The Returns to Single Family Rental Strategies

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HOMEOWNERSHIP RATES

Home Ownership Rate


Home Ownership Rate

40.0% 45.0% 50.0% 55.0% 60.0% 65.0% 70.0%
Fannie Reasons to Buy a House

Figure 3: Share of Respondents by Reasons to Own a Home

Notes: Bars in orange are considered lifestyle reasons and bars in purple as financial reasons for buying a home. Reasons are listed in order of share of respondents selecting it as a major reason to buy.

Drew and Herbert (2012)
Overview of Research Strategy

- Real investment strategy ⇒ Traditional NPV Analysis

  But, over 1 yr with reasonable rental yields and HPA, IRR’s approximately proportional to “Total Returns”

- Define annual total returns as

  \[ \text{Total Returns} \equiv \text{Net Rental Yield} + \text{HPA} \]

- Start with an overview of total returns.

- Then, discuss total returns:
  1. Nationally across MSA’s
  2. Within MSA’s across zip codes
Across MSA Total Returns
Median Characteristic Adjusted Rent/Price Ratio for Owner Occupied Housing

Los Angeles: 4%
Cap Rates 11/13 Core Logic

Fort Lauderdale, FL
Tampa, FL
Buffalo, NY
Pittsburgh, PA
Miami, FL
Fort Worth, TX
Houston, TX
Greensboro, NC
Atlanta, NC
San Antonio, TX
Las Vegas, NV
Cleveland, OH
Orlando, FL
Cincinnati, OH
Indianapolis, IN
St. Louis, MO
Philadelphia, PA
Dallas, TX
New Orleans, LA
Raleigh, NC
Riverside, CA
Columbus, OH
Riverside, CO
Denver, CO
Kansas City, MO
Minneapolis, MN
Detroit, MI
Phoenix, AZ
Norfolk, VA
Newark, NJ
Austin, TX
Baltimore, MD
Salt Lake City, UT
Milwaukee, WI
Chicago, IL
Boulder, CO
New Britain, CT
Portland, OR
Los Angeles, CA
Seattle, WA
Washington, DC
Boston, MA
Oakland, CA
Stamford, CT
San Jose, CA
San Francisco, CA
New York, NY
Total Return Historical HPA
Total Return Recent HPA

Las Vegas, NV
Phoenix, AZ
Miami, FL
San Jose, CA
Oakland, CA
Detroit, MI
Riverside, CA
San Francisco, CA
Worcester, MA
Orlando, FL
San Antonio, TX
Kansas City, MO
Chicago, IL
Washington, DC
Cleveland, OH
Milwaukee, WI
St. Louis, MO
New Orleans, LA
Philadelphia, PA
Cincinnati, OH
Waterbury, CT
Norfolk, VA
Columbus, OH
New York, NY
Greensboro, NC
Baltimore, MD
New Orleans, LA
Philadelphia, PA
Cincinnati, OH
Waterbury, CT
TOTAL LEVERED RETURN

3(HPA + Cap Rate) - 2(Financing)
HPA is Key to Total Returns

Preview: HPA Model “Two Stage Error Correction”

1. Stage 1: Predict trend of house prices using income, supply inelasticity, and user cost inputs.

2. Stage 2: Predict deviation from trend using measures of “disequilibrium”.

Long run HPA based on fundamentals in stage 1, while
Short run HPA also depends on disequilibrium in stage 2.
Income Growth is key to HPA
Only Top of Distribution is Growing

- United States-Bottom 90% average income-including capital gains
- United States-Top 10-5% average income-including capital gains
- United States-Top 5-1% average income-including capital gains
- United States-Top 1-0.5% average income-including capital gains
- United States-Top 0.5-0.1% average income-including capital gains
- United States-Top 0.1-0.01% average income-including capital gains

Current threshold top 5% = $161,438
Current threshold top 10% = $113,820
Current threshold top 1% = $393,941
Income Growth is key to HPA
Poor constrained, rich unconstrained.
% of Income on Housing
Income Growth is key to HPA
Zips with the top 10%

%zip > $113,820 as of 2010
Income Growth is key to HPA

HPA (1993-2013) vs. Fraction of zips > $113,820 median income in 2011 dollars
Supply Elasticity is key to HPA
Supply Elasticity is key to HPA

Log Inverse Housing Supply Elasticity vs. HPA (1993-2013)
Poor Man’s Error Correction Term: Relative to Boom Peak

Distance from Pre-2009 Peak
Within MSA Total Returns
WITHIN LA RECENT HPA (avg. 2012-2013)
WITHIN LA TOTAL RETURN
11/13 Cap, avg. 2012-2013 HPA
Within LA Total Leveraged Return
11/13 Cap, avg. 2012-2013 HPA
Explaining HPA within MSA’s

HPA within MSA’s is very disperse and can be very large.

