


Fin 5433



Chapter 12:
Financial Leverage and Financing Alternatives

Financial Leverage **How are you paying for your assets?**

- What is financial leverage?
 - Benefit of borrowing at a lower interest rate than the rate of return on the property (positive leverage).
- Why use financial leverage?
 - Diversification benefits of lower equity investment
 - Can invest in other properties with the same amount of equity
 - Mortgage interest tax benefit - reduce your effective tax rate
 - Magnify returns if the return on the property exceeds the cost of debt

Financial Leverage: Before-Tax

- Positive Financial Leverage
 - Returns are higher with debt (i.e. a mortgage)
- Unlevered BTIRR
 - Return with no debt
- If unlevered BTIRR > interest rate on debt
 - The BTIRR on equity increases with debt.
 - There is positive financial leverage.
 - Show example using proforma

Financial Leverage: Before-Tax

- $BTIRR_E = BTIRR_p + (BTIRR_p - BTIRR_D)(D/E)$
 - $BTIRR_E$ = Before-Tax IRR on equity invested
 - $BTIRR_p$ = Before-Tax IRR on total investment in the property
 - $BTIRR_D$ = Before-Tax IRR on debt (effective cost including points)
 - D/E = Debt/Equity ratio (Debt is your Mortgage)

Example - Leverage

- $BTIRR_E = BTIRR_p + (BTIRR_p - BTIRR_D)(D/E)$
- Assume mortgage rate is 6% ($BTIRR_D$) and return on building is 8% ($BTIRR_p$) and you put 25% down. Thus $D=75$ and $E=25$.
- $BTIRR_E = 6\% + (8\% - 6\%)(75/25) = 12\%$
 - Illustrate with proforma with a bullet loan with no points
 - Why use a bullet loan with no points?

Financial Leverage: Before-Tax

- The equation shows that as long as:
 - $BTIRR_p > BTIRR_D$, then $BTIRR_E > BTIRR_p$
 - This implies increasing D/E increase $BTIRR_E$
 - **But**
 - The use of debt is limited to allowable LTV ratios and debt coverage ratios
 - Higher loan to value ratios are riskier to lenders leading to higher interest rates which can negate the benefit of leverage
 - Higher debt levels increase risk to equity investor
 - This is an application of MM propositions

Financial Leverage: Before-Tax

- Negative Financial Leverage
 - If $BTIRR_D > BTIRR_P$, then $BTIRR_E < BTIRR_P$
 - The use of debt reduces the return on equity.
 - Using debt in a negative equity situation is non sensible
 - In fact, because the equity is more risky than the debt, a negative equity situation says you should sell your equity, but of course no one will buy until the price is low enough so that the return to equity will rise to create a positive leverage situation

Financial Leverage: After-Tax

- $ATIRR_E = ATIRR_P + (ATIRR_P - ATIRR_D)(D/E)$
 - $ATIRR_E$ = After-Tax IRR on equity invested
 - $ATIRR_P$ = After-Tax IRR on total investment in the property
 - $ATIRR_D = BTIRR_D (1-t)$ where t is tax rate
 - After-Tax IRR on debt (effective cost after taxes including points)
 - The leverage effect will generally be higher on $ATIRR$ because of the tax deductibility of interest
 - Show Proforma w/Bullet loans with no points

Breakeven Interest Rate

- If $IRR_P = IRR_D$ then there will be neutral leverage – that is the IRR_E will not change as more debt is used. This indicates the project is mispriced
- If $IRR_P < IRR_D$ then there will be negative leverage – that is the IRR_E will decrease as more debt is used. This indicates the project is severely mispriced.
- One can solve for breakeven interest rates by trial an error using a proforma.

Incremental Cost of Debt

- When leverage exceeds a certain threshold, the bank may be willing to extend credit at a higher interest rate. If the 6% loan can be had with 35% down and a 7% loan with 20% down, the incremental cost may be higher than it looks. Suppose one can obtain a 5 year bullet loan in either case and we are considering a 1,000,000 building so the loan choices are 650,000 or 800,000.

