Real Estate Cycles

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Dividend Capital Research

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Why Real Estate Fits an Investment Portfolio = SIZE

U.S. Real Estate vs. Other Asset Classes

- Bonds: $38.99 Trillion (47.0%)
- Equities: $26.33 Trillion (31.0%)
- U.S. Real Estate: $18.70 Trillion (22.0%)

Source: Bonds = SIFMA, January 2015; Equities = World Federation of Exchanges for Equities, January 2015; U.S. Real Estate = Moody’s Real CPPI, January 2015. Commercial real estate are 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.
Five Key Macro Economic Factors

Population Growth = 0.9% Annual

1 Source: U.S. Bureau of Economic Analysis, March 2015; Moody’s, 2015.
Five Key Macro Economic Factors

Inflation

Interest Rates

Positive GDP Leads Employment Recovery

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

Economic Outlook

Real Estate Occupancy is Demand Driven by Employment Growth

Real Estate — a Delayed Mirror of the Economy

Source: CoStar Portfolio Strategy, January 2015. Employment & Property Occupied Stock is the top 54 MSA's covered by PPR
US Commercial Real Estate Cycle
Follows US Economic Cycles

3 Key Metrics:
• Occupancies
• Rents
• Prices

Source: Glenn Mueller, PhD
Market Cycle Analysis

Physical Cycle

Demand & Supply drive Occupancy

Occupancy drives Rental Growth
Market Cycle Quadrants

Phase 1 - Recovery

Phase 2 - Expansion

Phase 3 - Hyper-supply

Phase 4 - Recession

Long Term Occupancy Average

Demand/Supply Equilibrium Point

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

Phase 1 - Recovery

Phase 2 - Expansion

Phase 3 – Hyper-supply

Phase 4 - Recession

Long Term Average Occupancy

Occupancy

Time

- Rents Rise Rapidly Toward New Construction Levels
- High Rent Growth in Tight Market
- Rent Growth Positive But Declining
- Below Inflation & Negative Rent Growth
- Below Inflation & Negative Rent Growth
Historic National Office Rental Growth

30 Year Cycle - Periods 1968-1997

Phase 1 - Recovery

Phase 2 - Expansion

Phase 3 – Hyper-supply

Phase 4 - Recession
Historic National Industrial Rental Growth %

Long Term Avg Occupancy

30 Year Cycle - Periods 1968-1997

Phase 1 - Recovery

Phase 2 - Expansion

Phase 3 – Hyper-supply

Phase 4 - Recession
National Property Type Cycle Locations

Phase 1 — Recovery

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

LT Average Occupancy

Phase 2 — Expansion

Phase 3 — Hyper-supply

Phase 4 — Recession

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

2nd Qtr 2015

Source: Mueller, 2015
Office Market Cycle Analysis
2nd Quarter, 2015

Source: Mueller, 2015
Industrial Market Cycle Analysis
2nd Quarter, 2015

Source: Mueller, 2015
LT Average Occupancy

Source: Mueller, 2015
Retail Market Cycle Analysis
2nd Quarter, 2015

LT Average Occupancy

Source: Mueller, 2015
Hotel Market Cycle Analysis
2nd Quarter, 2015

Source: Mueller, 2015
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

- **Demand**
- **Supply**

Source: FW Dodge, CB Commercial, BLS, Mueller

Oversupply Years

Baby Boomers Go To Work
1980s Cycle

• Factors Driving The First Half Cycle (5 Year)
  • 1979 Tight market pushed rents & prices up
  • Inflation pushed prices higher
  • 1981 Tax Act attracted taxable investors
  • Thrift Deregulation allowed capital to flow

• Factors Driving The Second Half Cycle (5 Year)
  • 1986 Tax Act slowed taxable investors - not tax free
  • Poor stock market attracted Pension & Foreign capital
  • Rising R.E. prices masked poor income returns
1980s Office Demand & Supply