- Ways to understand within MSA HPA:
  1. Gentrification:
     Assignment model based on income growth and income distribution, house quality distribution.
     Van Nieuwerburgh Weill, Hurst Hartley Guerierri
  2. Housing “CAPM”:
     Compensation for MSA and Nationwide HPA factors.
  3. Subprime/financing effects:
     Landvoight Piazzesi Scheider
Unlevered IRR’s
## ProFormas

### Carried Inputs from Year 1 Assumptions

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Years out</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10 Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Invested</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$520,473</td>
</tr>
</tbody>
</table>

### Revenue

<table>
<thead>
<tr>
<th>Gross Rent</th>
<th>47,817</th>
<th>49,251</th>
<th>50,729</th>
<th>52,251</th>
<th>53,818</th>
<th>55,433</th>
<th>57,096</th>
<th>58,809</th>
<th>60,573</th>
<th>62,390</th>
<th>3.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross yield (=R/initial purchase price+renovations) ratio</td>
<td>9.2%</td>
<td>9.5%</td>
<td>9.7%</td>
<td>10.0%</td>
<td>10.3%</td>
<td>10.7%</td>
<td>11.0%</td>
<td>11.3%</td>
<td>11.6%</td>
<td>12.0%</td>
<td></td>
</tr>
</tbody>
</table>

### Vacancy and Credit Loss

<table>
<thead>
<tr>
<th>$ (1,546.40)</th>
<th>$ (1,593)</th>
<th>$ (1,641)</th>
<th>$ (1,690)</th>
<th>$ (1,740)</th>
<th>$ (1,793)</th>
<th>$ (1,846)</th>
<th>$ (1,902)</th>
<th>$ (1,959)</th>
<th>$ (2,018)</th>
<th>3.23%</th>
</tr>
</thead>
</table>

### Effective Gross Rent

<table>
<thead>
<tr>
<th>$46,271</th>
<th>$47,659</th>
<th>$49,088</th>
<th>$50,561</th>
<th>$52,078</th>
<th>$53,640</th>
<th>$55,249</th>
<th>$56,907</th>
<th>$58,614</th>
<th>$60,373</th>
<th></th>
</tr>
</thead>
</table>

### Expenses

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Revenue Linked Expenses</td>
<td>$(17,176)</td>
<td>$(17,519)</td>
<td>$(17,869)</td>
<td>$(18,227)</td>
<td>$(18,591)</td>
<td>$(18,963)</td>
<td>$(19,343)</td>
<td>$(19,729)</td>
<td>$(20,124)</td>
<td>$(20,526)</td>
<td>2.00%</td>
</tr>
<tr>
<td>Total Expenses</td>
<td>$(20,905)</td>
<td>$(21,361)</td>
<td>$(21,826)</td>
<td>$(22,302)</td>
<td>$(22,789)</td>
<td>$(23,287)</td>
<td>$(23,796)</td>
<td>$(24,316)</td>
<td>$(24,849)</td>
<td>$(25,393)</td>
<td></td>
</tr>
</tbody>
</table>

### Net operating income

<table>
<thead>
<tr>
<th>NOI yield</th>
<th>4.9%</th>
<th>5.1%</th>
<th>5.2%</th>
<th>5.4%</th>
<th>5.6%</th>
<th>5.8%</th>
<th>6.0%</th>
<th>6.3%</th>
<th>6.5%</th>
<th>6.7%</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NOI margin</td>
<td>53.0%</td>
<td>53.4%</td>
<td>53.7%</td>
<td>54.1%</td>
<td>54.4%</td>
<td>54.8%</td>
<td>55.1%</td>
<td>55.4%</td>
<td>55.7%</td>
<td>56.1%</td>
<td></td>
</tr>
</tbody>
</table>

