Lease & Loan Pricing - Basic

2017 ELFA
Lease & Finance Accountants Conference

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Introductions

• Panelists
• Participants
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Objectives

• This session will cover the key elements of pretax lease and loan pricing from the lessor perspective and introduce after-tax lease and loan pricing concepts.

• Topics will include lease pricing and policies, lessor return measures, and the differences between economic pricing and pricing based on accounting rules.

• Questions to be addressed:
  – What are the key concepts of lease and loan pricing?
  – What are the key metrics used in lease and loan pricing?
Overview

• Strategic & Tactical Goals of Lease Pricing
• Foundational Concepts
• Finance & Tax Concepts
• Yields
• Beyond Pricing
• Examples and Case Studies
Lease Pricing:
Strategic & Tactical Goals
The Strategic Goal of Lease Pricing

• The strategic goal of lease pricing is to support the business model.

  – Pricing assumptions and targeting metrics should be aligned with how management and shareholders measure performance while also focusing on sustainable growth.

  – Pricing assumptions and expected results for each product offering should underlie business plans, budgets and forecasts, and afford the basis for variance analysis.

  – Pricing results should be the basis upon which incentive compensation is paid—a sharing of value created to achieve alignment of interests.
The Tactical Goal of Lease Pricing

To structure a lease that meets the lessor’s and lessee’s economic, accounting and tax objectives.

• Lessor
  – Economics: achieve a defined, targeted rate of return.
  – Accounting: mirror the economics (generally capital lease accounting).
  – Tax: maximize the available tax benefits while minimizing re-characterization risk (passing true lease tests).

• Lessee
  – Economics/tax: net advantage to lease-vs-borrow or lease-vs-buy, both quantitatively and qualitatively.
  – Accounting: differentiate based on the substance or the form of risk/reward shifting.
Foundational Concepts
### Foundational Concepts, 1

**Operating lease**

An operating lease is a lease whose term is short compared to the useful life of the asset or piece of equipment (an airliner, a ship, etc.) being leased. An operating lease is commonly used to acquire equipment on a relatively short-term basis.

**Capital lease**

A capital lease is a lease in which the lessor only finances the leased asset and all other rights of ownership transfer to the lessee.
### Foundational Concepts, 2

| **True lease** | A lease for federal tax purposes that fails to meet all of the tests for a conditional sales contract – lessor is owner. |
| **Conditional sales contract** | An agreement for the purchase of an asset in which the lessee is treated as the owner of the asset for federal tax purposes. |
Foundational Concepts, 3

**Present Value (PV)**

The value in the present of a sum of money, in contrast to some future value it will have when it has been invested at compound interest.

**Net Present Value (NPV)**

A measurement of the profitability of an undertaking that is calculated by subtracting the present values (PV) of cash outflows (including initial cost) from the present values of cash inflows over a period of time. Incoming and outgoing cash flows can also be described as benefit and cost cash flows, respectively.
Foundational Concepts, 4

**Basis point**  
One hundredth of 1%, used to express differences in interest rates: 6.5% - 6.0% = 50 basis points (bps).

**Yield**  
Income return on an investment expressed in percentage terms, e.g., 1.15% on a 5-year Treasury.

**Payment factor**  
Periodic Rent payment divided by equipment cost.  
Example: $1,500 / $100,000 = 1.5%.
Credit spread

Difference in yield between a U.S. Treasury bond and a commercial debt instrument. Includes leases treated as the functional equivalent of a loan with the same term, but with different credit quality.

Residual value

Amount lessor expects to derive from the sale or re-lease of the leased asset at lease expiration. *Priced* amount is often less than estimated fair market value (FMV) and often approximates the asset’s orderly liquidation value (OLV).

FMV is sometimes called the *retail* price (sale price to end user) while OLV is the *wholesale* price (sale price to a dealer).
### Foundational Concepts, 6

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Implicit rate</strong></td>
<td>Pretax rate which causes the present value (PV) of an annuity of rental payments + any priced, booked or expected residual to equal the initial investment.</td>
</tr>
<tr>
<td><strong>Internal rate of return (IRR)</strong></td>
<td>Interest rate at which the net present value of all cash flows (positive &amp; negative) from an investment equals zero. Significant changes in sign (+ / -) changes, e.g., leveraged leases, create multiple IRR solutions.</td>
</tr>
</tbody>
</table>
## Foundational Concepts, 7

