Chapter 12

Financial Leverage & Alternatives
More Concepts

Financial Leverage

- What is financial leverage?
  - Using borrowed funds as part of financing structure
- What is positive financial leverage?
  - Benefit of borrowing at a lower interest rate than the rate of return on the property
  - Magnify returns to equity
- Why use financial leverage?
  - Financial advantages of leverage
  - Diversification benefits of lower equity investment
    - Can invest in other property
  - Mortgage interest tax benefit

Financial Leverage

Recourse vs Non-Recourse

- Guarantees vs “Property only” security

Recourse debt *(typical unless a specific non-recourse clause)*

- Borrower is responsible for repayment
  - Guarantees the repayment
  - Can be sued for a “deficiency judgement”
  - Equity investment understates true investment

Non-recourse debt

- Property is the only security
- Can be viewed as a put option *(out of the money)* for the borrower

Financial Leverage

Text provides a theoretical model of leverage that applies finance theory using IRR.

“In theory, theory and practice are the same. In practice, they are not.”

Quote attributed to Einstein

Financial Leverage – Risks

Can you make the payments? (“cover the debt service”)

Can you pay principal when due?

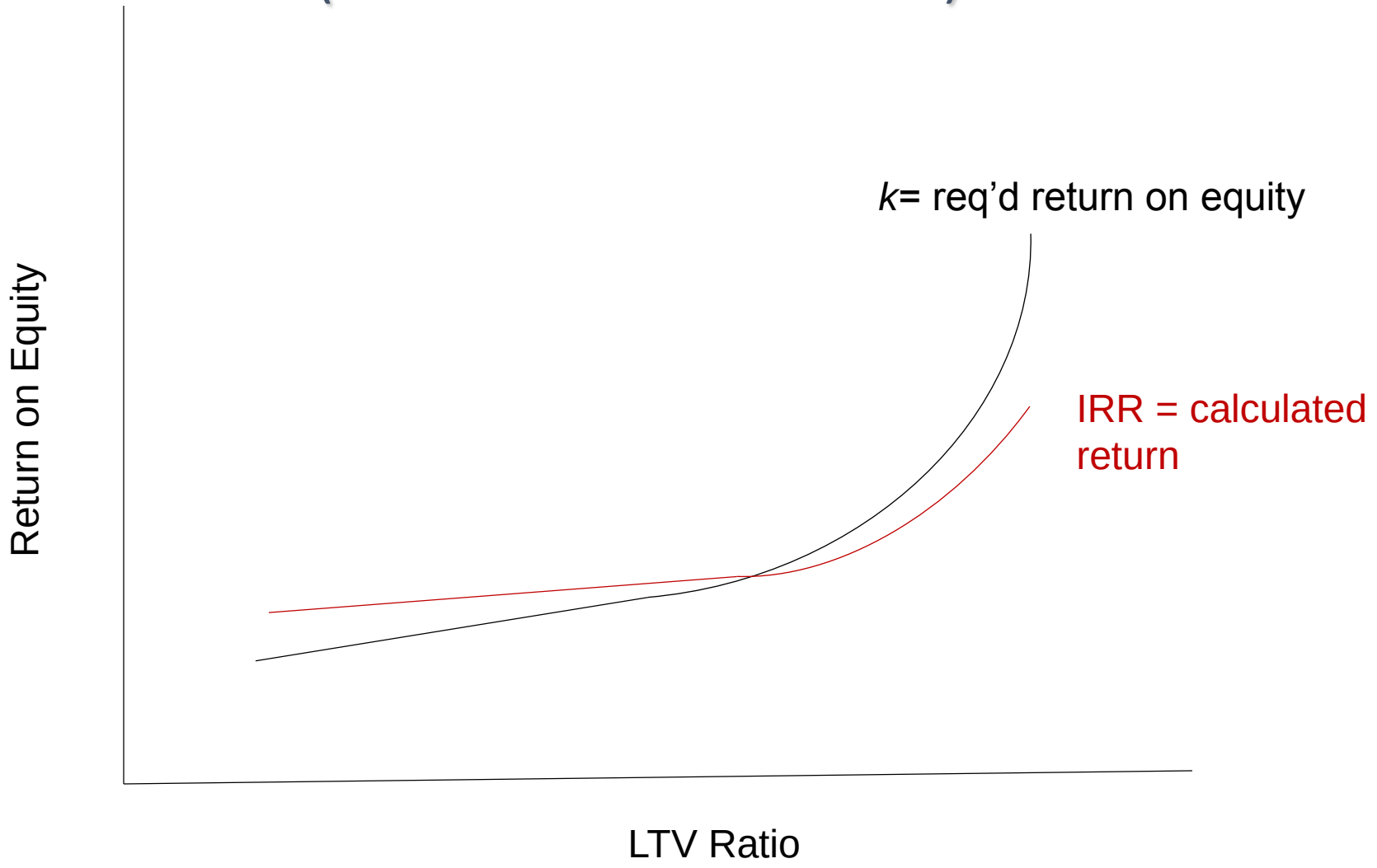
Bullet loan (also called “Balloon”)