### Cap Ex

<table>
<thead>
<tr>
<th>$ (5,205)</th>
<th>$(5,309)</th>
<th>$(5,415)</th>
<th>$(5,523)</th>
<th>$(5,634)</th>
<th>$(5,746)</th>
<th>$(5,861)</th>
<th>$(5,979)</th>
<th>$(6,098)</th>
<th>$(6,220)</th>
<th>2.00%</th>
</tr>
</thead>
</table>

### Free Cash Flow

<table>
<thead>
<tr>
<th>IFC yield (economic)</th>
<th>3.9%</th>
<th>4.0%</th>
<th>4.2%</th>
<th>4.4%</th>
<th>4.6%</th>
<th>4.7%</th>
<th>4.9%</th>
<th>5.1%</th>
<th>5.3%</th>
<th>5.5%</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FCF margin (economic)</td>
<td>42.2%</td>
<td>42.6%</td>
<td>43.1%</td>
<td>43.5%</td>
<td>44.0%</td>
<td>44.4%</td>
<td>44.8%</td>
<td>45.3%</td>
<td>45.7%</td>
<td>46.1%</td>
<td></td>
</tr>
</tbody>
</table>

### Home Value

<table>
<thead>
<tr>
<th>$520,473</th>
<th>$546,496</th>
<th>$568,356</th>
<th>$588,249</th>
<th>$605,896</th>
<th>$624,073</th>
<th>$642,795</th>
<th>$662,079</th>
<th>$681,941</th>
<th>$702,400</th>
<th>$723,472</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HPA</td>
<td>5.0%</td>
<td>4.0%</td>
<td>3.5%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

### Total Return on Investment

| 8.9% | 8.0% | 7.7% | 7.4% | 7.5% | 7.7% | 7.9% | 8.1% | 8.3% | 8.5% |  |

### Total cash flows each date 10 year investment horizon

<table>
<thead>
<tr>
<th>$(520,473)</th>
<th>$20,160</th>
<th>$20,989</th>
<th>$21,847</th>
<th>$22,735</th>
<th>$23,655</th>
<th>$24,607</th>
<th>$25,592</th>
<th>$26,612</th>
<th>$27,667</th>
<th>$28,760</th>
<th></th>
</tr>
</thead>
</table>

### Total cash flows each date 5 year investment horizon

<table>
<thead>
<tr>
<th>$(520,473)</th>
<th>$20,160</th>
<th>$20,989</th>
<th>$21,847</th>
<th>$22,735</th>
<th>$23,655</th>
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<th>$25,592</th>
<th>$26,612</th>
<th>$27,667</th>
<th>$28,760</th>
<th></th>
</tr>
</thead>
</table>

### Unlevered IRR:

| 7.6% | 8.2% |  |

### NPV @ IRR (Set this to zero by changing unlevered IRR)

| (11,736) | (14,204) |  |
## ProForma Assumptions

**Assumptions or Implied Percentages**

### House Characteristics

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedrooms</td>
<td>3</td>
</tr>
<tr>
<td>Bathrooms</td>
<td>2</td>
</tr>
<tr>
<td>Square Feet</td>
<td>1,438</td>
</tr>
</tbody>
</table>

Price per square foot: $353.00  
For calculations per square foot. Implied by Trulia average price 3BR/average price per square foot from Trulia for 3BR homes.

### Capital Investment

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase Price</td>
<td>$507,500.00</td>
</tr>
</tbody>
</table>

Renovation

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paint</td>
<td>$1,725.21</td>
</tr>
<tr>
<td>Floor</td>
<td>$2,012.75</td>
</tr>
<tr>
<td>Appliances</td>
<td>$4,000.00</td>
</tr>
<tr>
<td>Landscaping</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Cleaning</td>
<td>$359.42</td>
</tr>
<tr>
<td>General Repairs</td>
<td>$2,875.35</td>
</tr>
</tbody>
</table>

Total Renovation: $12,972.73  
2.6% Implied percentage renovation cost/purchase price

