Texas Loses Bragging Rights as the Economy Slows

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What is changing for Texas?

• Upstream drilling has plateaued with the collapse in natural gas prices

• There is still a nice cushion from energy
  – Oil-directed drilling is still strong in North America and around the world
  – Downstream construction will boom on the Gulf Coast as tens of billions are spent on pipelines, refining, chemicals, and natural gas processing
What is changing for Texas?

• The global outlook for 2013 continues to be revised down
  – The slowdown is lead by emerging markets
  – Texas has relied on emerging markets for exports and to maintain high oil prices
  – Forecasts are for healthy growth of emerging markets in coming years, but the out-sized boom of the last decade may be over

• The U.S. puts the aftermath of the financial crisis behind it
  – U.S returns to 3 percent growth rates in 2014 and beyond
  – The Federal Reserve ends its extraordinary monetary measures. The era of super-cheap money ends
The Texas growth slowed over the summer
Since the financial crisis the Texas economy has pulled away from the U.S.
The expansion has slowed in recent months but remains strong
(Business cycle index, % annual rate, 3-mo avg)

Federal Reserve Bank of Dallas, Texas business cycle index
The expansion has slowed in recent months but remains strong
(Business cycle index, % annual rate, 3-mo avg)

Federal Reserve Bank of Dallas, Texas business cycle index
Slowdown is across all major metros, but lead by Houston

(Business cycle index, % annual rate, 3-mo avg)
Texas Border Cities have slowed as well
(Business cycle index, % annual rate, 3-mo avg)
Texas job growth outperformed the US for the last decade
(Dec/Dec % change in payrolls)

Bureau of Labor Statistics, Dec/Dec except latest year which is year-to-date
Texas employment shows strength in recovery (3-month percent change at annual rates)
But most recent data shows moderation
(3-month percent change at annual rates)
Once again, job growth to a return to a normal Texas expansion

(Annualized growth in payroll employment, 3-mo avg)
Texas unemployment rose later, recovered faster than US
But progress in bringing the rate down has stalled in recent months.
Change can be good!
Services and manufacturing settle into moderate expansion
(Dallas Fed index, 3-mo avg)
FRB Dallas leading index points to moderate growth ahead

3-month change: July to September

- Net Change in Texas Leading Index: 1.97
- Texas Value of the Dollar: 0.51
- U.S. Leading Index: 0.59
- Real Oil Price: 0.25
- Well Permits: -0.06
- New Unemployment Claims: -0.01
- Texas Stock Index: 0.32
- Help Wanted Index: 0.29
- Average Weekly Hours: 0.08

Source: FRB Dallas

http://www.dallasfed.org
Texas leading index points to moderate growth ahead

3-month percent change at annual rate

Federal Reserve Bank of Dallas
Finding the big picture on the Texas economy

• The US economy has provided modest stimulus in recent years
• Global growth, especially developing countries, drove trade and higher energy prices
• Expensive oil is driving activity upstream, cheap natural gas stimulates construction downstream
The drilling cycle has been key to separating Texas from the U.S. economic performance
We are experiencing the greatest drilling boom in U.S. history

- Horizontal drilling and fracturing lead the increased spending
- Inflation-adjusted expenditures have increased 6x in a decade
- The are currently four times the infamous 1982 peak

*Oil and Gas Journal*, annual capital expenditure issues
The biggest drilling boom has peaked for now.

Million $ constant E&P capital expenditures

1982 peak

Oil and Gas Journal, annual capital expenditure issues
Why oil and gas is important to Texas

• Texas is rich in resources
  – 24.3% of US oil reserves, 33.3% of oil production
  – 29.2% of US natural gas reserves, 28.5% of marketed gas production
  – 47.7 percent of US working rigs operating in Texas in June 2013
  – Shale activity in the Eagle Ford and Permian will improve these statistics

• Texas has Houston
  – No reserves, not much drilling
  – Headquarters for American oil
  – Home to 22 percent of American oil employment
Texas drilling is down in 2013: Down 11.1 percent since June 2012
Texas upstream jobs have more than doubled in a decade
Annual earnings in upstream oil double the typical Texas job in 2012 ($000/worker)

Bureau of Economic Analysis
Houston has largest gains in upstream oil employment in Texas, 2006-2012

BLS payroll employment and FRB-Dallas calculations
Drilling activity slowed with collapse of natural gas prices in late 2011
Horizontal Drilling Grows with Shale Gas, Complex Oil Projects

Baker Hughes
Natural gas prices collapsed in late 2011 ($/mcf)

DOE/EIA
E&P spending peaked in late 2011 with the collapse of natural gas prices.
Oil and gas job growth has come back to earth with collapse in natural gas prices
(monthly % change at annual rates, 3-mo avg, s.a.)
The chief risk to Texas in the short- and long-term is the price of oil

