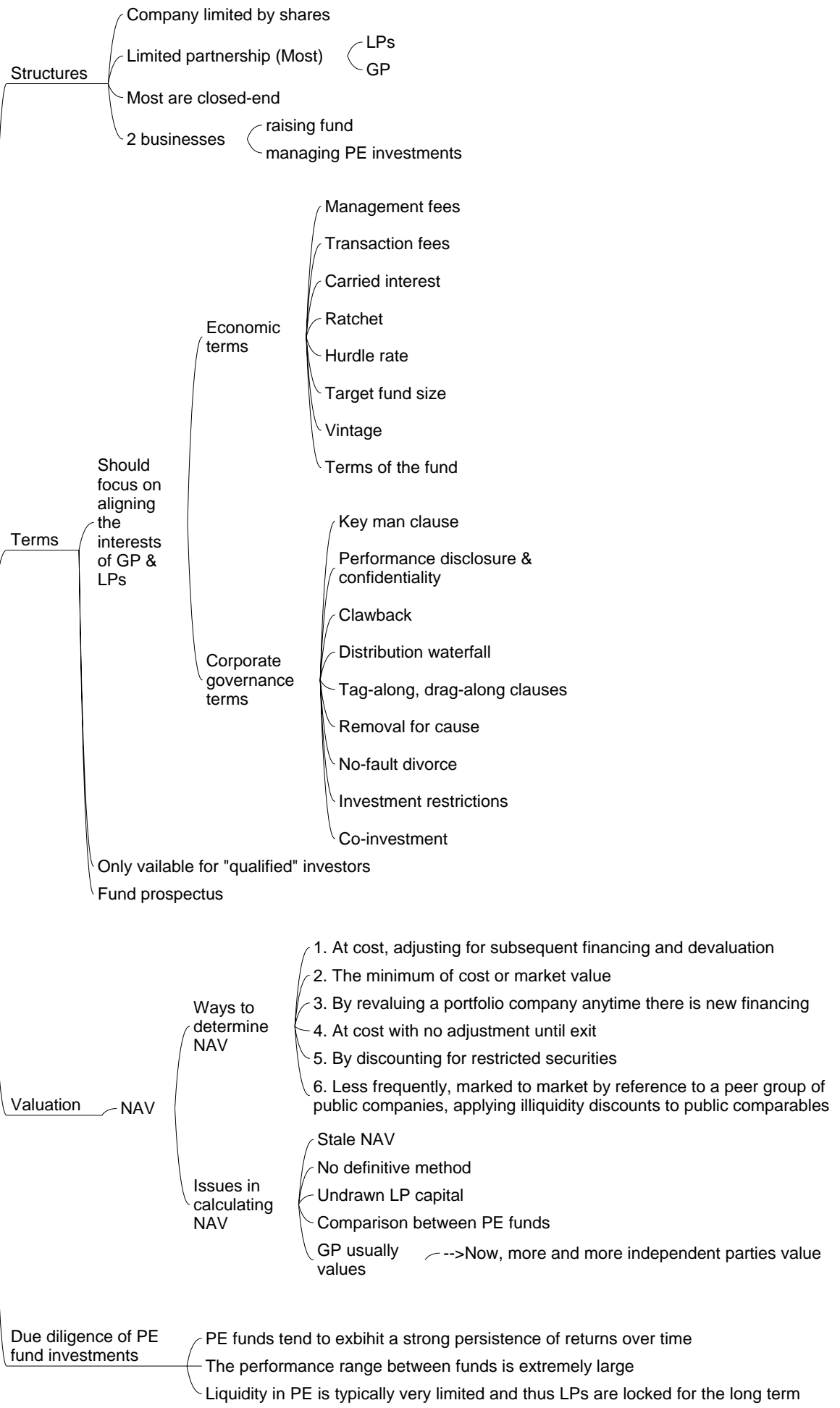
**Figure 3: Valuation Issues for Buyouts vs. Venture Capital Investments**

