Our Region:
Still in a hole, but making progress.

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Arizona Job Growth
Seasonally Adjusted, Year-to-Year Growth Rates

Housing Permit Activity
Slowed Last Summer
Seasonally Adjusted Annual Rate
Arizona as a Six Month Moving Average
Arizona Personal Income Growth Loses Momentum
Seasonally Adjusted, Year-over-Year Growth Rates

Contributions to Arizona Personal Income Growth
Smoothed Year-over-Year Contributions

Arizona Jobs Get Back on Even Terms During 2015

Tucson MSA Job Growth
Seasonally Adjusted, Year-to-Year Growth Rates
Percent of jobs lost during the Great Recession that have been replaced. When pre-recession peak is reached the replacement rate will be 100%.

<table>
<thead>
<tr>
<th>Region</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoenix MSA</td>
<td>52.7</td>
</tr>
<tr>
<td>Tucson MSA</td>
<td>44.6</td>
</tr>
<tr>
<td>Arizona</td>
<td>48.6</td>
</tr>
<tr>
<td>U.S.</td>
<td>82.8</td>
</tr>
</tbody>
</table>

Tucson MSA Job Growth Accelerates

Tucson MSA
Net Migration and Housing Permits
Tucson MSA
Personal Income and Retail Sales Growth

Arizona College Attainment Rates 2011

Percent of Population Age 25 and Older
Bachelor’s Degree or Better

Real-time data at your fingertips.
The Arizona’s Economy App

Free at the Apple App Store and Google Play.
Daily tweets about Arizona’s economy
@Eller_EBRC

A special thank you to J.P. Morgan
CHASE for sponsoring today’s event.
Economic Outlook Issues, Forecast Luncheon, Chase-University of Arizona, Tucson, Arizona, December 13, 2013

You Can Understand the Fiscal Worries ...

It's not what you see that matters ...

... the challenge is in our (the CBO's) mind's eye ...

Sources: Vertical bars denote NBER-designated recessions; US Treasury. Updated through October 2013.

Source: Congressional Budget Office. Updated through September 2012.
The Magic Is Back
Economic Outlook Issues, Forecast Luncheon, Chase-University of Arizona, Tucson, Arizona, December 13, 2013

... healthcare, what taxes and blanket spending cuts don’t fix
Federal healthcare spending (percentage of GDP)

Source: Congressional Budget Office. Updated through 2013.

... But the Facts Are the Facts
Wilshire 5000 (Dec 31, 1970 = 830.27)
Source: Dow Jones. Updated through December 6, 2013.

The message from the markets ...
Wilshire 5000 (Dec 31, 1970 = 830.27)
Source: Dow Jones. Updated through December 6, 2013.

... which take their cue from business earnings ...
Wilshire 5000 (Dec 31, 1970 = 830.27) After-tax GDP profits (billions of dollars)
Note: scales aligned to the historical 10.6 times price-earnings average (for these measures) ex. the 1990s.
Sources: US Department of Commerce; Dow Jones. Updated through 2013 Q3 (profits) and Dec. 6, 2013.
Layoffs (the one true measure) are back to normal

Real GDP (percent change from four quarters earlier)  Jobless claims (thousands weekly)

Sources: US Deps. of Labor and Com. Updated through 2013 Q3 (GDP) and November 30, 2013 (claims).

Business is hiring again

Nonfarm payroll employment

Percent change from 12 months earlier  Monthly change in thousands of jobs

Line represents the percent change in nonfarm payroll employment over the most recent 12 months (left scale)
Bars are monthly change in nonfarm payroll employment, thousands of jobs per month (right scale)

Ground Zero is healing

Nonfarm employment in selected areas (ratio to 2000 Q4 level)

Source: US Department of Labor. Updated through November (US) and October 2013 (states).

