“Capital Structure”

= *How investment (asset ownership) is financed* . . .

= Use of *debt* vs *equity* (how much of each) as sources of financial capital.

Traditionally this question has focused on publicly-traded corporations, but…

• Much real estate investment is made more directly, not through publicly-traded companies.

• Much real estate investment is financed at the *project level* (individual assets are financed directly).

• Real estate assets trade directly, and are relatively simple, transparent cash generators.

15.1 Debt When There is an Equity Capital Constraint

In theory, publicly-traded corporations never face an equity capital constraint (if the stock market is efficient). Whenever they face a positive-NPV investment opportunity, they can simply issue new stock to obtain equity financing.

This is not the case for private companies or individuals.

Nor for tax-exempt institutions such as pension funds.

In real estate investment, debt finance can be useful simply as a NECESSARY source of capital if you face an equity constraint, and:

1. You face a positive (or at least non-negative) NPV opportunity (at least from *IV* perspective), or
2. You seek more diversification across properties than your equity alone can allow, given the size of properties and the amount of your equity.

A particular point for small-scale individual entrepreneurs:

Use debt financing to leverage your *"human capital"* (as well as your financial capital:

- Your skill and talent and knowledge enable you to successfully manage income property.
- This enables you to earn "wages" or "profits" effectively as a "property manager" or "asset manager".
- The more properties you own, the more you can guarantee yourself a job managing, hence, the more earnings you can make on your managerial human capital.
- Use of debt allows you to own more properties, to extend your human capital earnings.

(How else could you possibly cash in on such human capital without taking on the financial investment role as well?...)

How would the leveraging of human capital show up in the quantitative DCF and NPV mechanics we described in previous chapters? . . .

- Define multiple "profit centers" for the firm, some of which derive from operations as distinct from passive investment.
- "Operating expenses" that are pure cash outflows from the investment perspective, may contain an element of profit from the operational perspective.

Thus, a deal contains more than one source of value:

- NPV from the pure investment perspective (return on financial capital).
- NPV from operational profit centers (return on human capital).
- Together the two (or more) NPVs above equal the total NPV of the deal from the firm's (or individual's) particular *IV* ("investment value") perspective (see Ch.12).

15.1.3: Beware: constraints on equity capital availability may not be as great or as binding as you first might think. There are lots of ways to "joint venture" in real estate deals.

15.2.1

Debt as an Incentive and Disciplinary Tool for Management

3. Leverage as a "disciplinary tool" to "incentivize" good mgt:

- Real estate physical assets are "easy to manage, not much risk or excitement or growth potential in bricks & mortar" (e.g., compared to high-tech industries, world trade, etc).
- With not much downside and not much upside, managers may tend to get "lazy", letting value-enhancing possibilities pass them by unnoticed.
- With sufficient leverage, real estate becomes a high-risk, high-growth investment, making it sufficiently "exciting" to attract good mgrs, giving mgrs sufficient incentive to max value.
- This argument not based on a capital constraint or capital mkt failure for small investors, and so this argument for debt financing applies not only to small individual investors but to large insts & REITs.

15.2.2

Debt and Liquidity

1. Leverage reduces the equity investor's "liquidity":

- "Liquidity" = Ability to quickly obtain "full value" as cash.
- Underlying (physical) R.E. assets are illiquid.
- By not borrowing to the hilt, you can obtain cash by mortgaging the prop. (i.e., if you don't borrow now, you can borrow later), thereby reducing the illiquidity problem of real estate investment.
- Liq. valuable because it gives the investor flexibility, provides options: Pounce on pos.-NPV opportunities; Avoid being foreced into neg.-NPV deals.
- Liq. Allows you to use the R.E. cycle to your advantage instead of being a victim of it. (More important in R.E. than stocks due to lack of info.effic. in R.E. mkts.

15.2.3

Cost of Financial Distress

2. The "Cost of Financial Distress" (COFD):

- (See Brealey-Myers Ch.18.)
- Bankruptcy or foreclosure has large "deadweight costs".
- Also “agency costs”: High L / V ratio ➔ Conflict of interest betw equity owner vs debtholder. Can cause prop.owner to act suboptimally (e.g.: avoid CI, pad expenses, high-stakes “repositioning” of rent roll, exercise mortgagor’s “put”): "moral hazard".
- Mere <u>probability</u> of these costs (deadweight, agency) reduces value of prop. if L / V too high (even though L / V still < 1).
- Thus, optimal L / V always < 1. *However,…*
- The "easy management", low risk nature of R.E., & transparency (relatively easy for outsider to detect poor mgt, in part via ability to observe prop.val. in asset mkt) ➔ COFD does not “kick in” for R.E. until higher L / V ratio than for other types of investments (e.g., typical stock)