Source: FW Dodge, CB Commercial, BLS, Mueller
1990s Cycle

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

• Factors Driving The Second Half Cycle (5 Year)
  • Moderate Demand growth Continued
  • Oversupply Absorbed - Return Performance improved
  • Construction “Constrained” caused rents & prices to rise
  • More “Efficient Markets” matched supply to demand
1990s Office Demand & Supply

Demand Supply

Oversupply Absorbed

Demand Supply Matched

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

**Demand**

• “*Globalization*” - created more stable U.S. economy

• Job Growth out of “*Technology Change*”

• 2.8 million population growth *per year* for 10 years

• Baby boomers entered “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
  • Steel & concrete costs increasing
  • infrastructure problems constrain growth

• Feedback loop keeps demand & supply balanced
  • Greater transparency
  • Faster reaction to demand slowdown
Stock Growth Recovering

- Supply growth started increase in 2013 from a 42 year low

Source: Costar Portfolio Strategy, January 2015
Supply Reacted to Demand Slow Down

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

Phase 1 — Recovery

Office — Suburban
Retail — Power Center
Health Facility
Industrial — R&D Flex
Retail — Neighborhood/Community
Retail — Factory Outlet

Phase 2 — Expansion

Office — Downtown
Retail — 1st Tier Regional Malls
Hotel — Full-Service
Industrial — Warehouse
Hotel — Ltd. Service
Apartment

Phase 3 — Hyper-supply

Phase 4 — Recession

2nd Qtr 2016 ESTIMATE
Source: Mueller, 2015
Occupyancy Cycle and Rent Growth

Office

Source: Costar Portfolio Analytics, Mueller — March 2015.
Office Market Cycle FORECAST
2nd Quarter, 2016 Estimates
Occupancy Cycle and Rent Growth

Industrial

Source: Costar Portfolio Analytics, Mueller — March 2015.
Occupancy Cycle and Rent Growth

Apartment

Source: Costar Portfolio Analytics, Mueller — March 2015.
Apartment Market Cycle FORECAST
2nd Quarter, 2016 Estimates

Source: Mueller, 2015
Occupancy Cycle and Rent Growth

Retail

Source: Costar Portfolio Analytics, Mueller — March 2015.
Retail Market Cycle FORECAST
2nd Quarter, 2016 Estimates

Source: Mueller, 2015

LT Average Occupancy

Dallas FW
Ft. Lauderdale
Hartford+1
Las Vegas+1
Nashville
N. New Jersey+2
Orange County
NATION

Baltimore
Denver+1
Houston
Long Island
Los Angeles
Orlando+1
Seattle

East Bay
Minneapolis
San Diego
Wash DC

Austin
Boston
Honolulu
Miami
New York
Pittsburgh+1
Raleigh-Durham
Salt Lake
San Francisco
San Jose

Indianapolis+1
New Orleans
Palm Beach+1
Portland
Richmond
Tampa

Cleveland+1
Detroit+1
Memphis
Milwaukee
Philadelphia

Norfolk
Oklahoma City
Riverside
St. Louis

Atlanta
Charlotte
Chicago
Cincinnati
Columbus
Jacksonville
Kansas City+1
Phoenix
Sacramento
San Antonio
Stamford

Source: Mueller, 2015
Source: Costar Portfolio Analytics, Mueller — March 2015.
Hotel Market Cycle FORECAST
2nd Quarter, 2016 Estimates

Source: Mueller, 2015
Financial Cycle

$Capital$ Flows affect Prices
Market Cycle Capital Flow Impact

Capital Flows to Existing Properties

Cost Feasible Rents Reached

Hyper Supply

LT Occupancy Avg.