- 80 percent of drilling – at home and abroad is now driven by oil-directed activity
- The shale/oil sands/deep-water technology is great – but it only works with a price of $65 per barrel of more
- Short-run risks? One bad election Europe; fiscal crisis in the U.S.; financial crisis in emerging markets as QE ends
- Long-term risks? Growing oil supplies from the U.S. meet up with slowing demand in emerging markets
## Global Growth Sluggish in 2013

(\% GDP Growth)

<table>
<thead>
<tr>
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<td>World</td>
<td>3.9</td>
<td>3.2</td>
<td>2.9</td>
<td>3.6</td>
<td>3.9</td>
<td>4.1</td>
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<td>2.8</td>
<td>1.6</td>
<td>2.6</td>
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<td>Europe</td>
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<td>-0.4</td>
<td>1.0</td>
<td>1.4</td>
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<td>Japan</td>
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<td>India</td>
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<td>5.1</td>
<td>6.2</td>
<td>6.5</td>
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<tr>
<td>Brazil</td>
<td>2.7</td>
<td>0.9</td>
<td>2.5</td>
<td>2.5</td>
<td>3.2</td>
<td>3.3</td>
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</table>

Source: IMF World Economic Outlook, October 2013
A soft landing for world economic growth: Back above the long-term trend by 2014?

(percent change in GDP)

Long-term trend = 3.5 percent

IMF, World Economic Outlook, October 2013
BRIC growth returns to high levels, but slower than the last decade
(annual percent change in GDP)

IMF, *World Economic Outlook*, October 2013
IMF World Outlook for oil price remains over $85 per barrel in 2018
WTI futures also point to oil prices above $80 per barrel to 2021
A cushion for the Gulf Coast from downstream construction
Why the focus on upstream capital expenditures? Historically it dominates.
Gulf Coast Refining Margin ($/bbl)

Pace refining margins, *Oil and Gas Journal*
Four of eight largest ethylene complexes in the world are in Houston

<table>
<thead>
<tr>
<th>Company</th>
<th>Plant location</th>
<th>Capacity (million tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formosa</td>
<td>Taiwan</td>
<td>2,935.0</td>
</tr>
<tr>
<td>Nova</td>
<td>Alberta</td>
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<tr>
<td>Arabian Petrochem</td>
<td>Saudi Arabia</td>
<td>2,250.0</td>
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<tr>
<td>ExxonMobil</td>
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<tr>
<td>ChevronPhillips</td>
<td>Sweeny</td>
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<td>Dow</td>
<td>Netherlands</td>
<td>1,800.0</td>
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<tr>
<td><strong>Ineos</strong></td>
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<td><strong>Equistar</strong></td>
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<td>Yanbu</td>
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<tr>
<td>Equate</td>
<td>Kuwait</td>
<td>1,650.0</td>
</tr>
</tbody>
</table>

Oil and Gas Journal, 7/1/2013
Natural gas energy content equivalent to $20 per barrel for oil

DOE/EIA and calculations of the author
Ethylene Margins
(cents per pound)
October margins for ethylene were 39 cents per pound in North America, -24 cents elsewhere.
Proposed chemical construction located in Texas near $50 billion

<table>
<thead>
<tr>
<th>Potential Newbuild</th>
<th>Location</th>
<th>$million</th>
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</thead>
<tbody>
<tr>
<td>Exxon</td>
<td>Baytown</td>
<td>$5,000</td>
</tr>
<tr>
<td>Chevron</td>
<td>Baytown/Old Ocean</td>
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<tr>
<td>Dow</td>
<td>Freeport</td>
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<tr>
<td>Oxy</td>
<td>Ingleside</td>
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<tr>
<td>Other</td>
<td>Un-located new builds</td>
<td>$2,500</td>
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</table>

<table>
<thead>
<tr>
<th>Potential expansion</th>
<th>Location</th>
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<tr>
<td>Dow</td>
<td>Freeport</td>
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<td>Lyondell</td>
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<td>INEOS</td>
<td>Chocolate Bayou</td>
<td>$302</td>
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<tr>
<td>Formosa</td>
<td>Point Comfort</td>
<td>$900</td>
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<tr>
<td>Dow</td>
<td>Freeport</td>
<td>$399</td>
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<td>BASF/Dow</td>
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<tr>
<td>Other</td>
<td>Un-located expansions</td>
<td>$25,650</td>
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<tr>
<td>Total new build + expansion</td>
<td></td>
<td>$49,621</td>
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</table>
Can the U.S. economy step up while energy steps back?

