Understanding Real Estate Risk-Return

INTRODUCTION

Part One
I  - Risk and Return
II  - Cycles
III  - Urban View

Part Two
IV  - Spec. Dev. "P & L"
V  - Asset Types
VI  - Efficient market Theory
I - Risk and Return

To finance a Risk, Expecting a Return

✓ A project
  - Corresponding to an identified need
  - Implying production/acquisition costs
  - With immediate funding for a forward delivery

✓ Speculative move
  - From crash test...
  - ... to best case,
  - With base scenario

Source: «Babel Tower», Pieter Bruegel


To run the Risk to Finance Expectation

✓ No "Free Lunch"
- Nothing is for sure: costs, expenses, revenues and proceeds could be estimated but rarely 100% secured
- Delay of production implies the need to anticipate "Tomorrow’s market"

✓ Volatile returns
- To put money at risk
- Expecting to get it back
- With profit

Example: Income Producing Asset V3

✓ Initial Value 100
- 6,0 M revenue
- A “16,7 x” multiple

✓ Initial Debt 80
- 80% Loan To Value
- 5,0% cost => 4,0 M of interest per year
- Leading to a 2,0 M net revenue

✓ Risk?
- "non recourse" Debt, only guaranteed by a mortgage (with a 20% airbag)
- Equity immediately at risk

Value: 16,7 x 6,0 = 100,0
Debt: 100,0 x 80% = 80,0
80,0 x 5,0% = 4,0
Net Revenue: 6,0 – 4,0 = 2,0
Example: Income Producing Asset V3

Market Deterioration

- (17.5) M of value decrease
- LTV up to 97% (only a 3% "airbag")
- (17.5) M of equity loss

Example: Income Producing Asset 1/3

Fixed Deal

- Initial Value 100,0 M
- 80% "Loan To Value"
- Cost of debt 4,0 M
- Equity needed 20 M

Expectations

- 2,0 M "net revenue"
- Cash on cash 10,0%

Market Deterioration

- (17.5) M of "losses"
- 4,5 M "net revenue"
- LTV up to 94% (risk)
**Example: Income Producing Asset 2/3**

- **Fixed Deal**
  - Initial Value 100.0 M
  - 80% "Loan To Value"
  - Cost of debt 4.0 M
  - Equity needed 20 M

- **Expectations**
  - 2.0 M net revenue
  - Cash on cash 10.0%

- **Market Improvement**
  - 17.0 M of "profit"
  - 7.5 M net revenue
  - LTV down to 68% (no risk: a 32% "airbag")

**CASE 1**

<table>
<thead>
<tr>
<th>Value</th>
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<tbody>
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<td>100.0</td>
<td>6.0</td>
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**CASE 3**

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**Variance**

- Boom: +17.0
- Rushing: +0.5
- Cash: -

**Example: Income Producing Asset 3/3**

- **New Value 117**
  - 2.5 M net revenue
  - 68% LTV debt

- **New Debt raised**
  - Up to 82% LTV
  - +13.6 M of new debt
  - 9.6 M distributed to equity investor

- **Limited risk**
  - Lender ok on New LTV (back to a reasonable 20% airbag)
  - 3.6 M distribution
  - Only 3.4 M "at risk"
  - Still 17.0 M projected remaining profit

**CASE 3**

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**Variance**

- Ref: -
- Rushing: +13.6
- Cash: (0.7)

**DISTRIBUTION**

- Ref: 13.6
- Rushing: (0.7)

LK - INQDATE Nov. 2008
II - Cycles

Risk and Cycles

- Trees reach the sky?
  - never ...
  - ... even in “bull” market

- Is the overall economy cyclical?
  - Yes...
  - ... and consequently, RE is as well

- Are RE cycles predictable?
  - Retrospectively yes
  - Difference in magnitude and duration
  - Not all markets in the same phase

Source: Carol Willis in « Form follows finance »

Dow Jones since 1902

Chicago Land Value “12 year” cycle 1830-1956
Are there Cycles?

✓ A never ending Karma?
  - Some causes produce same effects
  - What goes up must go down?