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Return on assets (ROA)</strong></td>
<td>Periodic earnings divided by average assets; used to measure management’s efficient use of assets compared to peers.</td>
</tr>
<tr>
<td><strong>Return on equity (ROE)</strong></td>
<td>Periodic earnings divided by average equity; used to measure management’s efficient use of equity compared to peers.</td>
</tr>
<tr>
<td><strong>Pretax equivalent yield (PTEY)</strong></td>
<td>An after-tax yield grossed up by 1 minus the applicable income tax rate. 6% / (1 - 40%) = 10%.</td>
</tr>
<tr>
<td><strong>Net spread</strong></td>
<td>Lessor’s selected yield (e.g., PTEY, implicit rate) minus its cost of funds (match maturity or blended).</td>
</tr>
</tbody>
</table>
Foundational Concepts, 8

SWAP  An interest rate swap is in essence an agreement between two counterparties to swap one stream of future interest payments (usually floating payments) for another (usually fixed payments), based on a specified principal amount. The sum of the forward floating legs at the time the swap is dealt should be equal to the fixed rate.

MISF  Multiple Investment Sinking Fund is used to create a single solution when the cash flows under analysis show multiple sign (+/-) changes.
Tax benefits: Tax shield provided by accelerated depreciation plus, if applicable, deductibility of interest from nonrecourse debt. Also, deferral of taxes on sale of the residual by like-kind exchanges.

Tax credits: Dollar-for-dollar reduction in taxes that would be otherwise due to the government, e.g., 30% of cost of an investment in solar property (ITC).
Basic Lease Pricing: Finance & Tax Concepts
Time Value of Money (TVM)

- Value of leasing to lessor/lessee depends on their relative ability to utilize tax deferral/credit benefits & their respective TVM profiles (pretax & after-tax).
  - **Lessor**: generally best to receive payments (rents and/or tax benefits) as soon as possible and make tax payments as late as possible.
  - **Lessee**: generally best to defer initial rent payments and pay more later, both in terms of the stepped-up rent and the total rent increase.

**Rent deferral**
- Longer lease terms increase mismatch between rent and tax deductions
- Rent holidays and low-high payment structures increase rent deferral
- Cash rent > taxable rents under IRC Section 467

**Tax deferral**
- US tax law generally promotes investment via accelerated depreciation
- The shorter the asset class life and/or the more front-loaded the write-off (e.g., bonus and/or 200DB/SL), the greater the tax deferral

**Interest/tax rates**
- Benefit of leasing is highly sensitive to prevailing interest and tax rates
- Higher prevailing rates increase the value of rent and tax deferrals
- Greatest benefit to lower-credit/higher-rate borrowers

*Maximize Net Present Value of After-Tax Cash Flows*
Three Components of Lessor’s Return

- Lessors achieve returns and recover their investment from three sources:
  - Rents
  - Residual
  - Tax Benefits

\[
\begin{align*}
\text{Pretax yield} & \quad \text{Pretax equivalent of after-tax yield} \\
\text{After-tax yield} &
\end{align*}
\]

**Yield Measure of Tax Benefits**

\[
\text{Pretax equivalent yield} - \text{Pretax yield}
\]
Tax Benefits

- Accelerated & Bonus Depreciation are the major tax benefits.
- Other benefits include:
  - Tax credits
  - Like-kind exchange
  - Cash grants
- Maximum tax benefit may only be available to the initial owner/lessor (exception: 90 day rule).
- Captives (manufacturer lessors) have the additional benefit of sales margin deferral.
- State taxes increase tax deferral rate but reduce after-tax cash.
Pretax vs. After-Tax

• How to compare lease and secured loan pricing
  – Loans priced based on pretax cash flows
  – Leases priced based on after-tax cash flows

• Pretax equivalent of after-tax yield used to compare
  – Secured loan pricing (pretax): 6.00%
  – Lease pricing (after-tax with 35% tax rate): 4.62%
  – Pretax equivalent (1 - tax rate): 7.11%
  – Advantage to leasing – yield premium 1.11%

• Tax benefits provide a yield premium/benefit retained

• Partial pass-through of tax benefits & residual value generally reduces lease payment below loan payment
Lease Pricing: Yields
Pricing Measures: IRR

• IRR from pretax, right-of-use cash flows—rents, fees & balloon payments (excluding residual)
  
  **ADVANTAGE:** Provides apples to apples comparison where the rents are the predominant consideration.
  
  **DISADVANTAGE:** Does not reflect the pretax economics of transferring significant residual value to lessor.

• IRR from all pretax cash flows (including residual)
  
  **ADVANTAGE:** Reflects the all-in pretax transaction between the parties; allows the benefit of the residual to be measured.
  
