Double Leverage and Revenue Requirement

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Opening Thoughts

DOUBLE LEVERAGE IS A HIGH-RISK FINANCIAL STRATEGY

- Magnifies Returns
- Magnifies Losses
- Financial Flexibility
- Financial Strain
- Mask Risk Exposure
- Regulatory Risk

What is Double Leverage

Financial Leverage: Borrowing capital to invest in assets

Double Leverage: A corporate financing structure in which a *parent company issues debt* to *invest in the equity* of subsidiaries.

Key component: Parent has management control of subsidiary!

Not a New Concept

Central to Public Utility Holding Company Act of 1935

- **SEC Authority to Break up Electric Utility Holding Companies**
- **Limited Holding Company Operations to Single State**
- **Limited Holding Companies to two tiers**
- **Limited regulated utility businesses from engaging in unregulated businesses (required SEC approval)**

Repealed in 2005

Cost of Capital Impact

ENHANCED EARNINGS POTENTIAL:

- Enables a utility holding company to potentially exceed their regulated authorized return on equity.
- Parent pays lower cost on its debt than what is included in cost of equity (including taxes) in rates.

RISK CONTAMINATION:

- Parent-level leverage can affect the financial stability of the subsidiaries (increased risk from parent)

TRANSPARENCY ISSUES:

- Double leverage can obscure a firm's true risk exposure, complicating regulatory assessment

REGULATORY IMPLICATIONS

- Requires careful evaluation of business risk, financial risk, cost of debt, and appropriate cost of equity in rates

Revenue Requirement

REVENUE REQUIREMENT (general form) = O+T+D+ (RB*ROR)

O = Operating Expenses
T = Taxes (corporate income taxes + other taxes)
D = Annual Depreciation Expense
RB = Rate Base
ROR = Overall Rate of Return (WACC)

Authorized Rate of Return

- For regulatory purposes, authorized rate of return is the composite Weighted Average Cost of Capital (WACC)

$$\textbf{WACC}=W_d\,R_d + W_e\,R_e + W_o\,R_o$$

- Capital Structure (leverage) is a key component in determining WACC

$$\textbf{Capital Structure}= W_d + W_e + W_o$$

- All components of the WACC are affected by financial leverage

Authorized Rate of Return

ALL COMPONENTS OF THE WACC ARE AFFECTED BY FINANCIAL LEVERAGE
(Modigliani Miller Theorem)

Equity = (1-Debt)

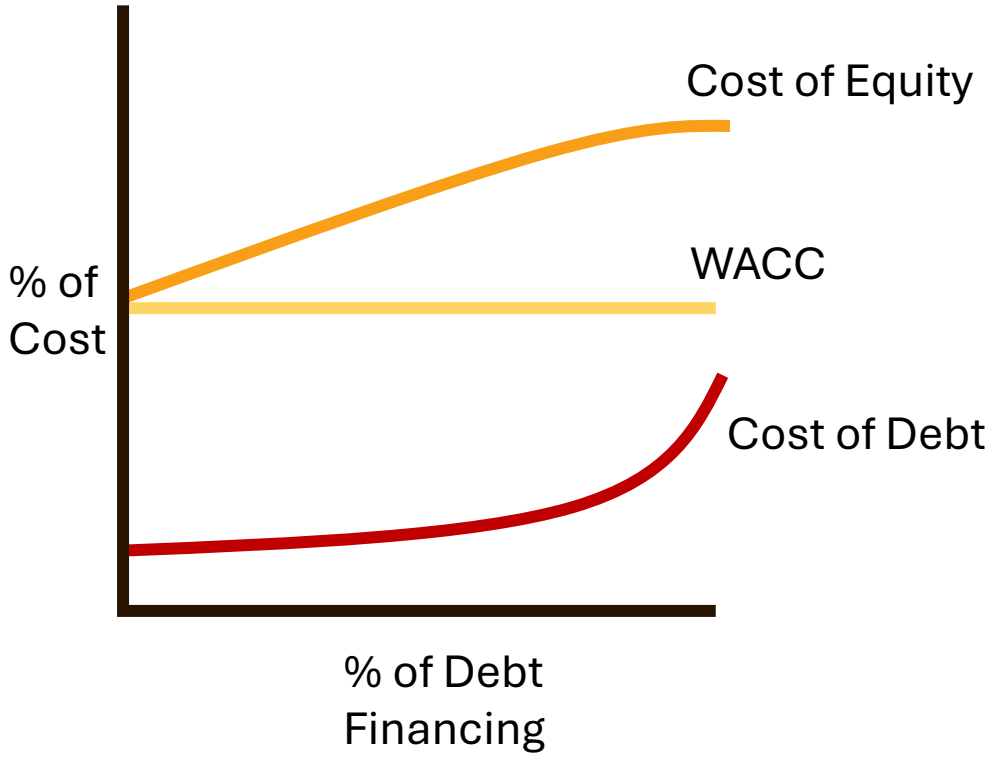
Changing percent of debt alters financial risk