Property Market Cycle

Total Capital Flow Cycle

Capital Flows to New Construction
Bond Values DROP as Interest Rates Rise
10 Year Treasury Yields 1953 - 2015

10-Year Treasury Yield

Average Total Return 1953-1981 Peak = 3.9%
Average Total Return 1981-2013 = 8.7%
Average Yield = 6.02%

Average Total Return 1953-1973 = 1.9%

Source: Real Capital Analytics, March 2015
Portfolio Buyers Dominate Trades

Source: Real Capital Analytics April 2013
Debt Capital Flows

CMBS Issuance $ Billions

Source: Commercial Mortgage Alert 3-2015
## MOST ACTIVE MARKETS OF 2014

<table>
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<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Market</th>
<th>2014 Sales Volume ($M)</th>
<th>YOY Change</th>
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<td>23</td>
<td>23</td>
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<td>San Diego</td>
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<td>31</td>
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<td>$2,558</td>
<td>22%</td>
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<td>39</td>
<td>Central CA</td>
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</tbody>
</table>
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, February 2015.
Wide Yields Attracting Capital

Spread Between Cap Rates and 10-Year Treasury by Property Type

Source: Real Capital Analytics, 1Q 2015.
Nominal Returns during Low & High Inflation Periods

Asset Class Returns (nominal = without inflation)

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Returns (nominal)</th>
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<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>14.73%</td>
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<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>15.33%</td>
</tr>
<tr>
<td>7-Ant Portfolio</td>
<td>15.65%</td>
</tr>
<tr>
<td>60% Stock/40% Bonds</td>
<td>24.66%</td>
</tr>
</tbody>
</table>

Below-median CPI (<3.37%)  Above-median CPI (>3.37%)

Real Returns during Low & High Inflation Periods

REAL Asset Class Returns (inflation-adjusted)

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Median % Return</th>
<th>Below-median CPI (&lt;3.37%)</th>
<th>Above-median CPI (&gt;3.37%)</th>
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<tbody>
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<td>Large-Cap U.S. Stock</td>
<td>13.68</td>
<td>1.82</td>
<td>14.85</td>
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<td>Small-Cap U.S. Stock</td>
<td>6.10</td>
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<td>Non-U.S. Stock</td>
<td>4.88</td>
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<td>Commodities</td>
<td>18.31</td>
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<td>7-Asset Portfolio</td>
<td>10.78</td>
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<td>10.78</td>
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<tr>
<td>60% Stock/40% Bonds</td>
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<td>9.37</td>
<td>9.37</td>
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<td></td>
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</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

PLENTY OF CAPITAL FROM ALL SECTORS

Buyer Composition

<table>
<thead>
<tr>
<th>Year</th>
<th>User/Other</th>
<th>Private</th>
<th>Public</th>
<th>Equity Fund</th>
<th>Inst'l</th>
<th>Cross-Border</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>6%</td>
<td>43%</td>
<td>18%</td>
<td>10%</td>
<td>11%</td>
<td>10%</td>
</tr>
<tr>
<td>2013</td>
<td>5%</td>
<td>41%</td>
<td>19%</td>
<td>11%</td>
<td>13%</td>
<td>10%</td>
</tr>
<tr>
<td>2012</td>
<td>7%</td>
<td>42%</td>
<td>14%</td>
<td>12%</td>
<td>17%</td>
<td>9%</td>
</tr>
<tr>
<td>2011</td>
<td>6%</td>
<td>34%</td>
<td>18%</td>
<td>18%</td>
<td>14%</td>
<td>10%</td>
</tr>
<tr>
<td>2010</td>
<td>9%</td>
<td>38%</td>
<td>17%</td>
<td>14%</td>
<td>13%</td>
<td>8%</td>
</tr>
</tbody>
</table>

http://www.rcanalytics.com
Debt Capital: Credit Conditions Improving

Composition of Lenders 2014

Office
- CMBS: 17%
- Insurance: 9%
- Financial: 34%
- Int’l Bank: 13%
- Gov’t Agency: 18%
- Reg’l/Local Bank: 8%
- Pvt/Other: 8%

Industrial
- CMBS: 8%
- Insurance: 6%
- Financial: 30%
- Int’l Bank: 8%
- Gov’t Agency: 27%
- Reg’l/Local Bank: 16%
- Pvt/Other: 4%

Retail
- CMBS: 38%
- Financial: 5%
- Int’l Bank: 26%
- Gov’t Agency: 11%
- Nat’l Bank: 12%
- Pvt/Other: 7%