✓ JLL clock (offices)
  - Not always turns clockwise...
  - Turns at different speeds
  - Cities are pretty spread around the clock

Images of Cycles

✓ From clock to sinusoid

✓ Prime office rents in La Défense:
  - € 600/sqm in 2001
  - € 400/sqm in 2005
  - € 550/sqm in 2008

✓ The "pork curve"
  - Volume & Price
  - 4 phases
  - Explains second hand Housing Market in Paris
Real Estate Cycles 1/2

Market slow down
- Take-up goes down …
- … New construction may continue (no immediate adaptation)
- Vacancy increases
- Prices go down

Market recovery
- Take-up goes up …
- … New construction may stand still (no immediate adaptation)
- Vacancy decreases
- Prices go up

Office Cycle in Paris Region

Source: Atis Real, DRIIF

Real Estate Cycles 2/2

Market slow down
- Economy slows down
- Employment decreases
- Take-up goes down

Tenants experience favorable balance of power
- Take-up goes down
- Tenant candidates are pretty rare
- Vacancy increases
- Prices (rent) go down

Employment Growth and Take-up of Greater Paris Office Space

Source: Catella (top) & CBRE (left)
Speculative Development Time Table

- **Administrative Risk**
  - Get the Building permit
  - Without claims

- **Construction Risk**
  - Get the Building done
  - On time; @ forecasted Costs

- **Letting Risk**
  - "Pre-Let" is better
  - @ Best lease terms

- **Exit Strategy**
  - Hold before Sale?
  - Sale asap

Ex.: Office Building Development

- 15,000 m² office?
  - What rent?
  - What "multiple"?
  - What production Cost (all in)?
  - What risk?
  - What debt?
  - What return needed?

- How much for the land?
  - Value...
  - ... minus production Costs
  - ... minus needed margin

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<th>Surface</th>
<th>Rental rate</th>
<th>Annual Rent in €/M</th>
<th>Asset Valuation</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>15,000 m²</td>
<td>€ 600 / m²</td>
<td>€ 9,000</td>
<td>€ 180,000</td>
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Margin:
- 35% of Asset Valuation = 63,0
- Acceptable Cost = 121,5

Producted Value (all in):
- € 3,000 / m²
- 45,0

Available for Land:
- 76,5

Equity Needed (LTC 70%):
- 36,5
- Equity Multiple: 2,1 x

Acceptable Land Price **:
- 162,0 - (45,0 + 40,5) = 76,5

Value:
- 18,0 x 9,0 = 162,0

Costs:
- 15,000 * 3 kcal = 45,0
- 162,0 x 25% = 40,5

** In reality price per gross m² (not leasable m²)
** Gross Price ≠ Net Price
Ex.: Office Building Development 2/4

✓ 15,000 m² office?
  - What rent?
  - What “multiple”? 
  - What production Cost (all in’)? 
  - What risk?
  - What debt?
  - What return needed?

✓ How much for the land?
  - Value ...
  - ... minus production Costs
  - ... minus needed margin

Value: $22,0 x 11.3 = 247.5
Costs: $15,000 x 3.6 k€ = 54,0
Land: $247.5 – (54,0 + 61,9) = 131,6

Ex.: Office Building Development 3/4

✓ When Negotiating Land
  - Price paid for Land depends on final hypothesis: Volatility between 76,5 and 131,6 M (+72%)
  - Turn over (Value): from 162,0 to 247,5 M (+53%)
  - Profit: from 40,5 M to 54,0 M (+53%)

✓ Unequal split
  - Identified “New Value” goes mainly to Land...
  - ... and then to Marginal profit

Value: $22,0 x 11.3 = 247.5
Costs: $15,000 x 3.6 k€ = 54,0
Land: $247.5 – (54,0 + 61,9) = 131,6
**Ex: Office Building Development 4/4**

- **Deal done on Land**
  - Price fixed for Land (126 M)
  - Turn over decreases: from 247.6 to 185.3 M (-25%)
  - Profit falls: from 61.9 to 5.6 M (-91%)

- **Unequal split**
  - Realized "Losses" go only to equity

- **Land Price with "earn out" clause?**

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**Price Volatility**

- **Is future "Value" that volatile?**
  - Production takes 2 to 3 years, future market is far from now!
  - In a 3 year period, volatility affects rents...
  - ... and "multiples"