Changes cost of new debt

Changes cost of equity

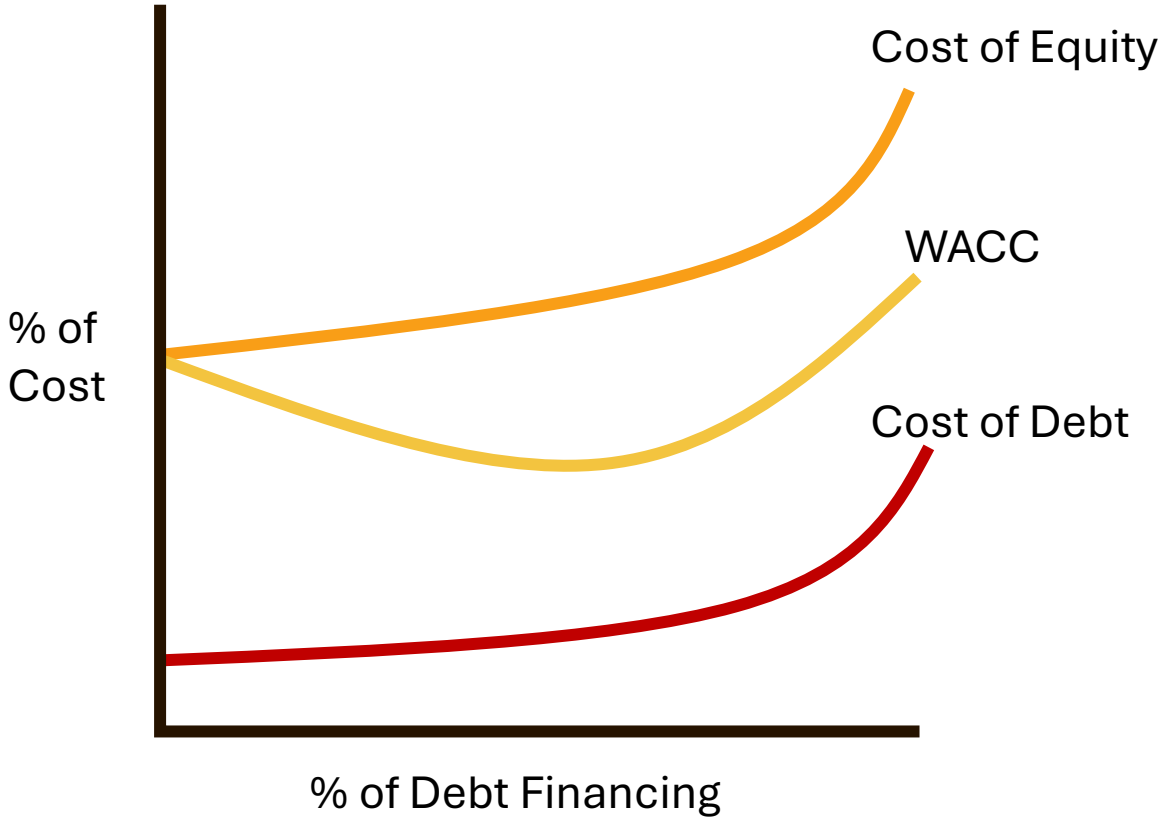
As a component of capital structure, double leverage is mathematically embedded in the Revenue Requirement calculation

Modigliani Miller Theorem 1958



As % of Debt increases, both the cost of equity and the cost of debt increase.

