Real Estate Cycles

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Why Real Estate Fits an Investment Portfolio = SIZE

U.S. Real Estate vs. Other Asset Classes

Bonds $39.5 Trillion (49.6%)
U.S. Real Estate $16.1 Trillion (20.2%)
Equities $24.0 Trillion (30.2%)

Source: Bonds = SIFMA, January 2014; Equities = World Federation of Exchanges for Equities, January 2014; U.S. Real Estate = Moody’s Real CPPI, January 2014. This investment is subject to real estate risks associated with operating and leasing properties. Additional risks include changes in economic conditions, interest rates, property values, and supply and demand, as well as possible environmental liabilities, zoning issues and natural disasters.
5 Key Macro Economic Factors
+ Population Growth

Positive GDP Leads Employment Recovery

Recessions last a year or less - Recovery & Growth cycles can be short of long

Real Estate Occupancy is Demand Driven by Employment Growth

Real Estate — a Delayed Mirror of the Economy

Source: Property and Portfolio Research, January 2014. Employment & Property Occupied Stock is the top 54 MSA’s covered by PPR
Market Cycle Analysis

Physical Cycle

Demand & Supply drive Occupancy

Occupancy drives Rental Growth
US Commercial Real Estate Cycle
Follows US Economic Cycles

3 Key Metrics:
• Occupancies
• Rents
• Prices

Source: Glenn Mueller, PhD
Market Cycle Quadrants

Phase 1 - Recovery
- Long Term Occupancy Average
- No New Construction
- Declining Vacancy

Phase 2 - Expansion
- New Construction
- Declining Vacancy
- Declining Vacancy

Phase 3 - Hypersupply
- Increasing Vacancy
- More Completions

Phase 4 - Recession
- Increasing Vacancy

Source: Mueller, Real Estate Finance 1995
Physical Market Cycle Characteristics

1. Negative Rental Growth
2. Below Inflation Rental Growth
3. Rents Rise Rapidly Toward New Construction Levels
4. High Rent Growth in Tight Market
5. Cost Feasible New Construction Rents
6. Positive But Declining Rent Growth
7. Rent Growth Below Inflation & Negative Rent Growth
8. Long Term Average Occupancy
9. Time
10. Demand/Supply Equilibrium
11. Physical Market Cycle Characteristics
12. Time
13. Below Inflation & Negative Rent Growth
14. Negative Rental Growth
Historic National Office Rental Growth

30 Year Cycle - Periods 1968-1997

Long Term Average Occupancy

Occupancy

Time
Historic National Industrial Rental Growth %

Long Term Avg Occupancy

30 Year Cycle - Periods 1968-1997
National Property Type Cycle Locations

Phase II — Expansion
- Hotel — Full-Service+1
- Hotel — Ltd. Service+1
- Retail — 1st Tier Regional Mall+1
- Industrial — Warehouse+1
- Health Facility
- Industrial — R&D Flex+1
- Retail — Factory Outlet
- Office — Downtown
- Retail — Power Center+1
- Retail — Neighborhood/Community+1
- Office — Suburban

Phase III — Hypersupply
- Apartment

Phase I — Recovery

Phase IV — Recession

3rd Qtr 2014
Source: Mueller, 2014
Office Market Cycle Analysis
3rd Quarter, 2014

LT Average Occupancy
Source: Mueller, 2014
Industrial Market Cycle Analysis
3rd Quarter, 2014

Source: Mueller, 2014
Apartment Market Cycle Analysis

3rd Quarter, 2014

Source: Mueller, 2014
Retail Market Cycle Analysis
3rd Quarter, 2014

Source: Mueller, 2014
Hotel Market Cycle Analysis
3rd Quarter, 2014

Source: Mueller, 2014
National Property Type Cycle Locations

Phase II — Expansion

Phase III — Hypersupply

Hotel — Full-Service
Hotel — Ltd. Service
Retail — 1st Tier Regional Mall
Health Facility
Retail — Factory Outlet
Retail — Neighborhood/Community
Office — Downtown
Industrial — Warehouse
Industrial — R&D Flex
Senior Housing
Office — Suburban
Retail — Power Center

LT Average Occupancy

2nd Qtr 2014

Source: Mueller, 2014

Phase I — Recovery

Phase IV — Recession
1970s Cycle

• Factors Driving The First Half Cycle (5 Year)
  • Strong Demand from the 1960s that stopped
  • Recession 1974
  • Capital Flow - Mortgage REITs produced oversupply

• Factors Driving The Second Half Cycle (5 Year)
  • Baby Boom Generation Goes to Work = Demand
  • Capital Flow Shut Down = no supply = Lenders Recover
  • Markets tighten and reach peak occupancy 1979 (5% vacancy)
1970s Office Demand & Supply