  **DISADVANTAGE:** Does not reflect the after-tax economics of transferring significant tax benefits, if any, to lessor.

• IRR from after-tax cash flows (MISF for non-leveraged leases)
  
  **ADVANTAGE:** Comprehensive economic analysis, dividend-able.
  
  **DISADVANTAGE:** Complex, disconnected from accounting (other than leveraged leasing).
Pricing Measures: Return on Assets

- **IRR is an economic measure of return**
  - Return on Assets (ROA) is the preeminent, book-based measure of performance.

- **IRR is an investment’s cash-on-cash return**
  - ROA resets timing of tax and other cash flows to improve the predictive and feedback value to creditors and investors.
  - ROA dampens the reported return in the early years and boosts it in the later years.

- **Difference diminishes as the portfolio grows**
Pricing Measures: Return on Equity

• **Compares net income to assigned equity**
  - ADVANTAGE: Includes taxes, expenses and corporate borrowing costs; allows for comparability within the product spectrum & between divisions.
  - DISADVANTAGE: Complex, significant margin of error.

• **Key issue – what equity to assign**
  - Regulatory capital
  - Book equity
  - Economic/analytical equity

• **ROE is used more than ROA because of the variety of financial products**
  - ROE is a better overall metric
Pricing Methods
Two Examples
Cost-Plus Pricing

• **Identify & sum the costs**
  – Cost of funds
    • Market benchmark: US Treasury (Like-Maturity or Average)
    • Plus incremental borrowing cost
    • Adjust based on market instability
  – Expected credit loss
  – Administrative setup costs

• **Add profit margin**
  – Credit rating as the basis
  – Floor

• **Target to achieve all-in rate & other measures**
  – Yield: Implicit, IRR, or MISF
  – Cash: Average pretax cash (bps), after-tax cash, or net present value
Price to Market

- Obtain current market benchmarks
  - Credit spreads
  - Residuals: What’s hot, what’s not
  - Tax capacity (active players)
- “Deals won, deals lost” analysis
- Target using active market assumptions
  - Top line: Preferred yield based on product offering
  - Residuals: Orderly liquidation value (published sources)
  - Tax line: Generic (35%)
  - Ignore cost of funds, explicit credit & administrative cost loads
Beyond Pricing
Pricing Throughout the Lease Lifecycle

- Origination – provide multiple quotes
- Documentation – acceptance of one quote
- Mid-term changes
  - Alteration of payment structure
  - Swap out of asset
- Termination changes
  - Early buy-out
  - Asset replacement
  - Like-kind exchange
Pricing Files & Portfolio Management

• **Pricing files are the building blocks for portfolio analysis**
  
  – Risk mitigation
    - Identify concentrations
    - Equipment maturity analysis
    - Extent of covariance relationships between asset types
  
  – GAAP earnings trends and issues
  
  – Tax risks and opportunities
    - Uncertain tax positions
    - Like-kind exchanges
  
  – Uncovering buy-sell opportunities
    - Restructurings
    - Changes in market dynamics
    - Portfolio offerings
Software Pricing Products

- **Warren & Selbert’s ABC**
  - Used for project finance and very complex structuring such as solar deals

- **Interet**
  - Used mostly outside of the US

- **Ivory Consulting’s SuperTRUMP**
  - Used for pretax and after-tax modeling and pricing of leases and loans

- **Ivory Consulting’s SuperTRUMP EXPRESS for Salesforce**
  - Used for loans

- **IDS’s InfoAnalysis**
  - Used for middle market pricing of leases and loans

- **Time Value’s TValue**
  - Used for loans
Case Studies
Case 1 Inputs: $1-out Lease Intended as Security

- Type of equipment: Food processing
- Lease type: Net lease
- Fair value (cost) of leased equipment: $100,000
- Non-cancelable lease term: 5 years
- Estimated economic useful life: 7 years
- Lease Payments: Monthly in advance
- Purchase option: $1.00
- Lessee paid fee: $500
- Target yield – implicit rate with fee: 6.00%
- Cost of funds: 5.00%
- Leverage – Assigned Equity: 12%
Case 1 Outputs: $1-out