**CRASH**

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III - Urban View

City Zoning

✓ Urban Planning Specifies Zoning:
  - To protect residential area (against offices)
  - To locate certain uses in periphery
  - To build harmony

✓ Since Otis...
  - It’s possible to “multiply” land ...
  - ... knowing certain urban zones attract people like magnets

✓ Certain uses are
  - more “profitable” ...
  - ... but restricted
Impact of Zoning on Pricing

- Demand focused on limited supply
  - Scarcity creates "pricing zones"
  - High prices create needs for density

- Segmented submarkets appear in cities
  - Expensive CBD (City Business District)
  - Cheaper zones in periphery
  - And emerging markets

New Land Invention

- Paris
  - City growth constrained by walls
  - Protection of historical center
  - Expansion possible in periphery
  - ... La Défense

- London
  - No limit to City expansion
  - Limited "Protection"
  - "Relevant" land available for densification
  - ... Canary Wharf
Land Maximization

✓ Isle of Dog 80
  - A new business district competing with "The City"
  - No "City frame" constraint
  - High rises and density

✓ La Défense 60
  - A new business district competing with "CBD"
  - No "City frame" constraint
  - High rises and density

Urban “Maximization”

✓ Hugh Ferris Metaphor
  - "The Metropolis of Tomorrow" in 1929
  - From small farm to high rises

✓ City skyline
  - Affected by Offices
  - Demonstrating market Strength

✓ What’s next?
  - Shanghai
  - Dubai
  - New York
  - Coruscant?
"Multiply" Land in Desired Areas

- Hong Kong:
  - An Island facing the continent...  
  - ...mainly occupied by hills with limited flat shores

- An old Bank in 1985
  - Needing more space...
  - ...Multiplying floors

Land Value > Building Value

- "nail house" (Hard to remove)
  - Sichuan city of Chengqing
  - Mrs. Wu (1 out of 280 owners) holding out for $2.5m, without water or electricity for 2 years
  - City court force them to move out. It's called a "nail house" in Chinese because it's so hard to pull out
"Nail Houses"

- **Nail House & Timing**
  - Project delay...
  - ...costs financing fees...
  - ...pushes delivery to riskier periods

- **Nail House & Design**
  - Building constraints
  - Floor plan efficiency is affected

Other "Nail Houses"

- **Historical Landmark**
  - Listed (protected) buildings can’t be demolished
  - Whatever the land value is

- **Old building dies**
  - When use is "underperforming", and...
  - ...economic context renders eviction possible
The Singer Building, N.Y.

- **Historical Landmark**
  - World's tallest building from 1908 to 1909 (187 m.)
  - 41 floors
  - Demolition began in 1967
  - Razed in 1967 (Tallest structure, before "9-11", to be demolished)
  - Led to more active Landmark Conservation

- **One Liberty Plaza**
  - US Steel building, built in 1972, 226 m.
  - 54 floors

- **Rational: Floor Size**
  - 390 m² for "Singer"
  - 3,400 m² for "One Liberty Plaza" (195,000 m² in total)

Office Demolition & Redevelopment

- **Existing values**
  - The building € 114.8 m

- **Zoning Change**
  - Right to build up to 35,000 m²
  - Consequently, land value up to € 175.0 m (>historical bldg value)

- **Interesting equity Story**
  - Demolition/reconstruction
  - € 94.5 m equity invested
  - € 105.0 m expected profit
Trump Plaza Jersey City

✓ A 2006 project
  - 2 twin towers (50 & 55 fl.) tallest in N.J.
  - A $415 m project

✓ Timing
  - 1999 Planning Board approval (old project)
  - 2005 Construction
  - 2007 1st occupancy

Full value at Delivery
  - Building is new
  - Land Value maximized

10 years after
  - Building is older
  - Land Value unchanged

20 years after
  - Building is obsolete
  - Land Value at risk

30 years after
  - Building is demolished
  - Land need reinvestment

RE Asset Value Life Cycle

Source: Mark Kaszynski
Chicago Spire: the Story Continues

✓ A 610 m Tower
  - Tallest steel frame
  - Tallest full residential
  - 150 floors rotating 3.1°

✓ 1,200 residences in front of Lake Michigan
  - Shelbourne Development G.
  - By Santiago Calatrava
  - First occupancy in 2011
  - Flats from $08 to 40,0m

Burj Dubai: What’s the Rationale?