Exhibit 15-1: Cost of Financial Distress

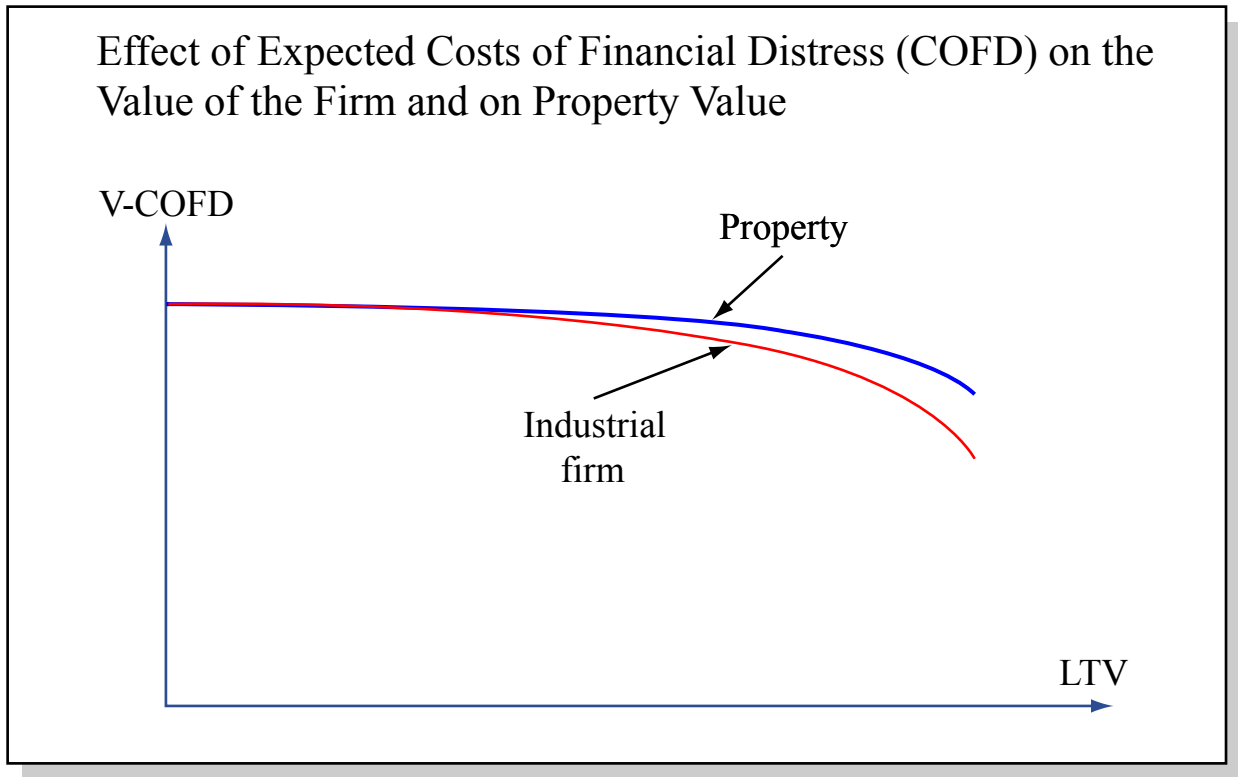


Image by MIT OCW.

15.2.4

Debt and Inflation

2. Inflation:

- *"The more you borrow, the more money you make just from inflation!"*

- *Do borrowers know more about inflation than lenders? . . .*

- Inflation is only the borrower's friend ex post.

- Ex ante (which is when it matters for leverage decision) the inflation argument is a fallacy. No positive NPV to borrower in loan transaction due to inflation.

However, fixed-rate debt leverage makes equity position more of an "inflation hedge".

Exhibit 15-2: Example of effect of inflation on ex-post levered equity appreciation returns with 1-year loan...

