Changes:
Our View on the US Economy in 2016*

2016 Banking Outlook Conference

Atlanta, GA
February 25, 2016

* By “our” I mean those of yours truly and the Atlanta Fed research staff. The views expressed herein do not necessarily represent those of the Federal Reserve Bank of Atlanta or the Federal Reserve System.
Our story and we are sticking to it: Modestly above trend growth in 2016.

<table>
<thead>
<tr>
<th></th>
<th>2015: q4/q4&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2016: q4/q4</th>
<th>Longer-run</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Real GDP Growth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preliminary Forecast</td>
<td>1.7&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.5</td>
<td>2.1</td>
</tr>
</tbody>
</table>

<sup>a</sup>: assumes 0.4% in QIV.

Source: FRBA forecasts
GDP growth crawled out of 2015 -- what will change the storyline in 2016?

<table>
<thead>
<tr>
<th>Real GDP Statistics</th>
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<tbody>
<tr>
<td>Q3</td>
</tr>
<tr>
<td><strong>Annualized GDP Growth</strong></td>
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</table>

\(^a\) BEA Estimate, Jan. 29

\(^b\) Atlanta Fed estimate, assumes 0.4% in QIV.
What probably won’t change.
The manufacturing sector continues to struggle as the dollar has continued to appreciate.
Global woes: Is China to blame?

China and Global Equities
Index, June 2015 =100

Dow Jones Global Index
Shanghai Index


China PMI: Manufacturing
SA, 50+=Expansion

Source: China Federation of Logistics & Purchasing (CFLP) through Dec ‘15
If financial markets are your concern, Brexit should worry you more than a Chinese market meltdown.

200-day correlations of 1-day changes in logs of U.S. and foreign stock market indexes

Correlation over previous 200 business days

Equity market indices: S&P500, Europe: STOXX 50, Dow Jones Shanghai.

Data through February 12, 2016
If your focus is the real economy, here too it could be easy to overstate the importance of China...

**From Macroeconomic Advisers:**

Suppose Chinese real GDP growth slows to 3 percent in 2016 and the yuan sustains a 10 percent devaluation against the dollar:

- **US real GDP:** Typical macro model simulations suggests a $\frac{1}{4}$ percentage point subtraction from real GDP growth over the next year.

- **Unemployment Rate:** A slightly (0.2 percentage point) higher path for the unemployment rate

- **Inflation:** Core inflation rate is a 0.1 percentage point lower for the next year.
… but don’t underestimate the European connection.

<table>
<thead>
<tr>
<th>Country</th>
<th>Real GDP Growth correlations with United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>-0.05</td>
</tr>
<tr>
<td>Euro Area</td>
<td>0.77</td>
</tr>
<tr>
<td>Non-OECD countries*</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Sources: BEA; China National Bank Statistics; Eurostat;
Sample: 1995-2014
*Non-OECD countries: Set of 120 countries, located in Asia, the Middle East, South America, Africa, Eastern Europe
Some limited help: Forecasts generally predict higher, but still below trend, foreign growth over the medium term.

Broad Real Foreign Gross Domestic Product Index (2005=100)
percent change, annualized

1980-2007 average

Source: Macroeconomic Advisers

Data through Q4 2015, Forecast through Q4 2018
The other big (unchanging) story – the surprising negative impact of lower energy prices on the U.S. economy.

**Oil Price and Stock Market Correlations**

5 year moving average of 6-month moving correlation between West Texas Intermediate (WTI), Brent and S&P500 Index weekly percent change

Source: EIA/CME, FT, WSJ through February 19, 2016
The drag on structures investment will likely continue for awhile.
World Liquid Fuels Production and Consumption Balance

- Implied stock change and balance (right axis)
- World production (left axis)
- World consumption (left axis)

Source: Short-Term Energy Outlook, February
Bernanke: Only about 45% of the decline in oil prices can be attributed to a decline in “global demand.”

WTI Crude Oil Estimated Demand Effect


Sources: Bernanke’s Blog (Feb. 19th); EIA; FRB; WSJ; Haver
Reinforcing the “oil is a special case” theme: Oil prices have been falling more rapidly than non-energy commodities.

Source: International Monetary Fund
CHANGE FOR THE BETTER

(?)
A key unknown: Will inventories continue to weigh on near term growth?

Source: Census Bureau

Inventory to Sales Ratio: Total Business

Inventory to Sales Ratios

Retail
Manufacturing
Wholesale

Data through December 2015
Inventory adjustments clearly impacted 2015 growth – will that persist into 2016?

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<th>Real GDP Component and Tracking Forecasts</th>
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<tr>
<td><strong>Annualized GDP Growth</strong></td>
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<tr>
<td>2015: Q3</td>
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<tr>
<td>2015: Q4&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td>2016: Q1 GDPNow&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td><strong>Annualized Final Sales Growth</strong></td>
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<td>2015: Q3</td>
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<td>2015: Q4&lt;sup&gt;a&lt;/sup&gt;</td>
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<sup>a</sup> BEA Estimate, Jan. 29
<sup>b</sup> Atlanta Fed estimate, Feb. 17

Sources: Bureau of Economic Analysis, FRBA
Desperately in need of change.
The pace of consumer spending took a step down in the 4th quarter of last year.

<table>
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<th>Real PCE</th>
<th>2015: Q3</th>
<th>2015: Q4&lt;sup&gt;a&lt;/sup&gt;</th>
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<tr>
<td>Annualized Personal Consumption Expenditure Growth</td>
<td>3.0</td>
<td>2.2</td>
</tr>
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<sup>a</sup> BEA Estimate, Jan. 29

Sources: Bureau of Economic Analysis, FRBA
Despite the 4th quarter fall off in PCE growth, consumer income supported stronger spending than what we saw.
It’s early, but consumers appeared to get back in the game in January.

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a. BEA Estimate, Jan. 29  
b: Atlanta Fed estimate, Feb. 17  

Sources: Bureau of Economic Analysis, FRBA
Very gradual change.
Even trend measures that “look through” temporary influence are running soft to the FOMC’s objective.

PCE Price Index
year-over-year percent change, monthly

Sources: Bureau of Economic Analysis; Federal Reserve Bank of Dallas through December 2015
We are still assuming some improvement in the inflation numbers as the year progresses, but still shy of the goal.

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<td>Preliminary Forecast</td>
<td>0.4&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.6</td>
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<tr>
<td><strong>Core PCE Inflation</strong></td>
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<td>1.4&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.8</td>
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a: assumes 0% in QIV.

b: assumes 1.25% in QIV.

Source: FRBA forecasts
How the world is organized, according to the unemployment statistics.

- **Population**
  - **Want a Job**
    - Employed full-time
    - Employed part-time but wants full-time
    - Unemployed
  - **Don't Want a Job**
    - Retired
    - Household responsibilities
    - Disabled
    - In school
    - Other
    - Not in labor force but wants a job
Though we are probably close to “full employment”, we are still not quite there.

ZPOP: The Share of the Population Fully Utilized
percent, seasonally-adjusted

Source: Bureau of Labor Statistics, authors’ calculations through January 2016
Interest rates are not made of Fed policy alone -- finding the “neutral rate” (or “r*”) is an art.
Our *forecasts* and preferred policy benchmark imply relatively modest changes in the policy rate through 2016.

Source: FRBA calculations based on staff forecast and “higher weight on resource gap” rule; see slide 23.
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