Modigliani Miller Theorem with Taxes



The tax benefit of Debt and the transaction costs provide financial cost benefit to the weighted average cost of capital to a point after which the increasing component costs outweigh the tax benefits.

WACC Sub Capital Structure

Booked Capital Structure

Financing		Rate		Weighted Cost
Debt %	X	Cost	=	Weighted Cost of Debt
Equity %	X	Cost	=	Weighted Cost of Equity
				WACC

Parent Capital Structure Considered

Double Leveraged Capital Structure

- Capital is being directly supplied by the parent
- Parent capital is a mix of debt and equity
- Subsidiary issues debt
- In this case, parent capital represents subsidiary equity

Double Leveraged WACC

Double Leveraged Capital Structure

Subsidiary Debt%	X	Cost	=	Subs Weighted Cost of Debt
Sub Equity % X PDebt%	X	PCost Debt	=	Weighted Cost of PC Debt
% X PEquity%	X	Cost of Equity	=	Weighted Cost of Equity
				WACC

Parent & Subsidiary WACC Example

Subsidiary Capital Structure

Financing	Percent		Rate		Weighted Cost
Debt	50%	X	5%	=	2.50%
Equity	50%	X	10%	=	5.00%
					7.50%

Parent Capital Structure

Financing	Percent		Cost		Weighted Cost
Debt	50%	X	5%	=	2.50%
Equity	50%	X	10%	=	5.00%
					7.50%

Double Leverage Impact on WACC

Double Leveraged Capital Structure

Financing	Percent		Cost		Weighted Cost
Debt	50%	X	5%	=	2.50%
Parent Debt	25%	X	5%	=	1.25%
Parent Equity	25%	X	10%	=	2.50%
					6.25%

In this case, the WACC in rates is 125 basis higher than the cost (7.5% - 6.25%)

Rates vs Market Cost of Capital
Rates are Based on Pre-Tax ROE

Income Taxes are an Expense

- Included in the revenue requirement
- Thus, cost of equity to ratepayers is different than the market cost

Usually, the Revenue Requirement Difference found in Accounting Adj. (gross revenue conversion factor)

Financial: (Pre-Tax Cost of Equity = Post-Tax Cost of Equity/(1-Tax Rate)

Ratepayer Cost of Equity
Cost of Equity With Tax

Subsidiary Pre Tax WACC

Percent		Cost	Tax	Pre-Tax Cost		Pre Tax Weighted Cost
50%	X	5%		5.0%	=	2.50%
50%	X	10%	25%	13.33%	=	6.66%
						9.16%

Double Leverage Pre Tax WACC

Financing	Percent		Cost	Tax	Pre-Tax Cost		Pre Tax Weighted Cost
Debt	50%	X	5%		5.00%	=	2.50%
Parent Debt	25%	X	5%		5.00%	=	1.25%
Equity	25%	X	10%	25%	13.33%	=	3.33%
							7.08%

In this example, WACC in rates is 208 BP higher than cost

Tax Implications

Subsidiary Pre Tax WACC

Percent		Cost	Tax	Pre-Tax Cost		Pre Tax Weighted Cost
50%	X	5%		5.0%	=	2.50%
50%	X	10%	25%	13.33%	=	6.66%
						9.16%

Double Leverage Pre Tax WACC

Financing	Percent		Cost	Tax	Pre-Tax Cost		Pre Tax Weighted Cost
Debt	50%	X	5%		5.00%	=	2.50%
Parent Debt	25%	X	5%		5.00%=	1.25%	
Equity	25%	X	10%	25%	13.33%=	3.33%	
							7.08%

- ***Subsidiary*** Pre-Tax WACC (cost in rates) is 166 basis points higher than Post-Tax WACC (market cost) (9.16-7.5) due to tax (pure cost consideration, ratepayer vs market)
- ***Double leveraged*** Pre-Tax WACC is 208 basis points higher than the WACC in rates (9.16% – 7.08%)
- Double leverage tax impact is 42 basis points (difference between rate increase with and without double leverage when adjusting for tax)
- There is a ***tax component*** to double leverage

Identification of Double Leverage

DOUBLE LEVERAGE TEST

Leverage Ratio = Total Equity Investment in Subsidies/ Holding Company Equity

Entity	Holding Company	Sub 1	Sub 2	Sub 3	Total Sub	%
Equity	$100	$55	$30	$25	$120	120%