Scenario:	Ex Post-	Ex Ante	Ex Post+
Inflation:	0%	2%	4%
Values*...			
Property:			
Yr.0	$100	$100	$100
Yr.1	$99	$101	$103
Debt Balance Payable:			
Yr.0	$60	$60	$60
Yr.1	$60	$60	$60
Levered Equity:			
Yr.0	$40	$40	$40
Yr.1	$39	$41	$43
Appreciation %...			
Nominal Returns:			
Property:	-1.0%	1.0%	3.0%
Levered Equity:	-2.5%	2.5%	7.4%
Nominal Deviation from ex ante:			
Property:	-2.0%	0.0%	2.0%
Levered Equity:	-5.0%	0.0%	5.0%
Real Returns:			
Property:	-1.0%	-1.0%	-1.0%
Levered Equity:	-2.5%	0.5%	3.3%
Real Deviation from ex ante:			
Property:	0.0%	0.0%	0.0%
Levered Equity:	-2.9%	0.0%	2.8%
*Real depreciation rate = 1%/yr.			

15.3

Project Level Capital Structure in Real Estate

Much real estate finance occurs at the micro-level of individual investments in properties, projects, or “deals ."

Hence, much “capital structure” in real estate occurs at this micro-level.

Why?...

- Much real estate investment is still done directly by individuals or small entrepreneurial firms.
- Also real estate assets are relatively simple, tangible and “transparent”: Makes them ideal candidates for secured debt and other types of project-level financing
- (External investors need to feel confident that they know what is going on in the investment even if they don’t have direct management control or highly specialized expertise.)
- Also, the law governing real property rights facilitates this type of finance.

General points:

Just because finance is at the project (asset) level does not alter the basic principles and considerations we have already discussed.

Classical micro-level real estate finance consists of **equity** and **debt** (mortgag):

- Chs 13 & 14, & Sects 15.1 & 15.2 apply.

In recent years, capital markets have become more sophisticated.

More types of investment vehicles tailored to a more diverse range of investors. Result is growth in more complex capital structures at the micro-level.

Consider some of the **new, additional** types of financing and capital structures being used for real estate investments in the U.S. today . . .

Mezzanine Debt

So-called “mez debt” is an investment vehicle structured as a loan, typically including a “lien” on the underlying property, but subordinated to other specified senior investment vehicles.

Mez debt investors typically don’t receive return of or on their investment until after senior debt holders are fully compensated for what is owed them.

Mez debt capital is typically “drawn” or placed into the investment *before* the senior debt capital.

Mez debt thus provides a buffer of capital exposure helping to protect the senior debt investors.

Mez debt typically carries interest rates considerably above those of first mortgages.

Preferred Equity

Similar to mez debt (provides a contractually-stated dividend or yield payment in the form of a “guaranteed” return).

But normally subordinated to any secured debt on the property (including mez debt).

Differs from mez debt in lack of collateral, no formal lien on the underlying real estate.

Preferred equity precedes common equity in priority of claims.

Preferred equity obtains its returns usually purely in the form of a preferred dividend (no appreciation of principle or capital paid in).

Sometimes the preferred return not paid out currently accumulates with (or without) compounding.

In capital structures where there is both mez debt and preferred equity, usually the preferred equity goes in before, and comes out after, the mez debt capital, and the preferred equity return is higher than the mez debt return.

Common (or Residual) Equity

This is normally the property ownership entity that has the operational management responsibility and primary governing control of the project.

Common equity has no guaranteed or contractual return and receives only the residual cash flow after the other senior investment vehicles have been paid their preferred returns.

(However, common equity is sometimes entitled to return of its paid-in capital with zero return prior to preferred equity being paid its preferred return.)

Differentiated Equity Partners (Classes)

Differentiate investors according to what they bring into the deal and what they want to get out of it.

Entrepreneurial investor may essentially bring operational management ability and the deal itself (e.g., in a development, the land with entitlements and permits, as well as the project design).

Money partner brings most of the required equity cash but lacks the ability or desire to manage the operation of the project or property.

Define different “classes” of partners or stockholders in the ownership equity entity, e.g.:

Entrepreneurial partner has operational control.

Money partner has control over major capital decisions (financing and asset buy/sell decisions).

Entrepreneurial partner may or may not subordinate some of its equity claim to that of the money partner (though the entrepreneurial partner may also take a fee for service).

Differentiated Equity Partners (Classes), cont.:

"Splits" . . .

Common arrangement splits the equity entity's overall cash flow among the partners on a ***"pro rata pari passu"*** basis (proportionately relative to their capital contributions)…

Until the equity entity achieves a certain "hurdle" return (specified either on a cumulative current or a look-back IRR basis, or both);

Beyond that hurdle return the cash flow split is differentiated to provide entrepreneurial partner with a proportion greater than its capital contribution (either on a current or back-end basis).