• Friedman/Reinhart-Rogoff tell us that any economy will be sluggish for years after a major financial crisis

• While the economy never returns to the prior trend growth, it can return to prior growth rates

• Main damage from the financial crisis is repaired – consumer deleveraged, housing adding to GDP again, state and local government revenues are flowing

• Consensus forecasts have moved to 3 percent trend growth for the U.S. in 2014 and beyond
Per capita GDP falls below long-term growth trend since the crisis

Bureau of Economic Analysis; author’s calculations
What is missing in this recovery?

<table>
<thead>
<tr>
<th>Contribution to GDP (%)</th>
<th>3 Recent Recoveries</th>
<th>This Recovery</th>
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</thead>
<tbody>
<tr>
<td>GDP</td>
<td>3.8</td>
<td>2.3</td>
</tr>
<tr>
<td>Cons</td>
<td>2.7</td>
<td>1.6</td>
</tr>
<tr>
<td>Res Inv</td>
<td>0.7</td>
<td>0.1</td>
</tr>
<tr>
<td>Non-Res Inv</td>
<td>0.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Govt</td>
<td>0.5</td>
<td>-0.3</td>
</tr>
<tr>
<td>Net Xpt</td>
<td>-0.6</td>
<td>-.02</td>
</tr>
</tbody>
</table>

Three sources of lost growth

- Personal Consumption
- Housing investment
- State and Local Government

Comparison is after 12 quarters of recovery
Housing adds to GDP again
Home prices stabilized and turned up in the summer of 2012 (index: 12-mo percent change)
New and existing home sales trend upward again

Index Jan 200 = 100

St Louis Federal Reserve Bank
Existing home inventories in U.S. fall to 5.0 months supply
New home construction picking up and adding to growth
Housing again adding to GDP (percent contribution to GDP growth)
Texas housing like the rest of the country – on steroids
Texas existing home sales grow strongly in the recovery
Texas inventory of residential homes moves to four months supply
(months supply at current sales rate)
Texas home prices never fell like the US, now share rising prices
(median existing home price Jan 2004 = 100)
Single-family permits trend up in Texas
(index: Jan 2000 = 100)
Post-crisis consumer finances have improved dramatically.
Growth in per capita personal consumption lagged past recoveries (4 quarter percent change)

Quarters after recovery began

Last 3 recoveries

This recovery
Consumer makes progress reducing debt after the build-up post-2000

(Ratio of debt to disposable personal income)

Federal Reserve Board, BEA
Consumer debt service as a percent of income is at historic lows

Federal Reserve, U.S. Financial Accounts
Consumer net worth relative to income is near pre-bubble peak.
Retail sales, ex. Autos, 2005-2012

Seasonally adjusted data

Monthly sales ($million)

Monthly change at annual rates

Dec-04 Dec-07 Dec-10

Dec-05 Dec-06 Dec-07

Dec-08 Dec-09 Dec-10

Dec-11 Dec-12 Dec-13

Jan-14

* retail sales
6-mo average
What might U.S. growth look like?
Actual GDP growth rates 1969-2007

- **Gross product** = 3.1%
- Consumption = 3.4%
- Investment = 3.9%
- Government = 1.8%
- Net Exports = (-)2.9%
Stronger growth ahead for U.S.?
YES, BUT ... not yet
Personal and social insurance taxes jumped by $200 billion in 2013

New 2013 taxes

- Return of payroll taxes $126 billion
- Partial repeal of Bush-era tax cuts $50 billion
- Affordable Care Act $26 billion
U.S. GDP growth muddles through at 2.0-2.5 percent into early 2014

(Percent change at annual rates)

Survey of Professional Forecasters
Government Sector and Housing Improving in Texas, too
Percent contribution of state and local governments to GDP turns positive

- 90% of states see year-over-year increases in revenue
- Two-thirds report they are meeting revenue projections
- Year-over-year increases average 4-5 percent since 2012
U.S. local government employment has turned up, states still struggle
(payroll jobs, index: jan2003 = 100)
Texas state and local government has begun to grow again
(payroll jobs, index: jan2003 = 100)
Texas growth has moderated and continues moderate through 2014
Why will Texas job growth slow?

• Oil and gas drilling down by over 10 percent, slow recovery forecast
• US economic outlook currently slowed by $200 billion in new taxes
• Global growth has slowed along with emerging markets, hurting Texas exports
Why Texas job growth stays healthy?

- Oil-directed drilling remains at high levels – just not growing like it was
- U.S. economy sees growth pick up to 3 percent GDP growth in mid-2014 and beyond
- Downstream and midstream construction cushions growth on the Gulf Coast
FRB Dallas leading index points to moderate growth ahead

Net Contributions of Components

3-month change: May to July

- Net Change in Texas Leading Index: 0.65
- Texas Value of the Dollar: 0.01
- U.S. Leading Index: 0.30
- Real Oil Price: 0.31
- Well Permits: 0.05
- New Unemployment Claims: 0.11
- Texas Stock Index: 0.36
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