✓ Density in the desert
  - Why going up when there is land everywhere?
  - How to get a descent occupancy?

✓ Environmental free?
  - A/C. max!
  - Transport
Sao Paulo Urban Jungle

- Anarchic Land Development
  - No strict regulation...
  - ... strong economic incentive...
  - ... leads to urban Chaos

- Heaven of Peace
  - Old building with history and long term use (Hospital)
  - Listed building/area
  - High Quality vs. pure density

Pudong Development

- New Shanghai skyline
  - World’s tallest building (Jim Mao)
  - High Rise concentration
  - 7th Position in Emporis Skyline ranking

- A rapid development
  - Only 2 high rises in 1998 (Oriental Pearl TV 461 m)
  - Still a lot of land available
Spec. Dev. In Historical cities

☑ Paris’ protected city form (Haussmann)
  - Limited density
  - Listed Building and protected area
  - City’s Preemption right to contain inflation

☑ Hope in periphery?
  - Good means of transport
  - Land already fully built

☑ New hope?
  - Land liberation (de-industrialization)
  - Active city planning

Billancourt: “Renault’s lands”

☑ A new neighborhood
  - 5,500 flats for 12,000 new dwellers,
  - Offices: 247,000 m², including Jean Nouvel’s 22 floor green tower
  - Retail & Equipments: 75,000 m²
  - Delivery 2010-2011

Source: DR & Ville de Boulogne
Spec. Dev. In Historical cities?

- London is a dense and extended city
  - Variable density
  - Listed Building and protected area
  - Multiple centres

- Anything downtown?
  - Obsolete buildings
  - Strong demand
  - New needs (hospitality)

- Land Renewal?
  - Heavy refurbishment
  - Facadism

"Strand & Adlwych"

- A change of use
  - 5th Gaiety Theatre (1800–1903)
  - "English Electric Company", then City Bank Building (1957–2005)
  - "Silken Hotel" 2008 by Foster & Partners
Large Development In New York?

- New York highly dense and protected
  - Limited density
  - Limited use of volume (sky exposure plane)
  - Some location without public transportation

- Hope outside Manhattan?
  - New Jersey, Long Island, Brooklyn

- New Hope?
  - Meat pack District
  - Hudson yard

Hudson Yard

- Master Plan
  - 24 million square feet of offices space
  - More than 13,000 housing units
  - More than 20 acres of public open space

- Services
  - Extension of line 7
  - Schools ???
Speculative Development

- Find a "relevant" land
  - With possible density (right to build)
  - With a rental market deep enough (demand for office space)
  - Perceived as a location for "sustainable" investment

- Program design
  - Building shape & surface
  - Space split (45,000 m² divisible in 10 parts)

- Income statement
  - Total rent & exit value
  - Construction costs
  - Other costs
  - Land Costs
  - Profit...
**Program**

- **Plot of Land:** €3m
  - For 13,000 m² of offices (right to build)

- **Construction:** €35m
  - 13,000 m² @ €2.4k/m²

- **Exit Value:** €100m
  - Total rent (NOI): €5.0m
    - 13,000 m² @ €417/m²
  - NDP: 20.0 x 5.0m

**Asset Description**

- An office building with €5.0m “triple net” rent (gross rent/y = NOI/y, all expenses recovered from tenant)

**Net Revenue:** €85m

- €100m NDP; sale @ end of year 5; NDP = 20 x 5.0m
- €15m of total collected NOI (3 years @ €5.0m/y)

**Total Costs:** €81m

**Gross Profit**

- €34m (100 + 15 - 81)

---

**Synthetic P & L V4**

**Net Revenue:** €85m

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- €15m of total collected NOI (3 years @ €5.0m/y)

**Total Costs:** €81m

**Gross Profit**

- €34m (100 + 15 - 81)
Synthetic P & L 2/4

- Total Costs: €81.2m
  - €35.0m for Land
  - €35.0m for construction
  - €4.9m management fees
  - €6.3m for financing fees & interests