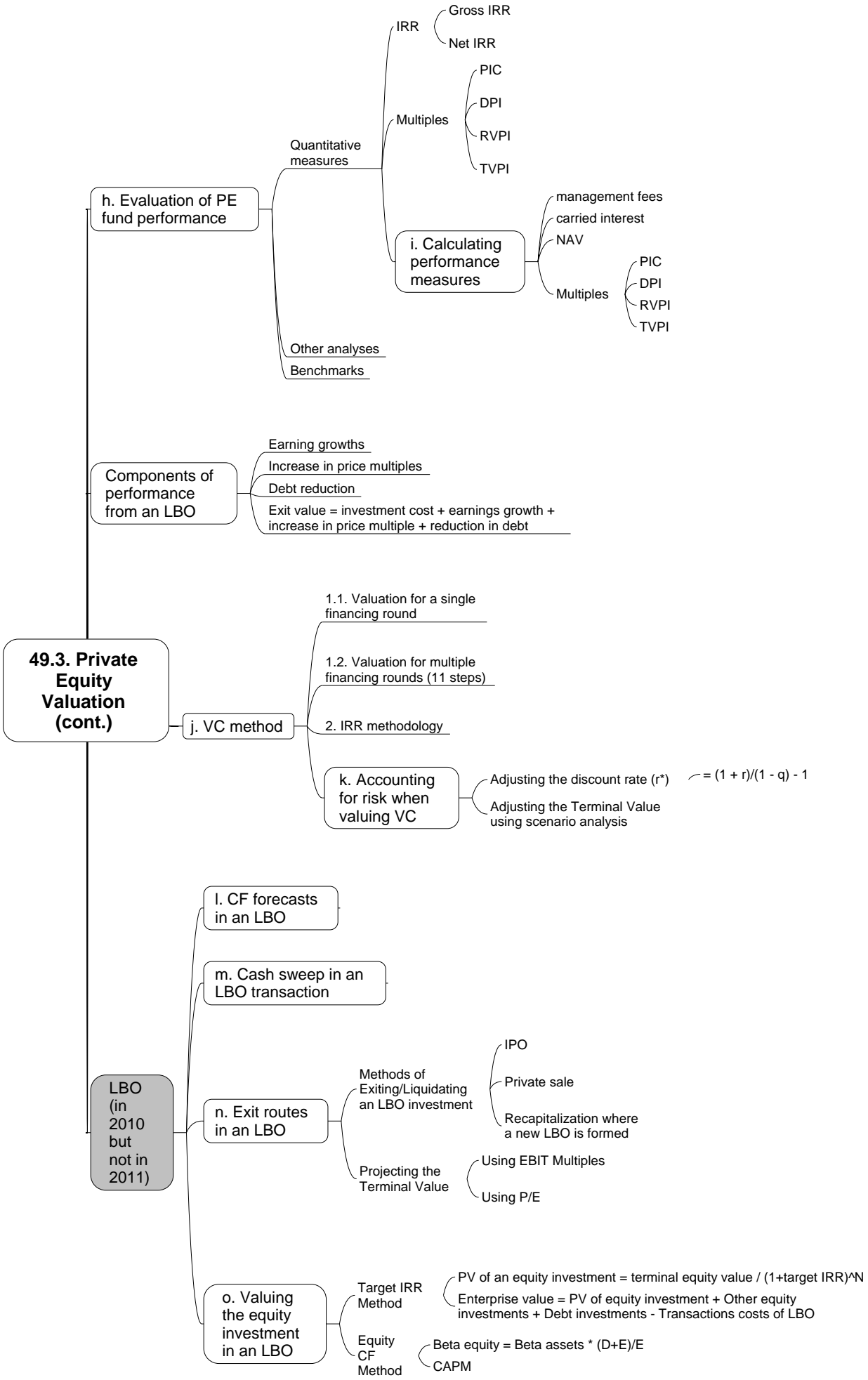
<i>Valuation Issue</i>	<i>Buyout</i>	<i>Venture Capital</i>
Applicability of DCF Method	Frequently used to estimate value of equity	Less frequently used as cash flows are uncertain
Applicability of Relative Value Approach	Used to check the value from DCF analysis	Difficult to use because there may be no true comparable firms
Use of Debt	High	Low as equity is dominant form of financing
Key Drivers of Equity Return	Earnings growth, increase in multiple upon exit, and reduction in the debt	Pre-money valuation, investment, and subsequent dilution



# 49.2. Private Equity Valuation (cont)

f. PE Fund





h. Evaluation of PE fund performance

Quantitative measures

IRR

- Gross IRR
- Net IRR

Multiples

- PIC
- DPI
- RVPI
- TVPI

i. Calculating performance measures

- management fees
- carried interest
- NAV
- Multiples
  - PIC
  - DPI
  - RVPI
  - TVPI

Other analyses  
Benchmarks

Components of performance from an LBO

- Earning growths
- Increase in price multiples
- Debt reduction
- Exit value = investment cost + earnings growth + increase in price multiple + reduction in debt

