Repeat Sales Index Report Residential • September 2010

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For the first time since March, house prices turned down slightly in August (-2 percent) compared to August 2009 (Table 1). This is the first overall decline since March but it is consistent with the small ups and downs associated with relatively stable house prices. The ASU-RSI has been relatively stable for over a year which suggests that changes in house prices will be moderate going forward unless there are dramatic changes in the Phoenix economy or housing market. After increasing for five months, foreclosure prices declined in August (-4 percent) but at a much slower rate than non-foreclosure prices (-9 percent). Foreclosures have been one of the stronger segments of the market in recent months. The weakness in prices may mean that there finally is insufficient demand to absorb the steady stream of foreclosures that enter the market each month. However, it is too early to tell if the decline is the start of a new trend or reflects just a temporary slowdown. Non-foreclosure prices have been declining at an annual rate of 9-13 percent since March and the August decline (-9 percent) is a continuation of that trend. This is the segment of the market that is of interest to most homeowners, whether they are waiting to sell or simply interested in knowing when their equity will stop shrinking. Unfortunately, the data doesn't provide a basis for optimism at this time.

Lower priced houses show a preliminary increase in August of 3 percent, considerably slower than in recent months where annual gains have ranged from 8 to 13 percent. Since many foreclosures are also lower priced houses, the slowdown in appreciation is not surprising. Higher priced houses continued their pattern of small annual declines which began last spring. The trend of falling prices continued for the sixth consecutive month for townhouse / condos. However, their prices have been declining at the much higher rate of around 20 percent per year since March.

TABLE 1 CHANGE IN RESIDENTIAL PRICES (Percent)

	OVERALL	LOWER	HIGHER	TOWNHOUSE /	FORECLOSURES	NON-
		PRICED	PRICED	CONDO		FORECLOSURES
June 2009 – June 2010	1.7	11.5	-2.2	-18.8	5.0	-10.7
May 2010 - June 2010	-0.1	0.1	-0.5	-2.2	2.4	-3.1
1989–1992	-7.7	-3.9	-12.8	-3.9	na	na
2006– June 2010	-48.4	-58.3	-40.2	-56.2	-54.9	-44.1
Median Price - June 2010	\$132,500	\$105,000	\$295,000	\$75,500	\$119,000	\$165,000

The overall median price for sales that were included in the June index was \$132,500 and the preliminary figure for August is \$122,000. Beginning in June 2009, median prices have fluctuated between \$122,000 and \$135,000. While the June to August decline is around 8 percent, the August median is still within the range of recent median prices. While changes of this magnitude in a short period of time would be unusual under normal market conditions, the current market clearly is more volatile than normal. It will take several months of rising or falling median prices (or annual changes in house prices) before it could be concluded that the housing market is on a different trajectory. The median price for foreclosed houses in June was \$119,000 but declined to \$110,000 by August, which was approximately the median price a year ago. A similar decline occurred for non-foreclosures where the median price dropped to \$155,000 in August compared to \$165,000 in June. The median for August puts prices back to the level of last January but within the \$155,000 - \$165,000 range where prices have been for well over a year. The same comment can be made for median prices in the lower and upper segments of the market. Fairly large declines the past two months still leave prices at the lower end of their recent ranges. It will take another month or two of declines before it will be clear that prices have again resumed a downward trend. The preliminary median price of townhouse / condo units in August dipped to \$65,000, which is a continuation of a downward trend that began in June. Townhouse / condo prices seem to periodically take a step down in price and then stabilize for several months before starting the next decline.

Regions

Regional price changes in June were mixed. The Central, Northwest and Southwest regions have had small increases for two months and that pattern continued in June but the increases slowed in the Central and Northwest regions. The Southwest was hardest hit by the downturn and prices there continued to strengthen in June. The rate of decline has been slowing steadily in the Southeast region and was only -1.3 percent in June. In contrast, prices declined at a slightly faster rate in the Northeast. When prices started to decline, the Northeast region fared best but that is no longer the case. Prices have been declining at single-digit rates for several months and the June decline was 5.1 percent, making it the only region not showing improvement. In terms of total declines from the 2006 peak, the Southwest is down the most, 57 percent, but even in the Northeast prices have now dropped by 38 percent. The three hardest hit regions still show total declines in excess of 50 percent.

<u>Cities</u>

This report introduces new indices for Goodyear, Avondale and Surprise, bringing the total number of cities for which indices are calculated to eleven. Limited historical data has prevented those cities from being included in the monthly reports until now. However, the methodology used to calculate the indices for those cities has been modified, resulting in enough sale pairs so that a reliable

index can be calculated. The modified methodology is explained in more detail in the methodology section at the end of this report. The cities with appreciation from June 2009 to 2010 are Mesa and those in the Northwest and Southwest regions, including the three new cities. For Mesa, house prices increased on an annual basis in June for the first time since January 2007. The Northwest and Southwest regions suffered the largest price declines the past few years but those housing markets are showing the biggest improvement. Based on index values for the past year, it is likely that cities which showed appreciation in June will continue to show at least small gains for the next several months, while cities with declines are likely to see prices that continue on a downward trend.