Apartment
- CMBS: 5%
- Financial: 65%
- Int’l Bank: 8%
- Gov’t Agency: 5%
- Nat’l Bank: 11%

Hotel
- CMBS: 34%
- Financial: 8%
- Int’l Bank: 6%
- Gov’t Agency: 17%
- Nat’l Bank: 27%
- Pvt/Other: 6%
HEIGHTENED COMPETITION AMONG LENDERS

**Lending Share of Regional/Local Banks**

- '10: 10%
- '11: 5%
- '12: 5%
- '13: 10%
- '14 H1: 15%

**2014 Lender Composition**

- CMBS: 30%
- Gov't Agency: 12%
- Ins Co: 11%
- Int'l Bank: 7%
- Nat'l Bank: 13%
- Reg'l / Local Bank: 16%
- Pvt/Other: 3%
GROWING INFLUENCE OF CROSS-BORDER CAPITAL

Top Trade Route Flows Double From 2013 - 2014

<table>
<thead>
<tr>
<th>Rank</th>
<th>Route</th>
<th>2014 Year</th>
<th>Source</th>
<th>Target</th>
<th>Vol (SM)</th>
<th>2014 Year</th>
<th>Source</th>
<th>Target</th>
<th>Vol (SM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USA</td>
<td>2014</td>
<td>USA</td>
<td>GBR</td>
<td>$22,594</td>
<td>2014</td>
<td>USA</td>
<td>GBR</td>
<td>$10,736</td>
</tr>
<tr>
<td>2</td>
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<td>2014</td>
<td>USA</td>
<td>FRA</td>
<td>$7,068</td>
<td>2014</td>
<td>USA</td>
<td>FRA</td>
<td>$4,873</td>
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<tr>
<td>3</td>
<td>CHN</td>
<td>2014</td>
<td>CHN</td>
<td>USA</td>
<td>$7,727</td>
<td>2014</td>
<td>CHN</td>
<td>USA</td>
<td>$3,793</td>
</tr>
<tr>
<td>4</td>
<td>GCC</td>
<td>2014</td>
<td>GCC</td>
<td>GBR</td>
<td>$7,451</td>
<td>2014</td>
<td>GCC</td>
<td>GBR</td>
<td>$3,140</td>
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<tr>
<td>5</td>
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<td>2014</td>
<td>USA</td>
<td>DEU</td>
<td>$7,032</td>
<td>2014</td>
<td>USA</td>
<td>DEU</td>
<td>$3,284</td>
</tr>
<tr>
<td>6</td>
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<td>2014</td>
<td>CHN</td>
<td>GBR</td>
<td>$4,864</td>
<td>2014</td>
<td>CHN</td>
<td>GBR</td>
<td>$6,435</td>
</tr>
<tr>
<td>7</td>
<td>NOR</td>
<td>2014</td>
<td>NOR</td>
<td>GBR</td>
<td>$4,357</td>
<td>2014</td>
<td>NOR</td>
<td>GBR</td>
<td>$2,029</td>
</tr>
<tr>
<td>8</td>
<td>SGP</td>
<td>2014</td>
<td>SGP</td>
<td>AUS</td>
<td>$4,186</td>
<td>2014</td>
<td>SGP</td>
<td>AUS</td>
<td>$2,547</td>
</tr>
<tr>
<td>9</td>
<td>CHN</td>
<td>2014</td>
<td>CHN</td>
<td>AUS</td>
<td>$4,108</td>
<td>2014</td>
<td>CHN</td>
<td>AUS</td>
<td>$1,918</td>
</tr>
<tr>
<td>10</td>
<td>JPN</td>
<td>2014</td>
<td>JPN</td>
<td>USA</td>
<td>$3,909</td>
<td>2014</td>
<td>JPN</td>
<td>USA</td>
<td>$727</td>
</tr>
<tr>
<td>11</td>
<td>CAN</td>
<td>2014</td>
<td>CAN</td>
<td>AUS</td>
<td>$3,769</td>
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<td>CAN</td>
<td>AUS</td>
<td>$384</td>
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<tr>
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<td>2014</td>
<td>GCC</td>
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<td>$3,703</td>
<td>2014</td>
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<td>USA</td>
<td>$3,085</td>
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<tr>
<td>13</td>
<td>USA</td>
<td>2014</td>
<td>USA</td>
<td>JPN</td>
<td>$3,634</td>
<td>2014</td>
<td>USA</td>
<td>JPN</td>
<td>$2,918</td>
</tr>
<tr>
<td>14</td>
<td>USA</td>