- If the value exceeds 100%, the parent is using debt to fund equity investments
- Simple and straightforward for pure holding companies
- More complex for mixed (operating) holding companies

Operating Holding Company Complications

Entity	Holding Company	Sub Equity	HC Ops	Total Sub	Ratio
Equity	$100	$120	HCO	$120	Subequity/Equity-HCO

- What is a reasonable allocation for the holding company operations?
- Are the operations at the holding company similar to those of the subsidiaries?
- Are the holding company operations regulated operations? Service Companies?
- Subtract from equity available for investment in subsidiaries.

What to do with the Facts

Threshold: Acknowledge Existence

Impact

- Overstating actual cost to regulated utility?
- Increased risk, shifted to ratepayers?
- Reduced transparency of control and financial impact

Apply in Proceedings

- Rate Cases
- Mergers and Acquisitions
- Alternative Ratemaking Cases

Rate Cases: ROE Standards

Goal of regulators: Just and Reasonable Rates, Applies to Cost of Capital

Sufficient: (Hope and Bluefield)

Maintain Financial Integrity (cost of debt is an operating cost)

Attract capital

Commensurate with Investments of Similar Risk

Not Excessive:

Representative of Regulated Utility Operations

Rate Cases: Considerations of Secondary Effects

If Double leverage exists, is the cost of capital in rates excessive?

What is reasonable for the component costs?

Any modifications must be made with consideration of secondary effects!

Rate Cases: Capital Structure Approaches

What Capital Structure is Appropriate for Ratemaking?

1. Stand Alone
2. Consolidated Capital Structure
3. Apply Double Leverage Calculation
4. Hypothetical capital structure, develop an expected utility capital structure and costs

Bonbright

THE PRINCIPLES OF PUBLIC UTILITY RATES (1961)

James C. Bonbright

Cautioned that a hypothetical capital structure substitutes what "would be under nonexisting conditions for what is actually is or will soon be under prevailing conditions."

However "But if the existing security structure is clearly **unsound or is extra conservative**, the rule must be modified in the public interest. Actual cost of capital may then be disqualified in favor of legitimate cost." at 244

1. Stand Alone

- Ignore Relationship with Parent
- What would the Component Costs be for a Rate Regulated Utility (expected)?
  - Assume Independent Financing (Market Based)
    - What is the Cost of Equity for a Stand-Alone Utility
    - What is the Cost of Debt for a Stand-Alone Utility
    - Is the Book Capital Structure Appropriate

May use comparable companies to determine appropriate weights.

- May look similar to current cost of capital values and calculations.

(Not to be confused with hypothetical, that may look for ideal.)

2. Consolidated Capital Structure

Utilizes the Parent Consolidated Capital Structure

Benefits

- Simple
- Reflects all debt used in the corporate structure
- More accurately reflects tax realities
- Not as controversial as imputing double leverage or other adjustments

Concerns

- Inconsistent with actual operations
- May not recognize the equity needs of different operations, such regulated vs unregulated (increase cost for unregulated operations, abnormal debt levels for unregulated operations)
- Overlooks impact of double leverage
- Impact on cost of components, higher cost of debt and equity
- Support or risk associated with the corporate structure

3. Impute Double Leverage

Account for Parent Debt used as Equity

- Mathematically: simple to apply, easy to defend the calculation
- Questions regarding component costs of capital
  - Does the cost of equity reflect the financial risk of the leverage capital structure?
  - Does the cost of debt at the subsidiary level reflect the higher risk?
  - Case specific. A subsidiary with a booked 60 percent equity that is double leveraged may have a 40 percent equity. A capital structure with 60 equity might be authorized the same ROE as that with 40 percent equity, without any adjustment.

4. Hypothetical Capital Structure

DEVELOP AN IDEAL UTILITY CAPITAL STRUCTURE AND COSTS

CONCEPTUALLY INVITING

Meets goal of just and reasonable

Arguably protects against excessive costs

CREATES INCENTIVE FOR GAMING

Increased leverage increases return on equity without review

DOES NOT HAVE FOUNDATION IN ACTUAL COSTS

What are appropriate costs for debt and equity?