- Gross Profit: €33.8m
  - Profit post tax: €25.3m
  - Tax: €8.4m

Synthetic P & L 3/4

- Net K gain: €22.5m
  - NDP: €100.0m
  - Land: €35.0m
  - Construction: €35.0m
  - Tax on K gain: €7.5m

- Net revenue: €2.8m
  - Total NOI: €15.0m
  - Management Fees: €4.9m
  - Financing Fees & Interests: €6.3m
  - Income Tax: €0.9m
Synthetic P & L 4/4

- Total Costs: €81.2m
  - "Asset costs": €70.0m
  - Other costs: €11.2m (mgf fees & interests)

- Financing: 70% LTC
  - "Loan To Cost" ratio
  - Debt raised: €49.0m
    (49.0/70.0 = 70%)

- Equity Needed
  - Total Cost - debt: €32.2m
  - €5.6m of Net Operating cash flows in 2 years
  - Equity needed: €26.6m

- Performance
  - A "2.0x" Equity Multiple
  - "Cash on cash": 9.4% in Year 2

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Synthetic Cash Flow 1/4

- 5 Year Investment
  - Total proceeds: €115m
  - Total Costs: €74.9m

- Unleveraged Performance
  - Gross Profit: €40.1m
  - Equity Needed: €22.8
  - Unleveraged IRR: 13.5%

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LK - INDATE Nov. 2008
Debt Raised: €49.0 m
- 70% Loan to Cost (LTC)
- For land & works (no fees)
- Fixed Costs: €0.5 m (1.0%)
- Interest: €1.2m/year (4.25%)

Leveraged Performance
- Leveraged Gross Profit: €33.8m
- Equity Needed: €26.6m
- Leveraged IRR: 22.7%

Pre-tax Profit: €33.8m
- Capital gain: €30.0m
- Revenue (income): €3.8m

Post tax Profit: €25.3m
- Income tax: €0.9m
- Tax on K-gain: €7.5m

Synthetic Cash Flow 3/4
**Synthetic Cash Flow 4/4**

- **Longer holding period**
  - Exit postponed in year 8
  - 3 more years of CF collection (+ €12.9m)
  - 3 more years of interests (- €3.6m) and income tax (- €2.4m)

- **Post tax performance**
  - Profit: + €7.1m
  - IRR: -4.8% (-480 bp)

- **Sensitivity Analysis**
  - Playing with holding period
    - Expecting constant NDP through time
    - Only adding Net revenue
  - Trading IRR vs. Profit
    - Min IRR required
    - Holding strategy could put NDP at threat (income revenue illusion)
  - Cash on Cash
    - High Cash on Cash could trigger a sale
Optimization of Cash Flows

✓ Taking timing into account
  - Inflation for rents
  - Decreasing multiple

✓ New hypotheses
  - Refinancing @ delivery (85% LTV "Loan To Value" @ end of year 2)
  - Higher land price (+10m)

V - Asset Types
Income Producing Asset 1/2

✓ Flow of income?
  - Constant
  - Never ending
  - Indexed (inflation)

✓ Regular revenue
  - $7.0m / year
  - ± $0.3m / year
  - Indexed (2.0%/year)
  - Non-recoverable expenses: $0.4m / year
  - NOI (Net Operating Income): $6.6m / year

✓ Capex?
  - Capital Expenditure (works needed to maintain the building)
    - Here: "none"

Regular rent: ± $7m / year

Income Producing Asset 2/2

✓ Base Valuation
  - NOI x Multiple
  - $146.5m (6.6 x 22.2)

✓ Sensitivity
  - NOI ± $0.3 m
  - Multiple ± 0.2 x
  - Value: from $140.8 to $152.3 m

✓ Multiple & IRR
  - 22.2 x 2.0% constant inflation => 6.50% IRR
  - 22.2 x no inflation => 4.50% IRR
  - 1/ 4.50% = 22.2...