Source: FW Dodge, CB Commercial, BLS, Mueller
1980s Cycle

**Factors Driving The First Half Cycle (5 Year)**

- Tight market in 1979 pushes rents and prices up
- Inflation pushes real estate prices higher
- Tax Act of 1981 attracts taxable investors supply up
- Thrift Deregulation allows capital to flow

**Factors Driving The Second Half Cycle (5 Year)**

- Tax Act of 1986 slows taxable investors, but not tax free
- Poor stock market attracts Pension & Foreign capital
- Rising R.E. prices masks poor income returns
1990s Cycle

• Factors Driving The First Half Cycle (5 Year)
  • Moderate but stable demand growth (1991 recession minor)
  • Oversupply and Foreclosures shut down construction
  • Excess space Absorbed – “Markets Recover”

• Factors Driving The Second Half Cycle (5 Year)
  • Moderate Demand growth Continues
  • Oversupply Absorbed and Return Performance improves
  • Construction “Constrained” causing rents & prices to rise
  • More “Efficient Markets” match supply to demand
1990s Office Demand & Supply

Source: FW Dodge, CB Commercial, BLS, Mueller
2000s Cycle

**Demand**

• “Globalization” - creates more stable U.S. economy
• Job Growth out of “Technology Change”
• 2.8 million population growth per year for 10 years
• Baby boomers at “highest income earning” years
  • second home market wave
• Echo boom children – college, first job, & renting
• Aging population – boomers START retiring in 2014
• Employment Growth drives commercial demand
2000s Cycle
Supply Constraint

• Public Markets make R.E. Capital markets efficient
  • Economically Driven capital - low spec construction
  • 500 + Research Watchdogs – Data Available
• Constrained Supply (economically driven capital)
  • construction labor harder to find
  • materials costs increasing (steel, concrete)
  • infrastructure problems constrain growth
• Feedback loop keeps demand and supply in better balance
  • greater transparency
  • Faster reaction to demand slowdown
Stock Growth Beginning to Increase

- Stocks growth started to increase in 2013 from a 42 year low
Supply Reacted to Demand Slow Down

Source: Property & Portfolio Research, Grubb & Ellis, Mueller 2009.
National Property Type Cycle Forecast

Phase I — Recovery

Phase II — Expansion

Phase III — Hypersupply

Phase IV — Recession

3rd Qtr 2015 ESTIMATE

Source: Mueller, 2014
Occupancy Cycle and Rent Growth

Office

Rent Growth

Occupancy

Source: Property and Portfolio Research, Grubb & Ellis, Mueller — August 2013.
Office Market Cycle FORECAST
3rd Quarter, 2015 Estimates

Source: Mueller, 2014
Occupancy Cycle and Rent Growth

Industrial

Source: Property and Portfolio Research, Grubb & Ellis, Mueller — August 2013.
Industrial Market Cycle FORECAST
3rd Quarter, 2015 Estimates

LT Average Occupancy

Source: Mueller, 2014
Occupancy Cycle and Rent Growth

Source: Property and Portfolio Research, Grubb & Ellis, Mueller — August 2013.
Apartment Market Cycle FORECAST
3rd Quarter, 2015 Estimates

Source: Mueller, 2014
Occupancy Cycle and Rent Growth

Retail

Source: Property and Portfolio Research, Grubb & Ellis, Mueller — August 2013.
Retail Market Cycle FORECAST
3rd Quarter, 2015 Estimates

Source: Mueller, 2014
Occupancy Cycle and Rent Growth
US Hotel
Hotel Market Cycle FORECAST
3rd Quarter, 2015 Estimates

LT Average Occupancy

Source: Mueller, 2014
Financial Cycle

Capital Flows affect Prices
Market Cycle Capital Flow Impact

- Capital Flows to Existing Properties
- Cost Feasible Rents Reached
- Property Market Cycle
- Total Capital Flow Cycle
- Capital Flows to New Construction
- LT Occupancy Avg.
- Hyper Supply

Hyper Supply
Bond Values DROP as Interest Rates Rise

10 Year Treasury Yields 1953 - 2013

Average Total Return 1953-1981 Peak = 3.9%
Average Total Return 1981-2013 = 8.7%
Average Total Return 1953-1973 = 1.9%
Average Yield = 6.1%

U.S. Commercial Property Prices

U.S. Transaction Volume

Portfolio Buyers Dominate Trades

Source: Real Capital Analytics April 2013
Debt Capital Flows

CMBS Issuance $ Billions

Source: Commercial Mortgage Alert
Property Price Cycle — Recovering

Current Price Recovery to 2007 Peak %

- CBD Office — 108%
- Apartment — 116%
- Retail — 84%
- Industrial — 90%
- Suburban Office — 80%

Major Markets = 108%
Secondary Markets = 89%

Source: Real Capital Analytics, Inc., May 2014.
Next Favored Tier of Markets Emerging