Total Invested Capital: $520,472.73

### Baseline First Year Income and Expenses

#### Revenue

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Rent</td>
<td>$47,816.91</td>
</tr>
<tr>
<td>Vacancy</td>
<td>$(1,195.42)</td>
</tr>
<tr>
<td>Credit Loss</td>
<td>$(350.98)</td>
</tr>
</tbody>
</table>

Effective Gross Rent: $46,270.51  
96.77% Implied percentage effective gross rent

#### Expenses

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Management</td>
<td>$2,821.20</td>
</tr>
<tr>
<td>Leasing Fees</td>
<td>$908.52</td>
</tr>
<tr>
<td>Property Taxes</td>
<td>$6,505.91</td>
</tr>
<tr>
<td>HOA Fees</td>
<td>$1,951.77</td>
</tr>
<tr>
<td>Insurance</td>
<td>$1,951.77</td>
</tr>
<tr>
<td>Repairs and Maintenance</td>
<td>$3,122.84</td>
</tr>
<tr>
<td>Turnover Costs</td>
<td>$3,643.31</td>
</tr>
</tbody>
</table>

Total Expenses: $20,905.32  
4.017% Implied percentage total expenses/capital investment

Annual Capex: $(5,204.73)  
1.00% CapEx in addition to maintenance and repairs.

Net Operating Income: $25,365.19

Free Cash Flow: $20,160.47
## Expense Assumptions

<table>
<thead>
<tr>
<th></th>
<th>Morgan Stanley</th>
<th>Deutsche Bank</th>
<th>Five Ten</th>
<th>Fed White Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Renovation</strong></td>
<td>costs per square foot imply 8.8% of purchase price</td>
<td>8.70%</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td><strong>Vacancy</strong></td>
<td>2.5% of gross rent</td>
<td>5.4% of gross rent</td>
<td>5.60%</td>
<td>one month per year =1/12 of gross rent</td>
</tr>
<tr>
<td><strong>Credit Loss</strong></td>
<td>.73% of gross rent</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td><strong>Property Management</strong></td>
<td>5.9% of gross rent</td>
<td>5.7% of gross rent</td>
<td>4-8% of gross rent or $1000/year</td>
<td>8% of gross rent</td>
</tr>
<tr>
<td><strong>Leasing Fee</strong></td>
<td>1.9% of gross rent</td>
<td>none</td>
<td>75% of gross rent initial, 25% rollover</td>
<td>one month's rent=1/12 of gross rent</td>
</tr>
<tr>
<td><strong>Property Taxes</strong></td>
<td>1.25% of initial investment</td>
<td>16.7% of gross rent, includes insurance</td>
<td>1.5%-2% of property value</td>
<td>none</td>
</tr>
<tr>
<td><strong>HOA Fees</strong></td>
<td>0.375% of initial investment</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td><strong>Insurance</strong></td>
<td>0.375% of initial investment</td>
<td>rolled in with taxes</td>
<td>$750-2000/year depending on hazards, construction costs</td>
<td>none</td>
</tr>
<tr>
<td><strong>Repairs and Maintenance</strong></td>
<td>0.6% of initial investment</td>
<td>15.5% of gross rent</td>
<td>$1500-2000/year</td>
<td>2% of property value</td>
</tr>
<tr>
<td><strong>Turnover costs</strong></td>
<td>0.7% of initial investment</td>
<td>none</td>
<td>$1000 every 3 years</td>
<td>none</td>
</tr>
<tr>
<td><strong>Additional annual capex</strong></td>
<td>1.15% of initial investment</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>
**Core Logic Cap Rate Formula Inputs**

\[
\text{Cap Rate} = \frac{\text{Revenue} - \text{Expense}}{\text{Cost}}
\]

\[
\text{ROI} = \frac{\text{Revenue} - \text{Expense} + (\text{Discount} - \text{Renovation} + \text{Cap Gain})_{\text{Annualized}}}{\text{Cost}}
\]

- **Rent**: Rent Amount Model
- **HOA fees**: MLS data
- **Insurance**: Formula: 0.35% of property value annually
- **Maintenance**: Formula: 17.5% of rent
- **Management**: Formula: 8% of rent
- **Property Tax**: Property data
- **Resident Risk**: SafeRent ScorePLUS
- **Vacancy Loss**: Vacancy Rate Model
- **Property Value**: AVMs, HPI Forecast