Base Value: $146.5m

Market Volatility

Better Multiple

Better NOI

Lower NOI

Variance due to economical conditions

LK - IHO DATE Nov. 2008
"Cap Rate"

- **Intuitive use of “multiple”**
  - NOI x Multiple
  - $146.5m (6.6 x 22.2)

- **Counter intuitive use of “Cap rate”**
  - NOI / cap rate
  - $146.5m (6.6 / 4.50%)

- **Link between Multiple & Cap rate**
  - 22.2 x = 1 / 4.50%
  - 1 / 22.2 = 4.5 / 100

**Expected Return:**
- We buy an asset $200 and we expect to get 4.50% return
- If asset’s NOI is constant and perpetual...
- … to get 2.0 / year is fine (9.0 = 200 x 4.50%)

**Capitalization Rate:**
- If we know that the asset has a constant and perpetual NOI of 10 and if we want to get 4.50% return...
- … then the value should be $222.2 (222.2 = 10 / 4.50%)

**Formula:**
- Value = NOI / cap rate (expected return)...
- … just because NOI should = Value x Cap rate

"Cap Rate": Constant Revenue

- **Intuitive use of “multiple”**
  - NOI x Multiple
  - $146.5m (6.6 x 22.2)

- **Counter intuitive use of “Cap rate”**
  - NOI / cap rate
  - $146.5m (6.6 / 4.50%)

- **Link between Multiple & Cap rate**
  - 22.2 x = 1 / 4.50%
  - 1 / 22.2 = 4.5 / 100

- **Maths explanation**
  - Limit to infinity...
  - ... of discounted Cash Flows

- **Maths explanation**
  - Limit to infinity...
  - ... of discounted Cash Flows

- **Maths explanation**
  - Limit to infinity...
  - ... of discounted Cash Flows
"Cap Rate": Growing Revenue

Revenue Growth
- Constant growth (e.g.: 2%/year)
- ...Generating a 2% return

Expected Return
- R: expected return is 6.5%
- & constant growth is 2.5%
- "R", a cap rate of 4.5% is time (6.5 - 2.0 = 4.5)

Math's explanation
- Limit to infinity...
- ...of discounted Cash Flows

"Cap Rate": Stabilized asset

Stabilized asset
- Constant NOI growth (e.g.: 2%/year)
- Constant Value: sold at any period on the basis of NOI / R ("R" being a composite cap rate R = r-g)

Cap rate
- "R", a composite cap rate, taking into account (i) "r" the expected return 6.5%
- and (ii) "g", the constant growth 2.5%
- R = 4.5% could be used at any period "t"

Math's explanation
- The red vertical line...
- ...equates the pink oblique dot line
"Cap Rate": All assets

**Stabilized asset**
- At any time, value is equal to NOI / cap rate.
- If we disregard transaction costs.

**Non Stabilized assets**
- Cap rate quick valuation is not appropriate because NOI is neither constant nor perpetual.
- Only DCF (discounted cash flows) calculation should be used.

\[
V = \frac{\text{NOI}}{ \text{cap rate} }
\]

\[
V = \sum_{p=1}^{\infty} \frac{CF_p}{(1+r)^p} = \frac{\text{NOI}}{ \text{cap rate} }
\]

**Cash Cow Asset**

**Flow of income?**
- Limited in time.
- Decreasing.

**Asset Maintenance**
- Heavy capex needed.
- Risk of very small residual value.
- "Forest’s Metaphor": if you just chop trees, sell wood, without planting trees...

**Eg.: Office Building**
- With 6 year firm lease.
- Very shallow market.
- A lot of capex needed.
- Alternative use destroying value.

Only 8 years of rent @ $2.0 m/year, and then ???

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Cash Cow Asset 2/2

- Secured income?
  - For only 8 years
  - Year 9 pretty frightening

- Residual value
  - Very low (less than 4 x the last NOI)
  - Could be improved if capex realized

- Valuation
  - No cap rate, just DCF
  - Risky business
  - >40% IRR
  - Initial yield very high
  - Most of the value in income flows (NPV of income = 76% of Value)

The risk Factor

- Rent Collection
  - Future NOI uncertain
  - Number of secured periods of rent collection
  - Inflation impact
  - Vacancy risk
  - New rent achieved after re-letting?

