2014 Energy Market Update

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Outline

• Oil market developments
  – Growing importance of developing world since 2000
  – What’s happened with supply?

• Shale boom in the 11\textsuperscript{th} Federal Reserve District
  – Effects on oil and gas production
  – Implications for regional economy
Oil prices up significantly since the 90s

Dollars per barrel

Source: Wall Street Journal

Federal Reserve Bank of Dallas
Emerging markets grow at a rapid clip

Source: International Monetary Fund

Federal Reserve Bank of Dallas
Non-OECD countries using more oil

Source: Energy Information Administration

Federal Reserve Bank of Dallas
Non-OECD growth picked up after 2003
China now massive consumer of oil

Million barrels per day

Source: Energy Information Administration
Growth affected many commodity prices

Index (Jan, 1995=100)

- GSCI Non-Energy Index
- GSCI Industrial Metals Index
- GSCI Agricultural Index

Source: S&P
Oil prices started increasing after 2003

Source: Wall Street Journal

Federal Reserve Bank of Dallas
Robust supply growth up to 2004

Change, million barrels per day

14
12
10
8
6
4
2
0

1995-2004

2004-2008

2008-2013

Source: Energy Information Administration
Not so much after 2004...

Source: Energy Information Administration
While spare capacity has been low
Market conditions before 2004

- Global demand growing at fairly constant pace
- Supply growth generally in line with demand growth
- Ample spare capacity
- Relatively low and fairly stable prices
Market conditions in mid-2000s

- Boom in demand from non-OECD countries
- Low supply growth
- Low spare capacity
- Tight oil market = higher prices
Since the Great Recession

• World oil prices have moved between $90 to $125

• Non-OECD consumption still growing

• OECD consumption trending downwards

• Supply just keeping pace with net growth in demand
U.S. major source of new supply

2008-2013 Change, million barrels per day

Net Change

Source: Energy Information Administration

Gross Changes

Federal Reserve Bank of Dallas
Shale Boom in the 11th Federal Reserve District
U.S. oil production bucks the trend

Million barrels per day

Source: Energy Information Administration

Federal Reserve Bank of Dallas
Growth strong in shale-producing states

Source: Energy Information Administration.
U.S. oil sells at discount

Source: Energy Information Administration, Wall Street Journal

Federal Reserve Bank of Dallas
U.S. natural gas production up, too

Source: Energy Information Administration

Federal Reserve Bank of Dallas
Shale gas leads the way up
U.S. gas prices plummet

Source: World Bank

Federal Reserve Bank of Dallas
Energy in the 11th District

http://www.dallasfed.org/research/econdata/energy.cfm
Shale boom timeline in 11th District

Different starting times:

• Barnett – 2002
• Haynesville – 2008
• Eagle Ford – Around 2010
• Permian Basin – Around 2010
Each basin is unique

Geological characteristics vary and affect:

1. Amount of gas vs. oil
2. Presence of NGLs
3. Efficiency / overall costs of drilling
Barnett gas production

Source: Energy Information Administration

Federal Reserve Bank of Dallas
Eagle Ford oil production

Source: Energy Information Administration
Eagle Ford gas production

Million cubic feet per day

Source: Energy Information Administration
New technology revitalizes Permian

Source: Energy Information Administration
Permian gas production growing, too

Million cubic feet per day

Source: Energy Information Administration

Federal Reserve Bank of Dallas
Horizontal drilling growing in the Permian

Source: Baker Hughes.
Regional effects of boom

• Oil and gas of growing importance to Texas
  – Currently 13.1 % of state GDP
• Oil and gas extraction and oil-field support jobs
  – Have high multipliers
• Local areas:
  – lease and royalty payments,
  – infrastructure construction and
  – increased retail spending
• Local and state governments: greater taxes
Permian Basin (TX) employment

Index, 2001: Q1=100, SA

- Permian Counties
- Rest of Texas

Source: Bureau of Labor Statistics

Federal Reserve Bank of Dallas
Permian Basin (NM) employment

Index, 2001: Q1=100, SA

- Permian Counties
- Rest of NM

Source: Bureau of Labor Statistics

Federal Reserve Bank of Dallas
Permian Basin (NM) retail sales growth

Index, 2004: Q1=100, SA

Source: New Mexico Taxation and Revenue Office

Federal Reserve Bank of Dallas
Severance taxes fill state coffers

• 2013 oil and gas tax revenues in TX
  – $4.5 billion
  – 9.4 % of total state tax revenues
  – 45% increase from a year ago

• Oil severance taxes: $3.0 billion

• Natural Gas severance taxes: $1.5 billion
Shale boom benefits downstream sector

• Sizable downstream sector in Texas
  – 29% of U.S. refinery capacity
  – 60% of U.S. petrochemical production

• Shale boom has provided cheap inputs for both refining and petrochemicals
Lots of investment on the Gulf

• Cheap gas has made LNG exports economic
  – Cheniere Energy will start exporting in 2015
  – Sempra Energy and Freeport soon to follow

• Many petrochemical expansions announced
  – Dow Chemical
  – ExxonMobil
Shale boom summary

- Shale boom has been good to the region
- Oil and gas production at high levels
- Major downstream investments
- Boosted regional economic activity