Energy Prices and Aggregate Economic Activity

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Resources for the Future

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Oil Prices and U.S. Recessions

Real Oil Price Index, 1982=100
A complex relationship between oil prices and economic activity

- **Inverse relationship:** a characteristic of oil supply shocks
- **Positive relationship:** a characteristic of domestic productivity shocks that drive economic activity and oil demand
- **Neutral relationship:** a characteristic of foreign productivity shocks that drive economic activity and oil demand
Rising Oil Prices, 2002-2008

• Strong global economy boosts oil demand
• Oil supply development lags behind
  – Oil peak or plateau
  – OPEC restraint in adding capacity
  – National oil companies
  – Rational redirection of investment
• Demand expected to grow—China, Brazil, India, Middle East
• Fear of supply disruptions in a tight market
• Weakening dollar
• Speculation/Unrealistic Expectations?
• Low demand and supply elasticities
2008 Oil Price Collapse

- Worldwide recession
- Capacity additions
- Excess OPEC capacity
- Lessened impact of supply disruptions
- Unwinding of speculative positions
- Low elasticities of supply and demand
Oil Price Rebound

• Strengthening global economy boosts world oil demand
• Expectations that conventional oil supply development will lag behind
• Oil “hedge” resumes
Global GDP in Recovery

Annualized quarterly growth rates

Emerging and Developing Economies

Advanced Economies

World

Projected

Source: International Monetary Fund
Global Industrial Production Recovering

Source: OECD
Roots of Current Recession Suggest Slow U.S. Recovery

• Severe financial crisis
  – Financial/Real Estate bubble
    • Insufficient market oversight
    • Lax monetary policy
  – Loss of confidence in financial institutions

• U.S. housing may be recovering
• Confidence is rebounding
• Financing not fully restored
• Monetary policy risk as economy accelerates
A Long, Hard Slog?

Average peak-to-trough changes from severe financial crises

<table>
<thead>
<tr>
<th></th>
<th>Cumulative Change, %</th>
<th>Duration, years</th>
</tr>
</thead>
<tbody>
<tr>
<td>House Prices</td>
<td>-36</td>
<td>5.0</td>
</tr>
<tr>
<td>Stock Prices</td>
<td>-56</td>
<td>3.4</td>
</tr>
<tr>
<td>Unemployment Rate*</td>
<td>7.0</td>
<td>4.8</td>
</tr>
<tr>
<td>GDP per person</td>
<td>-9.3</td>
<td>1.9</td>
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</tbody>
</table>

*Percentage change, peak to trough

Scenarios for Recovery

Years

Output Level

Scenario 1
Full Recovery

Previous Trend

Scenario 2
Permanent Loss

Scenario 3
Growing Loss
EIA Projects Strong Oil Price Rebound
Strong Oil Price Growth

- Resumption of world economic growth
- Capacity fails to keep pace with demand growth
- Growing reliance on alternatives and heavy, difficult to refine crudes
The World Economy and Oil Demand

• Strong world oil demand growth
  – Dargay and Gately (2010)

• Factors moderating oil demand growth
  – Conservation: price-induced and otherwise
  – Electric hybrids
  – Lighter-weight vehicles
  – New energy-use patterns
    • Will Asians use oil like Europeans and Americans? Schipper (2009)
Vehicle Transformation in Asia
Vehicle Transformation in Asia
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Oil Price Outlook
Oil Price Outlook

Historical

EIA Outlook

More Likely
Conclusions

• Weak global economy depressed oil prices
• Economic recovery boosts world oil demand
• Oil “hedge” against dollar will unwind
• Oil prices of $70-105 per barrel as recovery takes hold
• Timing remains a question
  – Most expect a slow economic recovery