Summary

The latest data for June 2009 reveals that house prices declined by 31 percent in the Phoenix metro area, which is slightly less than the 33 percent decline in May and 35 percent in April (Table 1). The decline in the index which began in March 2007 has continued for 28 months compared to the 17 month decline in the early 1990s. Preliminary estimates for July and August have prices declining at progressively slower rates, 28 and 25 percent respectively. It is now clear that the worst is past in terms of the rate of decline in house prices and that prices were falling most rapidly back in February and March. In contrast to the overall 31 percent annual decline, the June to June decline for lower priced homes was 45 percent compared to 24 percent for more expensive houses. However, for the first time since March 2007 the change in the index indicates that prices increased, if only slightly, from the previous month. The overall increase from May to June was 0.8 percent; 1.2 percent for lower priced houses and 0.5 percent for the upper part of the market. The total decline in prices from the mid-2006 peak is 49 percent, which breaks down to 61 and 39 percent declines for the lower and higher priced houses, respectively. This is in contrast to the last major decline from 1989 to 1992 where the upper portion of the market declined much more (13 percent) than the lower portion (4 percent).

The overall median price for sales that were included in the June index was $122,000, up from $119,000 in May. While the median price has increased slightly, it must be remembered that the current housing market is still quite volatile, making it difficult to predict house prices in the near term. Preliminary median prices for July and August are $125,000 and $127,000, respectively, indicating continued firming in house prices, at least through the summer months. The median price for the lower and higher priced houses in June was $87,000 and $250,000 respectively.

TABLE 1

DECLINE IN HOUSE PRICES, OVERALL AND BY PRICE CATEGORY
EARLY 1990s VS THE PRESENT

(%)  

<table>
<thead>
<tr>
<th></th>
<th>OVERALL</th>
<th>LOWER PRICED</th>
<th>HIGHER PRICED</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2008 – June 2009</td>
<td>-30.8</td>
<td>-45.0</td>
<td>-23.6</td>
</tr>
<tr>
<td>May - June 2009</td>
<td>0.8</td>
<td>1.2</td>
<td>0.5</td>
</tr>
<tr>
<td>1989 – 1992</td>
<td>-7.7</td>
<td>-3.9</td>
<td>-12.8</td>
</tr>
<tr>
<td>2006 – 2009</td>
<td>-48.5</td>
<td>-61.1</td>
<td>-38.6</td>
</tr>
<tr>
<td>Median Price - June 2009</td>
<td>$122,000</td>
<td>$87,000</td>
<td>$250,000</td>
</tr>
</tbody>
</table>
Regions

Annual rates of decline vary widely across the five regions as does the change from May to June. The annual rate of decline slowed by 3 percent in the hard hit Central and Southwest regions from the August report and by lesser amounts in the other regions. Compared to May, prices were actually up slightly (1.6 percent) in the Central and by 1.4 percent in the Southwest regions. While all five regions showed similar dramatic increases in house prices from January 2004 to their 2006 peaks (74 – 81 percent), total price declines through June have varied widely. The Southwest is down the most since the peak, 59%, with the Central and Northwest regions also down over 50 percent, presumably reflecting the severity of the foreclosure problem in those parts of the metro area. Even in the Northeast, which has been affected the least, prices have declined by over 34 percent from the peak.

| Table 2 |
| ANNUAL, MONTHLY AND TOTAL PERCENT DECLINES IN HOUSE PRICES BY REGION 
EARLY 1990s VS THE PRESENT |

<table>
<thead>
<tr>
<th>CENTRAL</th>
<th>NORTHEAST</th>
<th>SOUTHEAST</th>
<th>NORTHWEST</th>
<th>SOUTHWEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2008 – June 2009</td>
<td>-40.3%</td>
<td>-21.7%</td>
<td>-25.9%</td>
<td>-32.4%</td>
</tr>
<tr>
<td>May – June 2009</td>
<td>1.6%</td>
<td>-0.5%</td>
<td>-0.6%</td>
<td>-0.8%</td>
</tr>
<tr>
<td>1989 – 1992</td>
<td>-3.2%</td>
<td>-9.7%</td>
<td>-7.0%</td>
<td>-15.3%</td>
</tr>
<tr>
<td>2006 – 2009</td>
<td>-55.4%</td>
<td>-34.2%</td>
<td>-45.8%</td>
<td>-53.7%</td>
</tr>
</tbody>
</table>