This is called a "**promote**," and surpassing the return hurdle is referred to as "earning the promote."

Provides partner charged with operational management more incentive to make the project a success. (Such success benefits all investors in the project.)

(The promote structure may also provide some degree of "reward" for putting the deal together in the first place.)

15.3.2: Numerical Example of Multi-tiered Project Capital Structure

Consider the $1,000,000 apartment property investment example of Ch.14.

Only now let's assume it is a development project:

- Time-to-build: 1 year (projected value on completion = $1,000,000).
- Up-front land cost: $200,000.
- Construction cost: $750,000 payable on completion (including interest), financed by 1st-lien construction loan.
- Hence: $950,000 total devlpt cost ($50,000 projected "entrepreneurial profit").
- Take out construction loan on completion with $750,000 permanent mortgage (1st -lien).
- Equity ownership entity is a "**joint venture**" with **2 partners: "entrepreneurial" (residual) and "money" (preferred)**, as follows:

Permanent Mortgage Interest Rate	5.50%
Preferred Equity Partner Contribution	90%
Preferred Return	6.00%
Preferred Partner Residual Share	50%

← Amort $2000/yr.

Recall the apartment investment example of Chapter 14 . . .

Permanent Mortgage Interest Rate	5.50%
Preferred Equity Partner Contribution	90%
Preferred Return	6.00%
Preferred Partner Residual Share	50%

Exhibit 14-2: Example After-Tax Income & Cash Flow Proformas . . .

			Unlevered:	Levered:
Property Purchase Price (Year 0):	$1,000,000			
Depreciable Cost Basis:	$800,000	Before-tax IRR:	6.04%	7.40%
Ordinary Income Tax Rate:	35.00%	After-tax IRR:	4.76%	6.44%
Capital Gains Tax Rate:	15.00%	Ratio AT/BT:	0.787	0.870
Depreciation Recapture	25.00%			

Year:													
Operating:	1	2	3	4	5	6	7	8	9	Oper. Yr.10	Reversion Item:	Rever. Yr.10	Total Yr.10
Accrual Items:													
NOI	$60,000	$60,600	$61,206	$61,818	$62,436	$63,061	$63,691	$64,328	$64,971	$65,621	Sale Price	$1,104,622	
- Depr.Exp.	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	- Book Val	$809,091	
- Int.Exp.	$41,250	$41,140	$41,030	$40,920	$40,810	$40,700	$40,590	$40,480	$40,370	$40,260			
=Net Income (BT)	($10,341)	($9,631)	($8,915)	($8,193)	($7,465)	($6,730)	($5,990)	($5,243)	($4,490)	($3,730)	=Book Gain	$295,531	$291,801
- IncTax	($3,619)	($3,371)	($3,120)	($2,867)	($2,613)	($2,356)	($2,096)	($1,835)	($1,571)	($1,305)	- CGT	$73,421	
=Net Income (AT)	($6,722)	($6,260)	($5,795)	($5,325)	($4,852)	($4,375)	($3,893)	($3,408)	($2,918)	($2,424)	=Gain (AT)	$222,111	$219,686
Adjusting Accrual to Reflect Cash Flow:													
- Cap. Imprv. Expdtr.	$0	$0	$50,000	$0	$0	$0	$0	$50,000	$0	$0			
+ Depr.Exp.	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	$29,091	+ Book Val	$809,091	
-DebtAmort	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	-LoanBal	$730,000	
=EATCF	$20,369	$20,831	($28,704)	$21,766	$22,239	$22,716	$23,198	($26,317)	$24,173	$24,667	=EATCF	$301,202	$325,868
+ IncTax	($3,619)	($3,371)	($3,120)	($2,867)	($2,613)	($2,356)	($2,096)	($1,835)	($1,571)	($1,305)	+ CGT	$73,421	
=EBTCF	$16,750	$17,460	($31,824)	$18,898	$19,626	$20,361	$21,101	($28,152)	$22,601	$23,361	=EBTCF	$374,622	$397,983