Compute Incremental Interest Cost

Loan Amount	Compute Payment	Payment
80% LTV: 800000	$800000 * 7 / 1200$	4666.67
65% LTV: 650000	$650000 * 6 / 1200$	3250
Incremental: 150000		1416.67

- It costs 1416.67 per month for the incremental 150000 which is a monthly costs of $1416.67 / 150000 = 0.94\%$ per month which is an APR of 11.33% on the additional amount financed. If the building return is 10%, then you have positive leverage up to 65% leverage, but you have negative leverage on the remaining amount you borrow.
- Even if there was some small positive leverage gain from the higher LTV, one would have to assess whether it was worth taking on the additional risk

Leverage and after tax return

- One reason that investors may choose real estate investments is for the tax effects. When one depreciates a building for tax purposes, but the building is not decreasing in value, one is delaying when the income tax is due to when the building is sold.
- Uncle Sam collects this as depreciation recapture but waits until the building is sold, and it is typically lower than the ordinary income tax rate
- The gain can further be delayed through a 1031 exchange

Leverage and after tax return

- To assess the effective tax rate on a real estate investment one can compare the before and after tax IRR. The effective tax rate can be computed as: $t = (BTIRR_E - ATIRR_E) / BTIRR_E$
- Example: If $BTIRR_E = 10\%$ and $ATIRR_E = 8\%$ then there is an effective tax rate of 20%. If the investor was in a 40% tax rate for ordinary income, this represents a large reduction.
- It is common for the effective tax rate to decline as more leverage is used. (Use proforma to illustrate)

Risk and Leverage

- The owner has to meet all costs including the mortgage payment to prevent foreclosure
- As more leverage is used it becomes increasingly likely that there will not be enough cash generated by the building to pay the mortgage, especially in times of tenant losses
- Using less leverage decreases the likelihood of a foreclosure and thus is a less risky investment for the investor (although it provides a lower return)

Underwriting Loans

- Market Study (Detroit versus San Antonio)
 - Bankers won't lend if they feel the market will not support your projections
 - High quality leases can support a loan event in a poor market
 - Appraisal
- Borrower Financial Statements
 - Nonrecourse clause (borrower has put option – what is this worth)? Common, but today trying for more recourse
- Loan to Value Ratio
- Debt Coverage Ratio: NOI/Mortgage Payment

Underwriting Loans

- What else may be stipulated in the
 - Approval of new leases by lender
 - Approval of lease modifications by lender
 - Approval of construction by lender
 - Borrower submits periodic building financials
 - Borrower provides an annual building appraisal
 - Borrower notifies lender of an potential or pending lawsuits
 - Lender has right to visit and inspect property

Underwriting Loans

- Additional Considerations:
 - Annual property appraisal
 - Notify lender of legal problems
 - Notify lender when correcting property defects
 - Lender has right to visit

Underwriting Loans - Prepayment

- Lockout Clause
 - Prohibits prepayment of loan for a specified period of time
- Prepayment Penalty (percent of loan balance)
- Yield Maintenance Fee
 - Guarantees a yield to the lender after a lockout period expires if loan paid off earlier. Computed on the present value the lender loses by investing in Treasuries or some alternative rather than the mortgage
- Defeasance
 - Requires the borrower to submit Treasury securities that would match the cash flows of the loan

Alternative Financing Structures

- Maybe a mismatch between early year property income and constant payment loans. Income is expected to increase because:
 - Inflation effects (lease may have CPI adjustment)
 - New building not fully leased
 - Leases may be below market
- **Solution:** Create a different loan structure

Alternative Financing Structures

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

Alternative Financing Structures

- **Sale-Leaseback of Land**
 - Own building and lease land from a different investor (you are financing the land and the building separately – one via lease and the other via mortgage). Lease may be subordinated to mortgage
- **Motivations**
 - 100% financing possible
 - Lease payments are tax deductible
 - Building is depreciable; land is not
 - Possible purchase option at end of lease (if the area increases in value, it will show up in higher land prices)

Alternative Financing Structures

- **Interest Only Loans: “Bullet Loans”**
 - No amortization for a specified period (increases DCR)
 - Balloon payment or amortization afterward
- **Accrual Loans**
 - Negative amortization (riskier to lender – higher rate?)
 - Pay Rate
 - Interest rate used to calculate loan payment
 - Accrual Rate
 - Interest rate used to calculate the interest charged
 - May be structured as a Graduate Payment Loan

Alternative Financing Structures

- **Structuring the payment for a targeted debt coverage ratio**
 - Not always fully amortizing
 - May require balloon payment and end of term
- **Convertible Mortgage**
 - Lender has an equity investment option which may be held or possibly sold. Example – at end of loan, lender gets a predetermined interest in the property (say 65% of sale price), or the scheduled loan payoff, whichever is higher.
- **Mezzanine Loan**