49.3. Private Equity Valuation (cont.)

j. VC method

- 1.1. Valuation for a single financing round
- 1.2. Valuation for multiple financing rounds (11 steps)
- 2. IRR methodology

k. Accounting for risk when valuing VC

- Adjusting the discount rate (r\*)  $= (1 + r)/(1 - q) - 1$
- Adjusting the Terminal Value using scenario analysis

LBO (in 2010 but not in 2011)

l. CF forecasts in an LBO

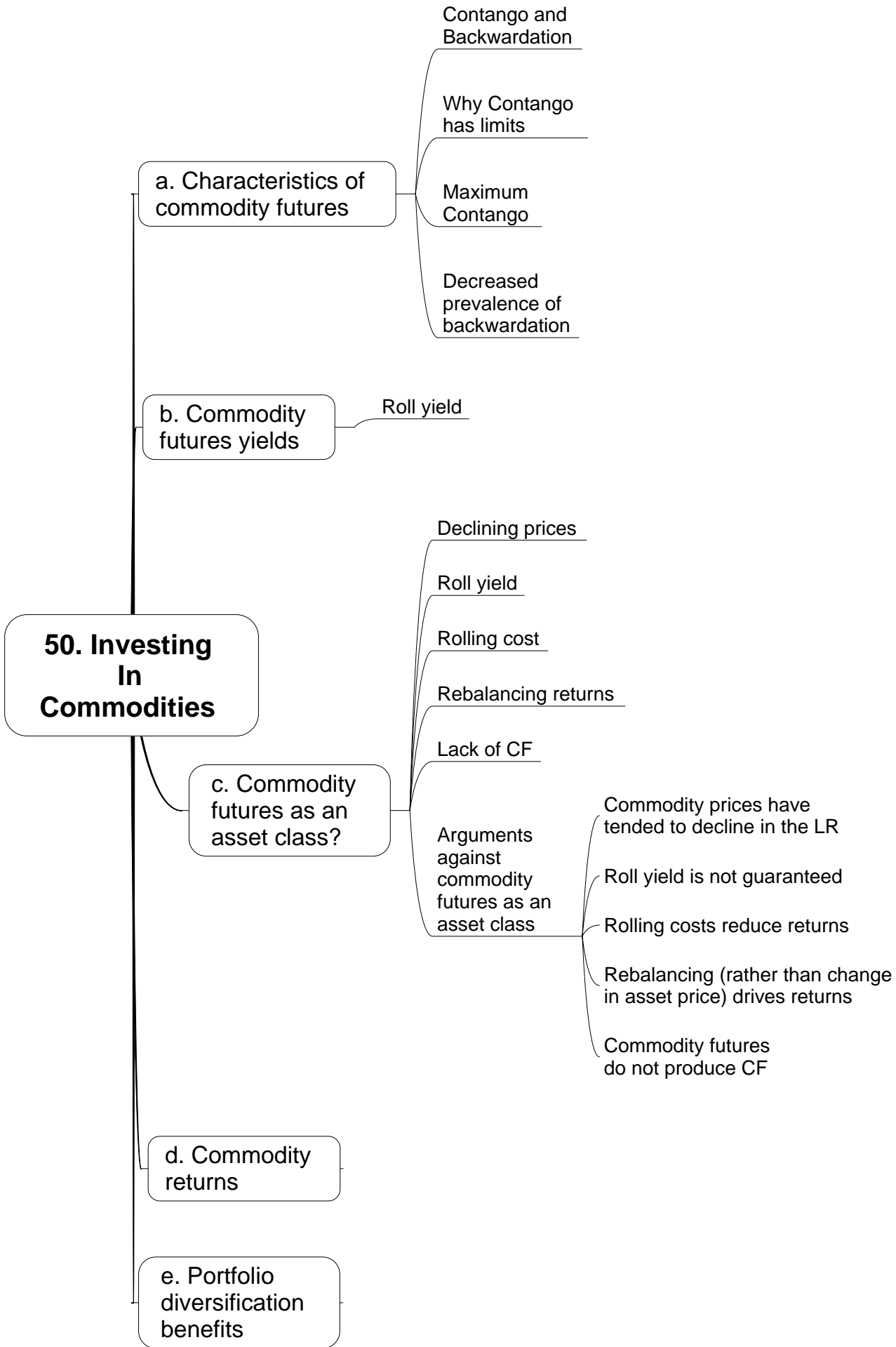
m. Cash sweep in an LBO transaction

n. Exit routes in an LBO

- Methods of Exiting/Liquidating an LBO investment
  - IPO
  - Private sale
  - Recapitalization where a new LBO is formed
- Projecting the Terminal Value
  - Using EBIT Multiples
  - Using P/E