CASH FLOW COMPONENTS FORMAT

Year:													
Operating:	1	2	3	4	5	6	7	8	9	Oper. Yr.10	Reversion Item	Rever. Yr.10	Total Yr.10
Accrual Items:													
NOI	$60,000	$60,600	$61,206	$61,818	$62,436	$63,061	$63,691	$64,328	$64,971	$65,621	Sale Price	$1,104,622	
- Cap. Imprv. Expdtr.	$0	$0	$50,000	$0	$0	$0	$0	$50,000	$0	$0			
=PBTCF	$60,000	$60,600	$11,206	$61,818	$62,436	$63,061	$63,691	$14,328	$64,971	$65,621	=PBTCF	$1,104,622	$1,170,243
- Debt Svc	$43,250	$43,140	$43,030	$42,920	$42,810	$42,700	$42,590	$42,480	$42,370	$42,260	- LoanBal	$730,000	
=EBTCF	$16,750	$17,460	($31,824)	$18,898	$19,626	$20,361	$21,101	($28,152)	$22,601	$23,361	=EBTCF	$374,622	$397,983
-taxNOI	$21,000	$21,210	$21,422	$21,636	$21,853	$22,071	$22,292	$22,515	$22,740	$22,967	taxMktGain	$693	$23,661
+ DTS	$10,182	$10,182	$10,182	$10,182	$10,182	$10,182	$10,182	$10,182	$10,182	$10,182	- AccDTS	($72,727)	($62,545)
+ ITS	$14,438	$14,399	$14,361	$14,322	$14,284	$14,245	$14,207	$14,168	$14,130	$14,091			$14,091
=EATCF	$20,369	$20,831	($28,704)	$21,766	$22,239	$22,716	$23,198	($26,317)	$24,173	$24,667	EATCF	$301,202	$325,868

The deal structure . . .

Money partner contributes 90% of the equity cash requirement (that is, $180,000 of the $200,000 land price at Year 0).

Entrepreneurial partner contribute the rest of the cash, has operational management control.

Money partner receives annual preferred return of 6% (any unpaid current return accumulates forward with annual compounding).

Any positive net operating cash flow from the property (after the debt service has been paid) will go:

1st) To provide money partner with preferred 6% return, then

2nd) Split 50/50 between the two partners (even though the money partner contributes 90% of the equity capital).

Reversion cash flow from net resale proceeds (after debt repayment) will go first to provide the money partner with her preferred 6% return.

Any remaining cash available upon termination will go:

1st) To pay back the entrepreneurial partner for his capital contribution (with zero return) and next

2nd) Split 50/50 between the two partners.

Calendar Years Ending:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Project Cash Requirements as Proposed:												
Site Acquisition	200,000											
Hard & Soft Development Costs		750,000										
Total Devlpt Phase Cash Requirements	(200,000)	(750,000)										
Devlpt Phase Total Equity Funding	200,000											
Devlpt Phase Debt Funding (Constr Loan)		750,000										
Construction Loan Repayment		(750,000)										
Proposed Permanent Loan Amount (Take Out)		750,000										
Operating PBTCF			60,000	60,600	11,206	61,818	62,436	63,061	63,691	14,328	64,971	65,621
Reversion PBTCF			0	0	0	0	0	0	0	0	0	1,104,622
PBTCF			**60,000**	**60,600**	**11,206**	**61,818**	**62,436**	**63,061**	**63,691**	**14,328**	**64,971**	**1,170,243**
Permanent Loan Debt Service			(43,250)	(43,140)	(43,030)	(42,920)	(42,810)	(42,700)	(42,590)	(42,480)	(42,370)	(42,260)
Permanent Loan Repayment												(730,000)
Permanent Loan Debt CFs		750,000	(43,250)	(43,140)	(43,030)	(42,920)	(42,810)	(42,700)	(42,590)	(42,480)	(42,370)	(772,260)
Operating EBTCF			16,750	17,460	(31,824)	18,898	19,626	20,361	21,101	(28,152)	22,601	23,361
Reversion EBTCF			0	0	0	0	0	0	0	0	0	374,622
EBTCF			**16,750**	**17,460**	**(31,824)**	**18,898**	**19,626**	**20,361**	**21,101**	**(28,152)**	**22,601**	**397,983**
Preferred Equity Capital Account:												
Preferred Return Allocation:												
Beginning Equity Investment Balance	0	180,000	190,800	190,800	190,800	230,890	230,890	230,890	230,890	230,890	270,080	270,080
Annual Preferred Investment	180,000	0	0	0	28,642	0	0	0	0	25,337	0	0
Preferred Return Earned	0	10,800	11,448	11,448	11,448	13,853	13,853	13,853	13,853	13,853	16,205	16,205
Preferred Return Paid	0	0	(11,448)	(11,448)	0	(13,853)	(13,853)	(13,853)	(13,853)	0	(16,205)	(16,205)
Accrued But Unpaid Preferred Return	0	10,800	0	0	11,448	0	0	0	0	13,853	0	0
Ending Equity Investment Balance	180,000	190,800	190,800	190,800	230,890	230,890	230,890	230,890	230,890	270,080	270,080	270,080
Reversion Preferred Allocations:												
Allocation to Satisfy Preferred Return Requirement												(270,080)
Allocation to Return Subordinated Investment Requirement												(25,998)