- Any loan that has a large principal balance coming due.
- All interest only loans
- 30 year am with a 10 year “maturity” (or “term”)

Financial Leverage – Other Concepts

- Limitations on amount of debt from lender
  - Debt coverage ratio restrictions
  - Higher loan to value ratios are riskier to lenders (as well as equity owners). If the LTV is too high, the interest rates on debt will be higher.
- Higher debt levels increase risk to equity investor which increases required return for investor.
- Negative Financial Leverage
  - Leverage can work against you if the rate on the debt is greater than the return on the property.
  - The use of debt reduces the return on equity.
- See Text Exhibit 12-5 (see next slide)
  - What about investors "required return"?

Risk increases with Debt (revised from text)



Financial Leverage: Taxation

- Taxation adds an additional issue
- Benefit of tax deductible interest
- From an "After tax" perspective, leverage may be even more advantageous
- *After tax cost of debt* $= r_d * (1-t)$
- Text reviews this in detail
- In theory, you could handle higher interest on debt until you hit a "*break even interest rate*" potentially even greater than the return on the property (see example in text where debt rate goes to 12.17% on a property yielding 12.00%!)

Risk increases with Leverage
How can we measure Risk?

- Pure financial analysis of IRR's (before or after tax) fails to incorporate Risk

- Standard Deviation is a measure of risk.
  - Exercise in text attempts to show how risk might be measured in a real estate financing arrangement. (Std. deviation)
  - Review tables on next slide

  - Standard deviation as a measure of risk has limitations as well. (More on this in Ch. 13)

Unleveraged

	(1) Estimated $BTIRR_P$	(2) Expected $BTIRR_P^*$	(3) Deviation (1) − (2)	(4) Squared Deviation	(5) Probability	(6) Product (4)(5)
Pessimistic	7.93	13.06	−5.13	26.31	0.20	5.26
Most likely	12.56	13.06	−0.50	0.25	0.50	0.12
Optimistic	17.31	13.06	4.25	18.07	0.30	5.42
					Variance	10.81

Standard deviation = $\sqrt{10.81}$ = 3.29

Leveraged

	(1) Estimated $BTIRR_P$	(2) Expected $BTIRR_P^*$	(3) Deviation (1) − (2)	(4) Squared Deviation	(5) Probability	(6) Product (4)(5)
Pessimistic	−5.09	26.49	−31.58	997.36	0.20	199.47
Most likely	25.99	26.49	−0.50	0.25	0.50	0.13
Optimistic	48.38	26.49	21.89	479.13	0.30	143.74
					Variance	343.34

Standard deviation = $\sqrt{343.34}$ = 18.53

*− 5.09(.2) + 25.99(.5) + 48.38(.3) = 26.49%.

Risk increases with Leverage
How can we measure Risk?

- Anything that can affect cash flow

- DCR *(aka Debt Service Coverage Ratio DSCR) NOI / D.S.*
- LTV (loan to value)
- NOI/Debt Amount (sometimes called **Debt Yield** – as this is the yield the lender would have if they foreclosed)

- Tenant rollover risk (including # and size of tenants)
  - Example:

    20% of space rolls over in 2 years

    40% in next 5 years

Incremental Cost of Debt
$10,000,000 Value Property

(Assume unleveraged IRR of 15%)

- Option A (interest only)
- 80% LTV @ 10%
- 8,000,000

- Option B (interest only)
- 90% LTV @ 11%
- 9,000,000

Do we have “positive financial leverage”?

Incremental cost on the extra $1,000,000? (i only analysis)

$$\frac{990{,}000 - 800{,}000}{1{,}000{,}000} = 19\%$$

Incremental Debt - Mezzanine Loans

(a subordinate loan position with a higher yield)

- Option A
- 80% LTV @ 10%
- 8,000,000

- Option B (with Mezz)
- 8,000,000 @ 10%
- 1,000,000 @ 19%

Incremental cost on the extra $1,000,000?