<td>2014</td>
<td>USA</td>
<td>ESP</td>
<td>$3,586</td>
<td>2014</td>
<td>USA</td>
<td>ESP</td>
<td>$1,133</td>
</tr>
<tr>
<td>15</td>
<td>USA</td>
<td>2014</td>
<td>USA</td>
<td>NLD</td>
<td>$3,144</td>
<td>2014</td>
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<td>NLD</td>
<td>$1,460</td>
</tr>
<tr>
<td>16</td>
<td>CAN</td>
<td>2014</td>
<td>CAN</td>
<td>GBR</td>
<td>$2,892</td>
<td>2014</td>
<td>CAN</td>
<td>GBR</td>
<td>$1,871</td>
</tr>
<tr>
<td>17</td>
<td>USA</td>
<td>2014</td>
<td>USA</td>
<td>CHN</td>
<td>$2,912</td>
<td>2014</td>
<td>USA</td>
<td>CHN</td>
<td>$2,728</td>
</tr>
<tr>
<td>18</td>
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<td>USA</td>
<td>AUS</td>
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<td>2014</td>
<td>USA</td>
<td>AUS</td>
<td>$2,752</td>
</tr>
<tr>
<td>19</td>
<td>DEU</td>
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<td>DEU</td>
<td>USA</td>
<td>$2,036</td>
<td>2014</td>
<td>DEU</td>
<td>USA</td>
<td>$2,360</td>
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<tr>
<td>20</td>
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<td>2014</td>
<td>USA</td>
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<td>$1,573</td>
</tr>
<tr>
<td>21</td>
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<td>GCC</td>
<td>FRA</td>
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<td>2014</td>
<td>GCC</td>
<td>FRA</td>
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</tr>
<tr>
<td>22</td>
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<td>2014</td>
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<td>2014</td>
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<tr>
<td>23</td>
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<td>2014</td>
<td>SGP</td>
<td>USA</td>
<td>$2,506</td>
</tr>
<tr>
<td>24</td>
<td>SGP</td>
<td>2014</td>
<td>SGP</td>
<td>BRA</td>
<td>$1,871</td>
<td>2014</td>
<td>SGP</td>
<td>BRA</td>
<td>$1,871</td>
</tr>
<tr>
<td>25</td>
<td>SGP</td>
<td>2014</td>
<td>SGP</td>
<td>GBR</td>
<td>$1,852</td>
<td>2014</td>
<td>SGP</td>
<td>GBR</td>
<td>$3,544</td>
</tr>
</tbody>
</table>

GCC (Gulf Cooperation Council): Bahrain, Saudi Arabia, Oman, Kuwait, Qatar, and the United Arab Emirates
China and Hong Kong combined for the source of capital. Full credit is given to each partner in cases where both buyers were investing globally.
2015 Physical Cycle

- Demand & Supply affect occupancies → *drives* rental growth
- Employment & Demand growth resumed 2Q 2010
- Supply growth slowest in 43+ years (2013 bottom) supply increasing 2014&15
- RE growth phase 2014-2016 (depending on market & property type)

2015 Financial Cycle

- Capital flows affect prices — stock market rebound 2013, volatile 2014 & 2015!
- Real estate *safest* investment alternative 2000-2007, pushed prices up
- Prices *dropped* 2008, 2009 = buying opportunities 2010 – 2014  now?
- Debt financing *harder* 2013 - 15 - creating buying opportunity for *Cash Buyers*

- *Differentiate* residential *versus* commercial real estate to your investors!
QUESTIONS?
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**
Interest Rates
Capital Flows
Real Estate Prices
Cap Rates