Permanent Mortgage Interest Rate	5.50%
Preferred Equity Partner Contribution	90%
Preferred Return	6.00%
Preferred Partner Residual Share	50%

Annual CF approximations for purpose of checking fairness of splits

	IRR	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Project Level Cash Flows*:	**IRR**												
Construction Phase	**25.00%**	(200,000)	250,000										
Operational Phase	**6.04%**		(1,000,000)	60,000	60,600	11,206	61,818	62,436	63,061	63,691	14,328	64,971	1,170,243
Both Phases	**6.54%**	(200,000)	(750,000)	60,000	60,600	11,206	61,818	62,436	63,061	63,691	14,328	64,971	1,170,243
Debt Investor Cash Flows:	**5.50%**		(750,000)	43,250	43,140	43,030	42,920	42,810	42,700	42,590	42,480	42,370	772,260
Entity Level Cash Flows (EBTCF):**													
Construction Phase	**25.00%**	(200,000)	250,000										
Operational Phase	**7.40%**		(250,000)	16,750	17,460	(31,824)	18,898	19,626	20,361	21,101	(28,152)	22,601	397,983
Both Phases	**9.09%**	(200,000)	0	16,750	17,460	(31,824)	18,898	19,626	20,361	21,101	(28,152)	22,601	397,983
Preferred Partner Level Cash Flows:				5,302	2,651	14,099							
Construction Phase (If sell on completion)	**16.89%**	(180,000)	210,400										
Both Phases	**8.07%**	(180,000)	0	14,099	14,454	(28,642)	16,376	16,740	17,107	17,477	(25,337)	19,403	329,135
Subordinated Partner Level Cash Flows:													
Construction Phase (If sell on completion)	**98.00%**	(20,000)	39,600										
Both Phases	**16.14%**	(20,000)	0	2,651	3,006	(3,182)	2,522	2,886	3,254	3,624	(2,815)	3,198	68,848

* Sometimes referred to as "Asset Level".
** To the LLC joint venture partnership as a whole.

Preferred equity capital account: First two years…

Calendar Years Ending:	Year 0	Year 1	Year 2	
Project Cash Requirements as Proposed:				
Site Acquisition	200,000			
Hard & Soft Development Costs		750,000		
Total Devlpt Phase Cash Requirements	(200,000)	(750,000)		
Devlpt Phase Total Equity Funding	200,000			
Devlpt Phase Debt Funding (Constr Loan)		750,000		
Construction Loan Repayment		(750,000)		
Proposed Permanent Loan Amount (Take Out)		750,000		
Operating PBTCF			60,000	
Reversion PBTCF			0	
PBTCF			**60,000**	
Permanent Loan Debt Service			(43,250)	
Permanent Loan Repayment				
Permanent Loan Debt CFs		750,000	(43,250)	
Operating EBTCF			16,750	
Reversion EBTCF			0	
EBTCF			**16,750**	
Preferred Equity Capital Account:				
Preferred Return Allocation:				
Beginning Equity Investment Balance	0	180,000	190,800	
Annual Preferred Investment	180,000	0	0	
Preferred Return Earned	0	10,800	11,448	
Preferred Return Paid	0	0	(11,448)	← Return "on"
Accrued But Unpaid Preferred Return	0	10,800	0	
Ending Equity Investment Balance	180,000	190,800	190,800	←But not yet return "of" (current only)

Terminal year (yr.11) Cash Flows and Splits

	Year 11
Operating PBTCF	65,621
Reversion PBTCF	1,104,622
PBTCF	**1,170,243**
Permanent Loan Debt Service	(42,260)
Permanent Loan Repayment	(730,000)
Permanent Loan Debt CFs	(772,260)
Operating EBTCF	23,361
Reversion EBTCF	374,622
EBTCF	**397,983**

Entity level oper.CF yr.11.

Entity level reversion.