Cities

Variations similar to those observed in the regional data are also apparent in the city data. The declines in house prices from June 2008 to June 2009 slowed compared to the May data for most regions. The exceptions were Gilbert and Tempe where prices fell at slightly faster rates. Price changes from May to June also moderated slightly but only Sun City / Sun City West showed a slight increase for the second straight month. Prices have declined by over 50 percent in Glendale and Peoria since they peaked in 2006 with substantial declines in excess of 30 percent in all other cities including Scottsdale / Paradise Valley.
TABLE 3
ANNUAL, MONTHLY AND TOTAL PERCENT DECLINES IN HOUSE PRICES BY CITY
EARLY 1990s VS THE PRESENT

<table>
<thead>
<tr>
<th>CHANDLER</th>
<th>GILBERT</th>
<th>GLENDALE</th>
<th>MESA</th>
<th>PEORIA</th>
<th>SCOTTSDALE/ PARADISE VALLEY</th>
<th>SUN CITY/ SUN CITY WEST</th>
<th>TEMPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2008- June 2009</td>
<td>-21.6%</td>
<td>-20.6%</td>
<td>-37.7%</td>
<td>-30.7%</td>
<td>-28.5%</td>
<td>-20.7%</td>
<td>-15.2%</td>
</tr>
<tr>
<td>May -June 2009</td>
<td>0.2</td>
<td>-1.7</td>
<td>-0.8</td>
<td>-1.2</td>
<td>-0.6</td>
<td>-0.8</td>
<td>0.1</td>
</tr>
<tr>
<td>1989 – 1992</td>
<td>-7.6</td>
<td>na</td>
<td>-19.6</td>
<td>-10.9</td>
<td>-7.3</td>
<td>-9.7</td>
<td>-10.5</td>
</tr>
<tr>
<td>2006 – 2009</td>
<td>-41.8</td>
<td>-45.0</td>
<td>-56.7</td>
<td>-49.7</td>
<td>-52.0</td>
<td>-33.7</td>
<td>-35.0</td>
</tr>
</tbody>
</table>

Methodology

The use of repeat sales is the most reliable way to estimate price changes in the housing market because the repeat sales approach eliminates the need to deal with the many issues associated with the heterogeneous nature of housing. Repeat sales can be used to measure the price change of the same housing unit over time. A large number of repeat sales over many years can be analyzed to develop a repeat sales index. In contrast, indices developed using regression analysis provide estimates of price changes over time while simultaneously attempting to control for differences in house characteristics, location, demographics and market conditions, etc. within the model. Regression analysis can and does produce meaningful estimates of price changes but the results are not as reliable as those produced using repeat sales data. An even less rigorous approach would be to simply average sale prices by zip code or some other geographic area where the mix of housing sizes and ages, etc. would be different each month. The percent changes based on medians or averages would reflect not only price changes but also differences in the sizes, ages and other characteristics of the houses sold each month.

The W.P. Carey School of Business – Repeat Sales Index (RSI) tracks very closely to the S&P/Case - Shiller index for Phoenix since the same methodology is employed for calculating both indices. The S&P/ Case-Shiller index has been developed for 20 metropolitan areas and is being used as a basis for trading housing futures contracts in 10 of those markets. Any differences that exist between the two indices are probably due to the way the data has been cleaned prior to the
calculation process. The S&P/Case-Shiller index is proprietary so the cleaning procedure used in connection with that index could not be completely duplicated. However, following S&P/Case-Shiller, the cleaning process used with the ASU - RSI excludes pairs where the first sale involved new construction and pairs where sales occurred within six months of each other. Sale pairs with extremely high or low annual rates of price change are excluded since at least one of the transactions may involve a data error. The same justification is used to drop sales with extremely high or low prices or prices per square foot prior to matching the sale pairs. A more detailed explanation of the data cleaning and calculation process is contained in the ASU-RSI Methodology Report.