Assumptions:
Direct Finance Lease with a dollar buy-out purchase option

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Equipment Cost</td>
<td>$100,000</td>
</tr>
<tr>
<td>Term</td>
<td>5 Years</td>
</tr>
<tr>
<td>Residual</td>
<td>$1</td>
</tr>
<tr>
<td>Yield</td>
<td>6.00%</td>
</tr>
<tr>
<td>COF</td>
<td>5.00%</td>
</tr>
<tr>
<td>Fee Income</td>
<td>$500 upfront</td>
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<td>Tax Rate</td>
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<table>
<thead>
<tr>
<th>Avg Inv</th>
<th>Payments</th>
<th>Lease</th>
<th>Amortization</th>
<th>Residual</th>
<th>(a) Lease</th>
<th>Income</th>
<th>Doc Fee</th>
<th>(b) Pre-tax</th>
<th>Earnings</th>
<th>Taxes</th>
<th>After-tax</th>
<th>Earnings</th>
<th>Net Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>90,384</td>
<td>11,484</td>
<td>8,664</td>
<td>2,820</td>
<td>88</td>
<td>2,908</td>
<td>1,018</td>
<td>1,890</td>
<td>2.09%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>72,348</td>
<td>22,968</td>
<td>18,126</td>
<td>4,842</td>
<td>154</td>
<td>4,996</td>
<td>1,749</td>
<td>3,247</td>
<td>4.49%</td>
<td></td>
<td></td>
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<tr>
<td>53,199</td>
<td>22,968</td>
<td>19,244</td>
<td>3,724</td>
<td>122</td>
<td>3,846</td>
<td>1,346</td>
<td>2,500</td>
<td>4.70%</td>
<td></td>
<td></td>
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<tr>
<td>32,870</td>
<td>22,968</td>
<td>20,431</td>
<td>2,537</td>
<td>86</td>
<td>2,623</td>
<td>918</td>
<td>1,705</td>
<td>5.19%</td>
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<td></td>
<td></td>
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<tr>
<td>11,287</td>
<td>22,968</td>
<td>21,691</td>
<td>1,277</td>
<td>45</td>
<td>1,322</td>
<td>463</td>
<td>859</td>
<td>7.61%</td>
<td></td>
<td></td>
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<tr>
<td>-</td>
<td>11,485</td>
<td>11,343</td>
<td>1</td>
<td>142</td>
<td>147</td>
<td>51</td>
<td>96</td>
<td></td>
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<tr>
<td>114,841</td>
<td>99,499</td>
<td>1</td>
<td>15,342</td>
<td>500</td>
<td>15,842</td>
<td>5,545</td>
<td>10,297</td>
<td>4.82%</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Case 2 Inputs: True Lease

- **Type of equipment:** Food Processing
- **Lease type:** Net lease
- **Fair value (cost) of leased equipment:** $100,000 (template)
- **Non-cancelable lease term:** 5 years
- **Economic useful life:** 7 years
- **Lease payments:** Monthly in advance
- **MACRS recovery period:** 5 years
- **Lessor’s priced residual value (OLV):** $12,500
- **Target yield – pretax equivalent (MISF):** 6.50%
- **Cost of funds:** 5.00%
- **Fixed price purchase option (FMV):** $13,500
- **Leverage – Assigned Equity:** 14%
Case 2 Outputs: True Lease

Assumptions:
Direct Finance Lease with a fair market value purchase option

<table>
<thead>
<tr>
<th>Equipment Cost</th>
<th>$100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term</td>
<td>5 Years</td>
</tr>
<tr>
<td>Residual</td>
<td>$12,500</td>
</tr>
<tr>
<td>Yield</td>
<td>6.50%</td>
</tr>
<tr>
<td>COF</td>
<td>5.00%</td>
</tr>
<tr>
<td>Residual Gain</td>
<td>1%</td>
</tr>
<tr>
<td>Tax Rate</td>
<td>35.00%</td>
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</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Avg Inv</th>
<th>Payments</th>
<th>Amortization</th>
<th>Residual</th>
<th>Income</th>
<th>Taxes</th>
<th>Earnings</th>
<th>Net Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>91,821</td>
<td>10,189</td>
<td>7,794</td>
<td>2,395</td>
<td>838</td>
<td>1,557</td>
<td>1.70%</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>75,701</td>
<td>20,378</td>
<td>16,188</td>
<td>4,190</td>
<td>1,467</td>
<td>2,724</td>
<td>3.60%</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>58,750</td>
<td>20,378</td>
<td>17,023</td>
<td>3,355</td>
<td>1,174</td>
<td>2,181</td>
<td>3.71%</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>40,924</td>
<td>20,378</td>
<td>17,900</td>
<td>2,478</td>
<td>867</td>
<td>1,611</td>
<td>3.94%</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>22,180</td>
<td>20,378</td>
<td>18,824</td>
<td>1,554</td>
<td>544</td>
<td>1,010</td>
<td>4.55%</td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>-</td>
<td>10,189</td>
<td>9,773</td>
<td>12,500</td>
<td>416</td>
<td>146</td>
<td>270</td>
<td></td>
</tr>
</tbody>
</table>