Preferred Equity Capital Account:

Preferred Return Allocation:	
Beginning Equity Investment Balance	270,080
Annual Preferred Investment	0
Preferred Return Earned	16,205
Preferred Return Paid	(16,205)
Accrued But Unpaid Preferred Return	0
Ending Equity Investment Balance	270,080

Reflects cumulated unpaid current preferred returns, plus additional capital paid in to finance capital improvement expenditures

Reversion Preferred Allocations:	
Allocation to Satisfy Preferred Return Requirement	(270,080)
Allocation to Return Subordinated Investment Requirement	(25,998)

Entrepreneurial investment (0 return)

Annual CF approximations for purpose of checking fairness of splits

	Year 11
Project Level Cash Flows*: ← Asset level	
Construction Phase	
Operational Phase	1,170,243
Both Phases	1,170,243
Debt Investor Cash Flows:	772,260
Entity Level Cash Flows (EBTCF):**	
Construction Phase	
Operational Phase	397,983
Both Phases	397,983
Preferred Partner Level Cash Flows:	
Construction Phase (If sell on completion)	
Both Phases	329,135
Subordinated Partner Level Cash Flows:	
Construction Phase (If sell on completion)	
Both Phases	68,848

Net sale proceeds of property

OLB on permanent mortgage

Remainder

Includes from yr.11 operations: 16205 = 6% of 270080 + 0.5*(23361-16205)=3578. From reversion: 270080 + 0.5*(374622-270080-25998).

Resulting expected returns (*ex ante*):

Going- in IRR to:	For Development Phase (1 year)	For Both Phases (11 years)
Underlying Project	25.00%	6.54%
Undifferentiated Equity Entity	25.00%	9.09%
Preferred Equity Partner	16.89%	8.07%
Residual Equity Partner	98.00%	16.14%

Image by MIT OCW.

Are these " fair " ? . . .

One way to approach this is to conduct **sensitivity analysis** . . .

e.g., Construct “Optimistic” and “Pessimistic” outcome scenarios, as follows:

• Initial rents such that Year 2 NOI is either $63,000 or $57,000 instead of the proforma (expected) assumption of $60,000. (This results in Year 1 completed building values either $1,050,000 or $950,000, instead of the $1,000,000 base case assumption.)

• Annual NOI growth rate beyond Year 2 either up to 2% or down to 0% instead of the base-case assumption of 1%.

• Year-11 terminal yield (going-out resale cap rate) either down to 4.5% or up to 7.5% from the base case assumption of 6.0%.

Then see if *ex ante* (going-in expected) return risk premia are proportional to risk as defined by the spread in the IRR outcomes…

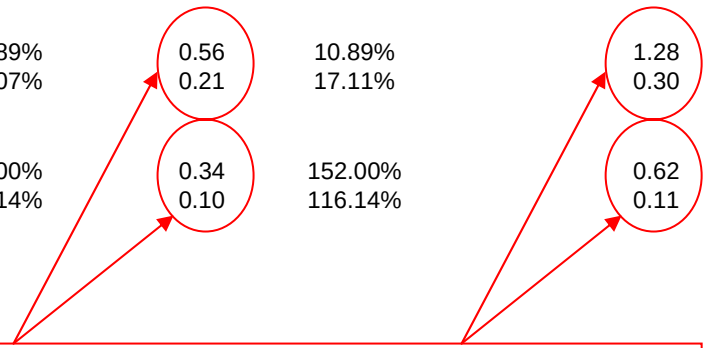
Risk & Return Analysis: Partner Breakout…

Sensitivity Analysis: Ex Post Return Outcome Range & Risk/Return Analysis:

Preferred Equity Partner Contribution	90%
Preferred Return	6.00%
Preferred Partner Residual Share	50%
Riskfree Rate =	3.00%

Annual CF approximations for purpose of checking fairness of splits

	IRRs:			Range:	E[RP]:	RP/Range:	Downside Range	RP/DnsdRange
Project Level Cash Flows*:	Expctd:	Optimstc	Pessimstc					
Construction Phase	25.00%	50.00%	0.00%	50.00%	22.00%	0.44	25.00%	0.88
Both Phases	6.54%	10.59%	3.14%	7.45%	3.54%	0.47	3.40%	1.04
Entity Level Cash Flows (EBTCF)**:								
Construction Phase	25.00%	50.00%	0.00%	50.00%	22.00%	0.44	25.00%	0.88
Both Phases	9.09%	18.81%	-10.58%	29.40%	6.09%	0.21	19.67%	0.31
Preferred Partner Level Cash Flows:								
Construction Phase (If sell on completion)	16.89%	30.78%	6.00%	24.78%	13.89%	0.56	10.89%	1.28
Both Phases	8.07%	14.77%	-9.05%	23.82%	5.07%	0.21	17.11%	0.30
Subordinated Partner Level Cash Flows:								
Construction Phase (If sell on completion)	98.00%	223.00%	-54.00%	277.00%	95.00%	0.34	152.00%	0.62
Both Phases	16.14%	35.96%	-100.00%	135.96%	13.14%	0.10	116.14%	0.11