- Residual Value
  - Degradation, obsolescence
  - Works to be done, fees to be paid
  - Non recovered expenses
  - Durable or structural vacancy

Trophies
- Assets with significant value added

“Cash Cows”
- DCF

“Risky Assets”
- DCF

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Risky Ventures

- Rent Collection
  - Future NOI uncertain
  - Number of secured periods of rent collection
  - Inflation impact
  - Vacancy risk
  - New rent achieved after re-letting?

- Residual Value
  - Depreciation, obsolescence
  - Works to be done, fees to be paid
  - Non-recovered expenses
  - Durable or structural vacancy

INITIAL REVENUE?
YES NO

CAPEX NEEDED?
YES NO

Asset Types & City Centrism

- Down Town Milan
  - 1° Deluxe Residential
  - 2° Department Store
  - 3° Palace Hotel
  - 4° CBD Offices

- First Periphery
  - 5° Offices (low rises)
  - 6° Multifamily Residential
  - 7° Economical Hotel

- Suburb
  - 8° Warehouse
  - 9° Light Industrial
  - 10° Social Housing

Source: Google Earth

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Asset Types & City Centrism 2/2

- **Down Town Milan**
  1°) Deluxe Residential
  2°) Department Store
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- **First Periphery**
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Sprawl Index

- **Sprawl Index**
  - Average distance from CBD

Source: DR

Built up area = 100 km²

Average distance to CBD = 3.4 km

Average distance to CBD = 3.8 km

3D representation of a built up area and population densities.

Equivalent circle uniform density.

Source: The Spatial Distribution of Population in 48 World Cities: A. Bertaud and S. Malpezzi - 2003
Asset Types & Zoning 1/2

- **Manhattan Down Town**
  - Offices
  - Residential
  - Retail

- **Brooklyn**
  - Residential
  - Offices & Retail
  - Manufacturing

- **Staten Island**
  - Low density
  - Manufacturing

Source: City Of New York Zoning Handbook

Asset Types & Zoning 2/2

- **Paris “within the walls”**
  - Multifamily housing
  - Some offices

- **Office asset base**
  - In Paris’ CBD...
  - ... in West Crescent - La Défense

- **Office Speculative Development**
  - Heavy refurbishment/restructuration “within the walls”
  - New construction “outside the walls”

Source: IAURIF, ORIE
Zoning & City Density

✓ Inner Cities
   - Comparable in size...
   - ... but not in Density

✓ First Periphery
   - Relatively small in Paris
   - Extended in Tokyo, London & New York

✓ Second Periphery
   - "Far away" and less dense in Paris & London
   - "Connected" & Dense in New York & Tokyo

VI - Efficient market Theory
Risk Return Correlation 1/4

✓ Risk Free
  - Capital guaranteed
  - Income guaranteed

✓ Low risk –> low return
  - "There is no Free Lunch"
  - In general around 2.50% – 3.50%

✓ Treasury Bonds
  - Secured Investments since governments never default...
  - ... except in 1917 in Russia.

Risk Return Correlation 2/4

✓ If you take more risk...
  - Capital not guaranteed
  - Income uncertain

✓ ... you deserve more return
  - It’s "logical"...
  - ... but not an "exact science" (not rule for calculation)
The Efficiency Line
- A virtual line separating the "Good" Investment (OK, because return is in line with risk)...
- ... and the "Bad" Investment (non OK, because return is not in line with risk)

The "Pink" Zone
- Why take more risk for the same return or less than a T-Bond?
- Be aware! People constantly minimize risk and over evaluate return

When assessing Risk
- Don’t take for granted the "best Case" scenario
- Try a "Crash Test" scenario to avoid painful losses
- And take the "middle of the road" view

Volatility
- What spread between Best Case & crash test?
- The more you pay, lower will be the return and higher the risk
**Ponzi Scheme**

**The Promise**
- Abnormal high return (in 90 days double the capital or add + 50% in 45 days)
- No risk! (arbitrage on international postal coupons Italy vs. U.S.)

**The Reality**
- A fraud where profit were faked, just paid by using the money of the new comers in the system
- A lot of American lost their shirt
- Ponzi, who became millionaire, went to Jail

**RE Bubble**
- A pyramid scheme?

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