	TABLE 2							
	CHANGE IN HOUSE PRICES BY REGION							
	(Percent)							
	CENTRAL	NORTHEAST	SOUTHEAST	NORTHWEST	SOUTHWEST			
June 2009 –	5.8	-5.1	-1.3	1.8	4.2			
June 2010								
May 2010 -	1.0	-1.8	0.6	-1.9	1.7			
June2010								
1989 – 1992	-3.2	-9.7	-7.0	-15.3	-21.2			
2006 –	-52.8	-37.6	-46.5	-52.9	-57.4			
June 2010								

CHANGE IN HOUSE PRICES BY CITY

	(Percent)						
	CHANDLER	GILBERT	GLENDALE	MESA	PEORIA	SCOTTSDALE/ PARADISE VALLEY	
June 2009 - June2010	-3.9	-2.3	1.5	0.8	-3.0	-5.3	
May 2010 June 2010	-0.9	0.9	-1.2	0.7	-2.2	-2.3	
1989 – 1992	-7.6	na	-19.6	-10.9	-7.3	-9.7	
2006 – June 2010	-44.1	-46.3	-56.1	-49.3	-53.5	-37.2	

	SUN CITY/ SUN CITY WEST	TEMPE	GOODYEAR	AVONDALE	SURPRISE
			(Percent)		
June 2009 - June 2010	-8.1	-7.8	15.1	7.0	6.1
May 2010 June 2010	-2.6	1.3	1.3	0.9	-1.1
1989 – 1992	-10.5	-1.9	na	na	na
2006 – June 2010	-40.3	-43.6	-57.5	-64.1	-55.5

<u>Methodology</u>

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 change in price of the same housing units 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 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 last 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, the rate of return calculated from each sale pair is included in calculations for a total of three months before it is published. Results using data for the two newest months are labeled as preliminary.

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, smaller geographic areas (regions and selected cities) and for the housing market segmented in various ways. Price changes for the attached portion of the housing market (townhouse / condominiums) are presented as a repeat sales index using the same methodology and indices are also estimated for higher and lower priced single-family detached houses and for foreclosure and non-foreclosure sales. The monthly data are divided into two groups based on the median price of all single-family houses sold. Sales are then paired within each of the two data sets and a repeat sales index is calculated for each. The foreclosure sale pairs are formed using two foreclosure sales or with a foreclosure sale paired with an earlier non-foreclosure sale of the house. 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 five regional indices. Indices have also been calculated for eight individual cities where there are a sufficient number of repeat sales a reliable index to be estimated. 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 as well as median house prices. Figures 1 and 2 compare the change in the overall, lower and higher priced indices to the overall trend in the index,

where the trend was estimated using data from January 1989 through December 2003. Figure 3 makes the same type of comparison using the median price of single-family 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 1-7. Figures 4 and 5 include the townhouse / condominium RSI compared to the single-family RSI presented earlier in Figures 1 and 2. The foreclosure and non-foreclosure RSIs are in Figure 6 while Figure 7 has median prices for the regions and cities for two different time periods. Five of the graphs present the price changes from January 1990 through June 2010 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 changes for Gilbert in Figures 10 and 11 start in January 2000.

Limited historical data has prevented Goodyear, Avondale and Surprise from being included in the monthly reports. However, the methodology used to calculate the indices has been modified and applied to those cities, resulting in enough data to calculate a reliable index for each one. Very simply, if a sale in one of those cities cannot be paired with a prior sale of the same house, the sale is paired with the prior sale of a house that is the same model and in the same subdivision. While model pairing is not ideal, this technique allows these cities to be included in the report. When the model pairing methodology was applied to the existing cities in the report, the index values correlated almost perfectly with those calculated from the traditional sale pair methodology. However, even with the modified pairing technique, fewer pairs are available to calculate the monthly index so the indices for Goodyear, Avondale and Surprise are somewhat more volatile than those for the other eight cities.

TABLE 4

CITIES INCLUDED IN REGIONAL INDICES

<u>REGION</u>

<u>CITIES</u>

NORTHEAST

CAREFREE CAVE CREEK FOUNTAIN HILLS PARADISE VALLEY SCOTTSDALE

NORTHWEST

EL MIRAGE GLENDALE PEORIA SUN CITY / SUN CITY WEST SURPRISE YOUNGTOWN

PHOENIX

<u>CENTRAL</u>

<u>SOUTHEAST</u>

APACHE JUNCTION CHANDLER GILBERT HIGLEY MESA QUEEN CREEK SUN LAKES TEMPE

SOUTHWEST

AVONDALE BUCKEYE GOODYEAR LITCHFIELD PARK



Data Provided by Ion Data

June: 1, Upper -2% 2, Lower 12%



June: 1, Upper -2% 2, Lower 12%



June: 1, Upper \$295,000 2, Lower \$105,000



Data Provided by Ion Data

June: Single-Family 2%; TH/Condo -19%



Data Provided by Ion Data

June: Single-Family 2%; TH/Condo -19%



Data Provided by Ion Data

June: 1, Foreclosure 5%; 2, Non-Foreclosure -11%



Data Provided by Ion Data

June: 1, TH/Condo \$ 75,500 2, Foreclosures \$119,000 3, Non-Foreclosures \$165,000



Data Provided by Ion Data



Data Provided by Ion Data



Data Provided by Ion Data







Data Provided by Ion Data