Rebounding

Still Challenged

http://www.rcanalytics.com
Property Price Cycle — Recovering

Historic Cap Rates

Source: Real Estate Research Corporation — Chicago, April 2014.
Wide Yields Attracting Capital

Spread Between Cap Rates and 10-Year Treasury by Sector

Source: Real Capital Analytics, 1Q 2014.
Gross vs. Net Returns

Gross Asset Performance (without inflation)

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Median % Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large U.S. Stock</td>
<td>15.89</td>
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<tr>
<td>Small U.S. Stock</td>
<td>18.33</td>
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<tr>
<td>Non-U.S. Stock</td>
<td>10.41</td>
</tr>
<tr>
<td>U.S. Bonds</td>
<td>10.86</td>
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<tr>
<td>U.S. Cash</td>
<td>6.98</td>
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<tr>
<td>Real Estate</td>
<td>7.40</td>
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<tr>
<td>Commodities</td>
<td>7.34</td>
</tr>
<tr>
<td>7-Asset Portfolio</td>
<td>15.33</td>
</tr>
<tr>
<td>60% Stock/40% Bonds</td>
<td>15.65</td>
</tr>
<tr>
<td>7-Asset Portfolio</td>
<td>24.66</td>
</tr>
</tbody>
</table>

Gross vs. Net Returns

REAL Gross Asset Performance (inflation-adjusted)

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Below-median CPI (&lt;3.37%)</th>
<th>Above-median CPI (&gt;3.37%)</th>
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</thead>
<tbody>
<tr>
<td>Large-Cap U.S. Stock</td>
<td>13.68</td>
<td>1.82</td>
</tr>
<tr>
<td>Small-Cap U.S. Stock</td>
<td>14.85</td>
<td>6.10</td>
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<tr>
<td>Non-U.S. Stock</td>
<td>12.06</td>
<td>6.22</td>
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<tr>
<td>U.S. Bonds</td>
<td>4.88</td>
<td>2.18</td>
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<tr>
<td>U.S. Cash</td>
<td>1.16</td>
<td>0.86</td>
</tr>
<tr>
<td>Real Estate</td>
<td>11.98</td>
<td>1.21</td>
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<tr>
<td>Commodities</td>
<td>18.31</td>
<td>10.78</td>
</tr>
<tr>
<td>7-Asset Portfolio</td>
<td>6.66</td>
<td>9.37</td>
</tr>
<tr>
<td>60% Stock/40% Bonds</td>
<td>2.67</td>
<td>1.21</td>
</tr>
</tbody>
</table>

Lump-Sum Performance

$10,000 investment in 12 asset classes vs equally weighted portfolio for the 15-year period.

Lump-sum Performance - August 1, 1999 – July 31, 2014

Debt Capital: Credit Conditions Improving

Composition of Lenders

<table>
<thead>
<tr>
<th>Category</th>
<th>CMBS</th>
<th>Insurance</th>
<th>Reg’l/Local Bank</th>
<th>Financial</th>
<th>Int’l Bank</th>
<th>Pvt/Other</th>
<th>Gov’t Agency</th>
<th>Nat’l Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>17%</td>
<td>9%</td>
<td>34%</td>
<td>13%</td>
<td>18%</td>
<td>8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>8%</td>
<td>6%</td>
<td>30%</td>
<td>8%</td>
<td>27%</td>
<td>16%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>38%</td>
<td></td>
<td>5%</td>
<td>26%</td>
<td>11%</td>
<td>12%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Apartment</td>
<td>5%</td>
<td></td>
<td>65%</td>
<td></td>
<td>8%</td>
<td>5%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Hotel</td>
<td>34%</td>
<td>8%</td>
<td>6%</td>
<td>17%</td>
<td>27%</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Slowing Transactions A Common Trend
Source: Real Capital Analytics, December 2013.
**2014 Physical Cycle**
- Demand & Supply affect occupancies $\rightarrow$ *drives* rental growth
- Employment & Demand growth resumed 2Q 2010
- Supply growth slowest in 43+ years (2013 the bottom) supply increases in 2014?
- RE moving to growth 2014-2016 (depending on market & property type)

**2014 Financial Cycle**
- Capital flows affect prices — stock market rebound 2013, volatile in 2014?
- Real estate was *safest* investment alternative 2000-2007, pushing prices up
- **Debt financing hard** in 2014 - creating buying opportunity for *Cash Buyers*

- *Differentiate* residential versus commercial real estate to your investors!
Topics Covered

**Economic Fundamentals**
5 key Macro Economic Drivers of Real Estate Performance
Economic Base Analysis

**Real Estate Physical Cycle Fundamentals**
Demand for Real Estate
Supply of Real Estate
Occupancy Cycles
Rent Cycles

**Real Estate Financial Cycle Fundamentals**
Capital Flows
Prices
Cap Rates
Interest Rates