|          | 101,890 | 87,502   | 12,500       | 14,388   | 5,036  | 9,352 | 3.50%    |
## Comparative Analysis

<table>
<thead>
<tr>
<th></th>
<th>$1-Out</th>
<th>True Lease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent payment</td>
<td>$1,914</td>
<td>$1,698</td>
</tr>
<tr>
<td>Yields</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-tax equivalent (IRR/MISF)</td>
<td>6.00%</td>
<td>6.50%</td>
</tr>
<tr>
<td>Implicit rate with residual</td>
<td>6.00%</td>
<td>5.04%</td>
</tr>
<tr>
<td>Implicit rate without residual</td>
<td>n/a</td>
<td>.76%</td>
</tr>
<tr>
<td>Spread over cost of funds</td>
<td>1.00%</td>
<td>1.50%</td>
</tr>
<tr>
<td>ROA (after-tax)</td>
<td>1.05%</td>
<td>1.09%</td>
</tr>
<tr>
<td>ROE (after-tax)</td>
<td>3.96%</td>
<td>6.33%</td>
</tr>
<tr>
<td>After-tax cash</td>
<td>$9,976</td>
<td>$9,353</td>
</tr>
<tr>
<td>Potential upside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA (after-tax)</td>
<td>n/a</td>
<td>2.02%</td>
</tr>
<tr>
<td>ROE (after-tax)</td>
<td>n/a</td>
<td>8.14%</td>
</tr>
<tr>
<td>After-tax cash</td>
<td>n/a</td>
<td>$10,003</td>
</tr>
</tbody>
</table>
True Lease Tests

• **Pretax profit test**
  – The lessor must expect, without taking into account tax benefits (except for solar credits):
    - Overall profit: Lessee payments + residual value > lessor’s aggregate disbursements + lessor’s equity
    - Positive cash flow: Aggregate amounts due to lessor > aggregate lessor’s disbursements

• **Cash on cash return test**
  – General rule of thumb is about 3% (e.g., $100,000 x 3% = $3,000 per year)
  – Because alternative energy transactions are cash poor, the rule of thumb amount is generally reduced to 2% and by treating the investment tax credit as either cash or a reduction in investment

• **Other tests**
  – Reliance placed on residual value (20% as a guideline for advance ruling)
  – Minimum *at risk* amount: initial & ongoing (20% as a guideline for advance ruling)
  – Limitation on lease term and renewal options (less than 80% of useful life)
  – Limitation on purchase rights (not less than FMV)
  – No limited use property
Yield vs. Cash

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>50%</th>
<th>40%</th>
<th>30%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonus depreciation</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
<td>0%</td>
</tr>
<tr>
<td>Pretax nominal yield</td>
<td>6.5%</td>
<td>6.5%</td>
<td>6.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Spread</td>
<td>1.5%</td>
<td>1.5%</td>
<td>1.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Residual</td>
<td>$12,500</td>
<td>$12,500</td>
<td>$12,500</td>
<td>$12,500</td>
</tr>
<tr>
<td>Lease Payment</td>
<td>$1,698</td>
<td>$1,704</td>
<td>$1,711</td>
<td>$1,729</td>
</tr>
<tr>
<td>Lessee’s PV</td>
<td>88.28%</td>
<td>88.60%</td>
<td>88.93%</td>
<td>89.90%</td>
</tr>
<tr>
<td>Lessor’s Implicit Rate</td>
<td>5.04</td>
<td>5.17</td>
<td>5.29</td>
<td>5.67</td>
</tr>
<tr>
<td>Lessor’s After-tax Cash</td>
<td>$9,353</td>
<td>$9,596</td>
<td>$9,840</td>
<td>$10,569</td>
</tr>
</tbody>
</table>

- **Lessor**: The magnitude of the tax benefits drives the lessor’s pretax implicit rate and after-tax cash
- **Lessee**: The magnitude of the tax benefits drives the payment factor and the present value of the payment stream