The house price data used in the S&P/Case-Shiller index starts in January 1989. Beginning with January 1990, the percent change from the same month in the previous year is reported. The ASU – RSI also begins with January 1989 data so the same percent change calculation also begins in January 1990 and is reported for each month since then. There is seasonality in house price data so month to month changes may not accurately reflect changes in market conditions and would cover a very short time period. Calculating a percent change from the same month in the previous year controls for whatever seasonality may be present in the data. Annual rates of change typically are thought of applying to a calendar year but in this report the annual rates that are reported would be measuring change over the preceding twelve months. To smooth the index, data is included in calculations for the current month and the next two months before it is reported. This means that the rate of return calculated from each sale pair is included in calculations for a total of three months before it is published, which accounts for the difference between the date on the report and the ending date on the graphs.

The S&P/Case-Shiller index is published only for the entire Phoenix metro area. One major advantage to the ASU-RSI is that in addition to the overall index, indices have been calculated for higher and lower priced houses and for smaller geographic areas. For each month the data are divided into two groups based on that month’s median price. Sales are then paired within each of the two data sets and a repeat sales index is calculated for each. The metro area has also been divided into five regions and an index has been calculated for each. All repeat sales used in the metro index are included in one of the regional indices. Indices have also been calculated for eight individual cities where there are a sufficient number of repeat sales for the index to be reliable. A list of the cities included in each region is in Table 4.

The graphs contained in this report show the annual rate of change in house prices for the Phoenix metropolitan area on a monthly basis. Figure 1 compares the change in the overall, lower and higher priced indices to the trend where the trend is based on data through December 2003. Figure 2 makes the same type of comparison using the median price of sales that were used to form sale pairs for the current month, not the median price of all sales that occurred during the month.
Since each index is a moving three month average, preliminary estimates of the index and future median prices for the entire market are included for the next two months (July and August) in Figures 1 and 2. The next ten graphs cover two time periods. Five of the graphs present the price changes from January 1990 through June 2009 while the other five graphs cover the current housing cycle beginning in January 2004. Due to data limitations, a reliable index for Gilbert could not be calculated until January 1999 so the annual change for Gilbert in Figures 7 and 8 starts in January 2000.

TABLE 4

CITIES INCLUDED IN REGIONS

<table>
<thead>
<tr>
<th>REGION</th>
<th>CITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTHEAST</td>
<td>CAREFREE, CAVE CREEK, FOUNTAIN HILLS, PARADISE VALLEY, SCOTTSDALE</td>
</tr>
<tr>
<td>NORTHWEST</td>
<td>EL MIRAGE, GLENDALE, PEORIA, SUN CITY / SUN CITY WEST, SURPRISE, YOUNGTOWN</td>
</tr>
<tr>
<td>CENTRAL</td>
<td>PHOENIX</td>
</tr>
<tr>
<td>SOUTHEAST</td>
<td>APACHE JUNCTION, CHANDLER, GILBERT, HIGLEY, MESA, QUEEN CREEK, SUN LAKES, TEMPE</td>
</tr>
</tbody>
</table>
SOUTHWEST
AVONDALE
BUCKEYE
GOODYEAR
LITCHFIELD PARK
Figure 1
Annual Percent Change in Phoenix House Prices
Overall, Lower\(^1\) and Upper\(^2\) Price Range
January 1990 - August 2009

Trend
Overall
Upper Range
Lower Range

July and August are Preliminary

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data

1: Median Price $90,000  2: Median Price $250,000
Figure 2
Median Phoenix House Prices
Overall, Lower\(^1\) and Upper\(^2\) Price Range
January 1989 - August 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data

1: Median Price $90,000  2: Median Price $250,000
Figure 3
Metro Phoenix Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 1990-June 2009

Metro Area
Upper Range
Lower Range

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 4
Metro Phoenix Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 2004 - June 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 5
Regional Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 1990 - June 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 6
Regional Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 2004 - June 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 7
Chandler, Gilbert, Mesa, & Tempe Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 1990 - June 2009

Chandler
Gilbert
Mesa
Tempe
Metro Area

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 8
Chandler, Gilbert, Mesa & Tempe Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 2004 - June 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 9
Glendale, Peoria, & Sun City/Sun City West Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 1990 - June 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 10
Glendale, Peoria, & Sun City/Sun City West Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 2004 - June 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 11
Scottsdale/Paradise Valley, & Phoenix Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 1990 - June 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data
Figure 12
Scottsdale/Paradise Valley, & Phoenix Repeat Sales Index (RSI)
Percent Change Same Month, Previous Year
January 2004 - June 2009

Source: ASU W.P. Carey School of Business; Center for Real Estate Theory and Practice
Data Provided by Ion Data