Subordinated (entrepreneurial) partner in this deal is getting *less* expected return risk-premium *per unit of risk* than the Senior (money) partner…

This suggests perhaps a modification of the deal structure is in order…

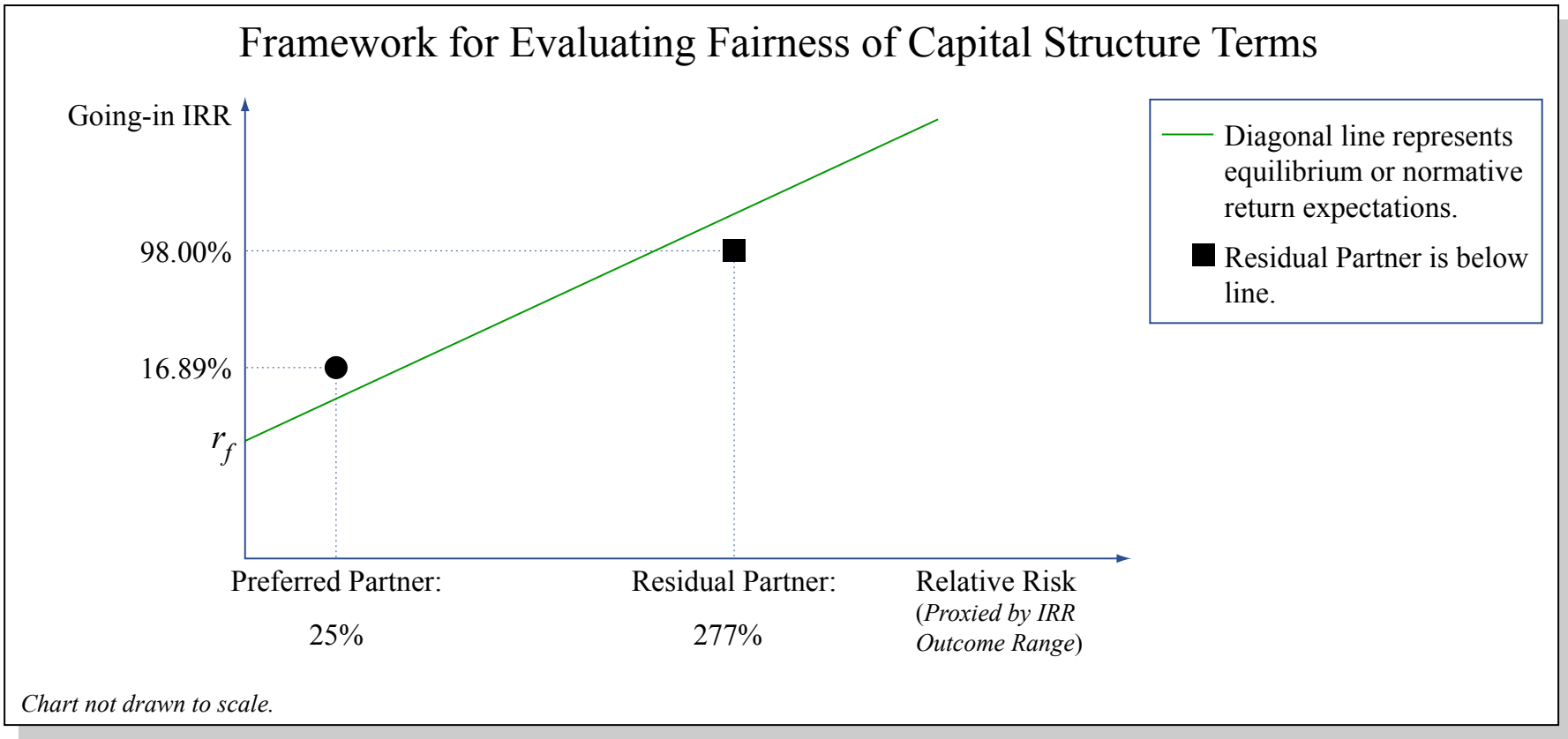


Image by MIT OCW.

(e.g., this deal structure did not include a *pro rata pari passu* component.)