o. Valuing the equity investment in an LBO

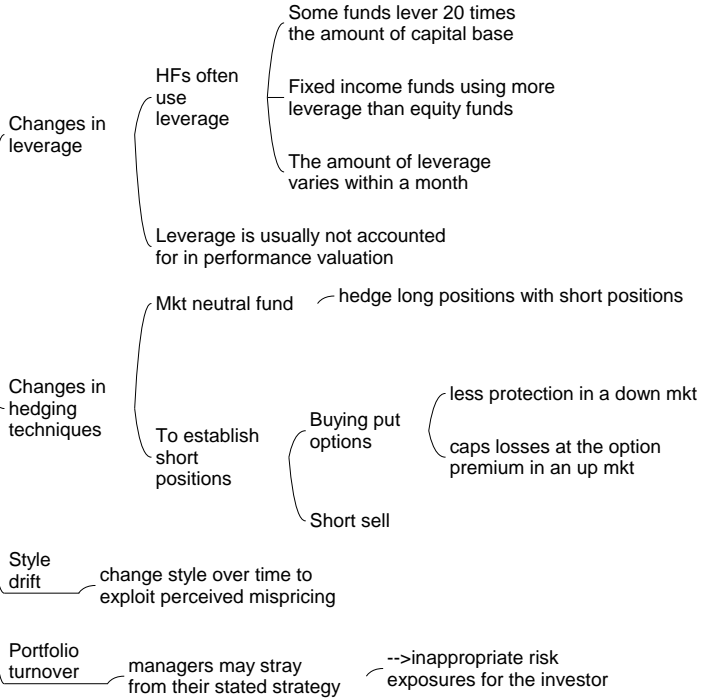
- Target IRR Method
  - PV of an equity investment = terminal equity value / (1+target IRR)^N
  - Enterprise value = PV of equity investment + Other equity investments + Debt investments - Transactions costs of LBO
- Equity CF Method
  - Beta equity = Beta assets \* (D+E)/E
  - CAPM



Warm-up: Classifications of hedge funds (HF)

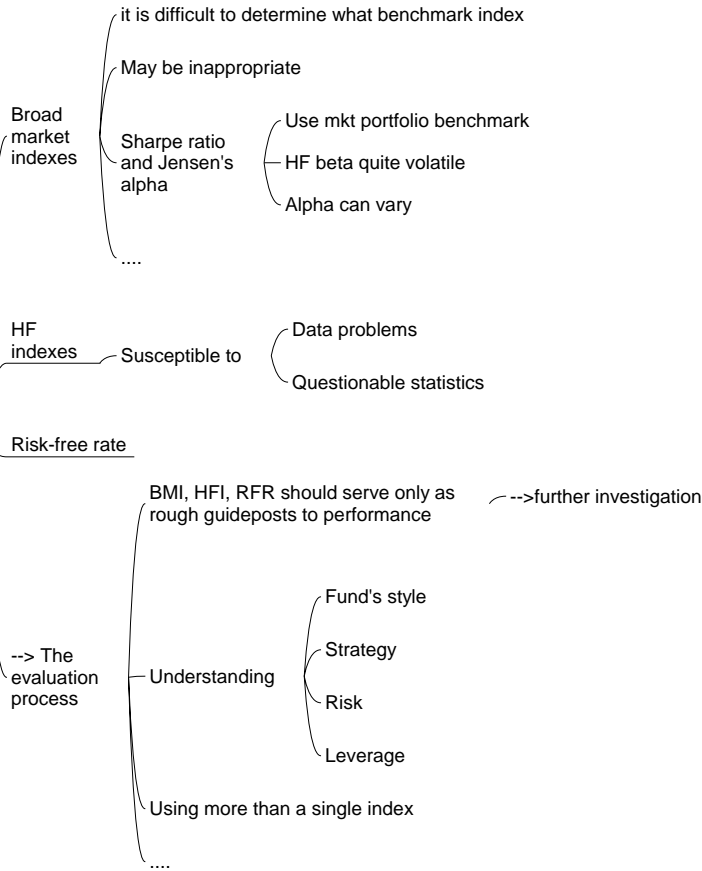
Warm-up: background on traditional performance measures