Option B is the Same (economically) as Option B on prior slide

Underwriting Loans – Lender's Perspective

- Market Study and Appraisal
- Borrower Financial Statements

- **Debt Coverage Ratio** (DCR)
  - a.k.a Debt Service Coverage Ratio (DSCR)
- **Loan to Value Ratio** (LTV)

Maximum Loan Amount – Amortizing loan

- Lender quote:
  - DCR Min 1.3
  - LTV Max 70%
  - 30 year fixed @ 7%

- Property NOI = 700,000
- Purchase Price = $10,000,000

- What is maximum loan amount?

Maximum Loan Amount - Amortizing

- Lesser of:
  - DCR Limit
    - 700,000 ÷ 1.3 = $538,462 = maximum annual debt service
    - ÷ 12 months = $44,872 = maximum monthly D.S.
    - Convert payment ($44,872) to Max Loan amount
    - PMT = $44,872, n =360, i = (7% ÷ 12), CPT PV
    - Loan Amount: $6,744,570
  - LTV Limit
    - 70% of $10 million
    - Loan amount: $7,000,000

Loan Limit: $6,744,570

Maximum Loan: What if "Interest Only"

- Lesser of:
  - DCR Limit
    - 700,000 ÷ 1.3 = max annual payment = $538,462
    - If interest only this can be "capitalized" like a perpetuity:
      - $538,462/.07 (annual payment/annual rate)
      - = $7,692,300
  - LTV Limit (same)
    - 70% of $10 million
    - Loan amount: $7,000,000

Loan Limit: $7,000,000

Underwriting Loans

- Possible Mortgage Covenants
  - Approval of (major) new leases by lender
  - Approval of (major) lease modifications by lender
  - Borrower must submit periodic financials
  - Annual property appraisal
  - Notify lender of legal problems
  - Notify lender when correcting property defects
  - Lender has right to visit

  The lender's goal is to insure that the value and income-producing ability of the asset is not impaired.

Underwriting Loans: Early Payoff?

- Lockout Clause
  - Prohibits prepayment of loan for a specified period of time – Why?
- Defeasance: borrower substitutes alternate collateral
- Prepayment Fees
  - Yield Maintenance Fee
    - Guarantees a yield to the lender after a lockout period expires
    - See Problem 12-8 for example
  - Fixed Fee: Sometimes the fee is negotiated in advance as a percentage of the outstanding balance. This may change over time.(See next slide).

Simple Prepayment Penalty Schedule 10 year term

Year of Prepayment	Penalty on Outstanding
1	5.00%
2	4.25
3	3.75
4	3.25
5	2.75
6	2.25
7	1.75
8	1.25
9	0.75
10	0.25

Alternative Financing Structures

- Why?
- Mismatch between property income in the early years and constant payment loans
- Income is expected to increase
  - Inflation effects
  - New building not fully leased when loan is made
  - Leases may be below market
- Different loan structures available to deal with this
- Goal: Structure loan with lower initial payments

Alternative Financing Structures

- Interest Only Loans:
  - No amortization for a specified period
  - Balloon payment (or amortization begins later, say after 3 years)

- Accrual Loans
  - Negative amortization
  - Pay Rate
    - Lower than true i rate thus “negative am” and “accrued i”)
  - Accrual Rate
    - Actual interest rate used to calculate the interest charged
  - Accrual loans can be dangerous for a borrower as the amount owed becomes greater over time.

Alternative Financing Structures

- Equity Participation Loans
  - Lower interest rate from lender
  - Lender shares in property cash flow
    - Percent of PGI, NOI, or BTCF, etc.
    - “Equity kicker”
  - Lender motivations
    - Guaranteed minimum return and some protection of real return
  - Investor motivations
    - Easier to meet debt service requirements
    - Higher leverage (less equity) than otherwise

Alternative Financing Structures

- Participation Example: Master Excel tab – Ch12 Participation (ties in with text example)

Alternative Financing Structures

Mezzanine (“Mezz”) loans

- 2nd lien real estate lender (usually)
- High risk, high return financing
- Participation
- IRR expectations (catch up adjustments)
- Permission of 1st lien holder

Alternative Financing Structures

- Sale Leaseback

- Typical “Sale-Leaseback”
  - Corporate owner sells his property (land & building) and leases it back for an extended period

- “Sale Leaseback of Land” as financing alternative (not a common structure)
  - Investor acquires land & building, sells (and leases back) the land and finances building separately (now subject to a land lease).

Interest Rate Swaps

And Credit Default Swaps

See Concept Box 12.1 in text

Floating rate debt can be “swapped” for fixed rate risk (and vice versa).

Reference for CDS and the financial crisis:

The Big Short by Michael Lewis