Actually, everyone is swimming upstream, even Arizona

Employment (ratio to December 2007 level)

Source: US Dep. of Labor. Updated through November 2013 (US) and October 2013 (states).
Don’t get too down on Arizona

Employment (ratio to December 2000 level)


Basically, we’re halfway back

Selected employment reference points (thousands)


Why 2014 Looks Promising

Global headwinds (Europe) are dying down

Real GDP in selected regions (percent change from four quarters earlier)

Sources: World Bank; US Dep. of Commerce; JPMorgan Chase & Co. Updated through 2013 Q3.
The fiscal drag is set to ease

Contribution of government spending to real GDP growth (percentage points)

Sources: Vertical bars denote recessions and are designated by the NBER; US Department of Commerce. Updated through 2013 Q3.

Real estate’s troubles are passing...

Residential building (contribution to US real GDP over the most recent four quarters)

Sources: Vertical bars denote recessions and are designated by the NBER; US Department of Commerce. Updated through 2013 Q3.

... with speculative excesses cleared...

Household income and house prices (ratio to 1970)

Sources: US Dep. of Commerce, CoreLogic. Updated through 2013 Q3 (income) and 2013 Q3 (house prices).

... and the supply glut cleared...

New housing starts (thousands at an annual rate) Unsold homes (months’ worth of sales)

Source: US Department of Commerce. Updated through August 2013.
... even at Ground Zero ...

New housing starts in the US and California (ratio to July 1990 level of starts)

Source: US Department of Commerce. Updated through August 2013.

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US manufacturing has the wind at its back

Selected trade weighted US dollar indexes (March 1973 = 100)

Source: Federal Reserve Board. Updated through October 2013.

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New energy technologies fuel new economic energy

Prices of oil and natural gas, thermally-equivalent comparison (dollars per barrel)

Source: Oil & Gas Journal. Updated through November 8, 2013.

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And business has a reason to thinking forward

After-tax GDP profits of all US businesses (percent of nominal Gross Domestic Income)

Sources: Vertical bars denote recessions and are designated by the NBER. US Department of Commerce. Updated through 2013 Q3.
Guides for the Interest Rate Outlook

Markets have largely adjusted to the “tapering” idea

P.S. No QE, no money, no inflation...
... because it’s piling up as excess reserves

The monetary base =
currency in circulation +
required reserves +
excess reserves (left)

M2 (right scale)

Unemployment rate (percent)

The “maximum employment” mandate ...

Note: The red boxes identify the first step in each Fed tightening sequence.

Horizontal bars denote the Fed’s view (forecast range) about the near-term and sustainable unemployment rate (often referred to as the Nairu, or nonincreasing inflationary rate of unemployment)¹

Proved to be premature and the Fed backed down

... includes the hidden unemployment issue

Selected populations not classified as employed (percentage of the respective population)

Core PCE chain price index (percent change from 12 months earlier)

Ultimately the 2% inflation mandate rules

²
Conclusion: A Lesson and a Challenge

The fingerprints of the debacle are no longer visible ...

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Hint: Consumers didn’t follow the 2007 script

Say what?
Real GDP, selected developed economies (ratio to 1997 Q4, 2005 US dollars, PPP basis)

The fingerprints of the debacle are no longer visible ...

Debt service (percent of monthly income)             Household debt (ratio to income)

Sources: US Department of Commerce. Updated through 2013 Q2.

Sources: Federal Reserve Board. Updated through 2013 Q2.

Hint: Consumers didn’t follow the 2007 script

Nominal consumer spending (percentage of nominal GDP)

Source: US Department of Commerce. Updated through 2013 Q2.

The fingerprints of the debacle are no longer visible ...

Debt service (percent of monthly income)             Household debt (ratio to income)

Sources: Federal Reserve Board. Updated through 2013 Q2.
... and balance sheets are again the best ever

- Personal saving (percent of disposable income)
- Household net worth (ratio to income)

Household saving rate (left)
Ratio of household net worth to income (right scale is reversed)

Sources: US Dep. of Com.; FRB. Updated through August 2013 (saving) and 2013 Q2 (net worth).

Wanted: some pro-growth thinking

- Actual and implied potential real GDP (annualized percent change)
- Real GDP growth over the most recent three years (at an annual rate)
- Okun's-Law implied/potential real GDP growth over the most recent three years (at an annual rate)

Sources: US Department of Commerce; JPMorgan Chase & Co. Updated through 2013 Q3.