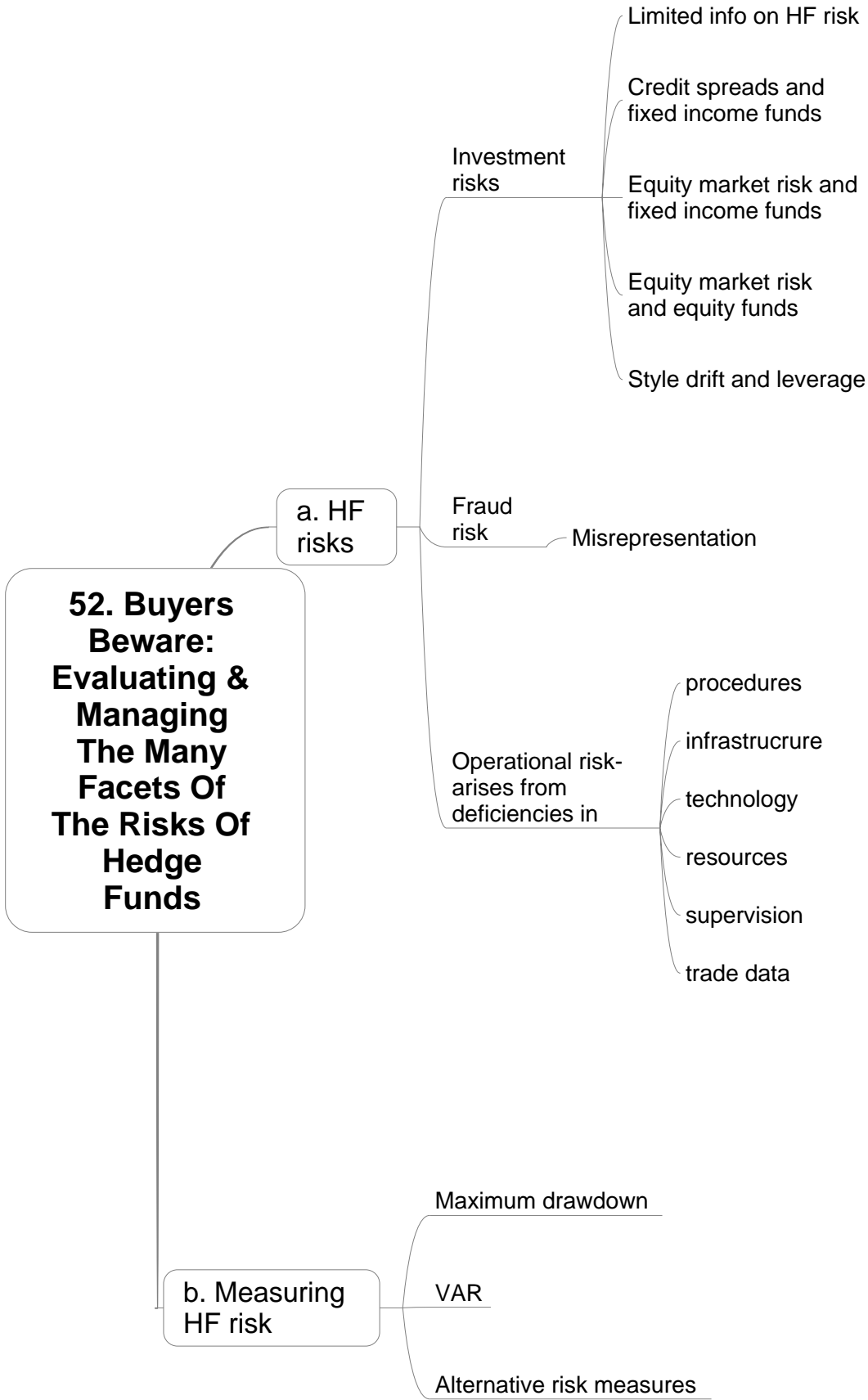
a. How characteristics of HF affect traditional methods of performance measurements



51. Evaluating The Performance Of Your Hedge Funds

b. Evaluating HF performance





**52. Buyers Beware:  
Evaluating & Managing  
The Many Facets Of  
The Risks Of  
Hedge Funds**

**a. HF risks**

**Investment risks**

- Limited info on HF risk
- Credit spreads and fixed income funds
- Equity market risk and fixed income funds
- Equity market risk and equity funds
- Style drift and leverage

**Fraud risk**

- Misrepresentation

**Operational risk- arises from deficiencies in**

- procedures
- infrastrucrure
- technology
- resources
- supervision
- trade data

**b. Measuring HF risk**

- Maximum drawdown
- VAR
- Alternative risk measures