Ignores reality of double leverage

Leveraged Buyout

Leveraged Buyout (sale/purchase):

- Is a *new capitalization*
  - Transaction can alter the capital structure at the parent or subsidiary level
  - Expect it to change the WACC
- Transaction often separates actual cost from those used in rate setting
- The increased leverage can produce excess earnings (fund the purchase)

Example of a Leveraged Buyout

Parent Level Financing

Original

Debt	50%	X	5%	=	2.50%
Equity	50%	X	10%	=	5.00%
					7.50%

Post Buyout

Debt	33%	X	5%	=	1.65%
Hybrid Securities	33%	X	6%	=	1.98%
Equity	33%	X	10%	=	3.30%
					6.93%

Leveraged Buyout and Double Leverage

Subsidiary Pre-Tax WACC

Financing	Percent		Cost	Tax	Pre-Tax Cost		Pre Tax Weighted Cost
Debt	50%	X	5%		5.0%	=	2.50%
Equity	50%	X	10%	25%	13.33%	=	6.66%
							9.16%

Double Leverage WACC Pre Tax

Financing	Percent		Cost	Tax	Pre-Tax Cost		Pre Tax Weighted Cost
Debt	50.0%	X	5%		5.00%	=	2.50%
Parent Debt	16.5%	X	5%		5.00%	=	.82%
Parent Hybrid	16.5%	X	6%		6.00%	=	1.00%
Equity	16.5%	X	10%	25%	13.33%	=	2.20%
							6.52%

263 basis point spread

Arms and Behavior Incentives

The same basic concepts that apply in a rate cases apply to automatic adjustments

Assumptions: using subsidiary capital structure and rates move with capital structure

- If double leverage is not captured
  - Incentive to increase the percent of equity at the subsidiary level
    - Can increase the double leverage impact while increasing rates
  - Incentive to increase leverage at the parent level
    - Increases the double leverage impact without increasing rates

Alternative Rate Mechanisms: Fixed Capital Structure

- **Fixed Capital Structure for Revenue Requirement**
  - No review of WACC

  - **Any reduction in WACC increases earnings**
  - **Incentive to:**
    - Increase subsidiary leverage
      - Reduces WACC while increasing return on equity

    - **To increase parent leverage**
      - (No review of WACC)

Example of Floating Cap Structure

Subsidiary Capital Structure

Financing	Percent	Cost		WC
Debt	50%	5%	=	2.50%
Equity	50%	10%	=	5.00%
				7.50%

Subsidiary Capital Structure

Financing	Percent	Cost		WC
Debt	40%	5%	=	2.00%
Equity	60%	10%	=	6.00%
				8.00%

Parent Capital Structure

Financing	Percent	Cost		WC
Debt	50%	5%	=	2.50%
Equity	50%	10%	=	5.00%
				7.50%

Parent Capital Structure

Financing	Percent	Cost		WC
Debt	50%	5%	=	2.50%
Equity	50%	10%	=	5.00%
				7.50%

Double Leveraged Capital Structure

Financing	Percent	Cost		WC
Debt	50%	5%	=	2.50%
Parent Debt	25%	5%	=	1.25%
Parent Equity	25%	10%	=	2.50%
				6.25%

DL Gain 125 BP

Double Leveraged Capital Structure

Financing	Percent	Cost		WC
Debt	40%	5%	=	2.00%
Parent Debt	30%	5%	=	1.50%
Parent Equity	30%	10%	=	3.00%
				6.50%

DL Gain 150 BP

A 25 BP gain with a 50 BP Increase in Subsidiary Cost of Equity

Notes of Caution

Double leverage is a controversial topic and attracts attention

Bond ratings may have limited applicability in assessing business risk double leverage!

- Bond ratings are common for senior bonds and senior bond default risk, not a general business rating
- Hybrid securities are often given partial equity treatment in bond ratings
  - Increase capital structure complexity,
  - Potential liquidity risks and valuation volatility for the company that are not captured
  - Opportunity for confusion, representation of bond rating treatment vs book financing

Last Thoughts and Questions

- Double leverage is not a new topic, however, its regulatory relevance is arguable more significant than it has been since 1935
- Double leverage can obscure the true cost of financing utility operations, creating potential for economic profit
- Double leverage amplifies financial risk, which can translate into higher component costs