The Outlook for Construction Machinery

Donald A. Johnson
Chief Economist
Caterpillar Inc.

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Construction Is All about Economic Growth

U.S. Results for 1947 through 2011

Held 80% of the time

% Change in Private Construction

GDP growth > 2.5% Construction increases

GDP growth < 2.5% Construction decreases

% Change in U.S. GDP

Source: Computed using data from Bureau of Economic Analysis/Haver Analytics

Construction in Developing Countries

Average Annual Percent Rates of Growth
(2003 – 2011)

China 13.4
Argentina 13.4
India 9.7
South Africa 7.9
Indonesia 7.4
Russia 6.6
Turkey 6.1
Brazil 4.0

Source: Haver Analytics
Donald Johnson, Chief Economist  
Caterpillar Inc.

U.S. Construction

U.S. Construction Put in Place  
(Billion 2005 Dollars)

Trend Growth Rates
1964 – 1999  1.2%
2000 – 2011  -4.7%

Source: Census Bureau/Bureau of Economic Analysis/Haver Analytics

Worldwide Machine Industry

January 2008 Units = 100

Growth Rates
2010  46%
2011  18%

12-month
(Data through September 2012)

Source: Association of Equipment Manufacturers/Chinese Construction Machinery Manufacturers
Worldwide Machine Industry (ex. China)

January 2008 Units = 100

YTD 2012: + 14%

Growth Rates
2010 35%
2011 29%

(Data through September 2012)

Source: Association of Equipment Manufacturers/Chinese Construction Machinery Manufacturers

World Purchasing Manager Indices

Above 50 = Growth

Recession Concerns

Weak, volatile recovery

Manufacturing
Services

(Data through October 2012)

Source: Markit/Haver Analytics
Industrial Production

Pre-Recession Peak = 100

43 countries
43 off lows
26 below record highs

Low Interest Rates

Percents Weighted by GDP

15 of 47 countries
at new lows

Source: Haver Analytics/Caterpillar Business Economics calculations

(Partial data through October 2012)
Tightening in Budget Positions

Change in Government Budget Balances as Percents of GDP
(From 2009 through 2011)

- U.S. 2.4
- Canada 1.4
- Eurozone 1.9
- U.K. 1.6
- Japan 0.8
- Australia 0.8
- Brazil 0.5
- Turkey 4.1
- South Africa 1.4
- Russia 7.8
- China 1.1
- India 0.3

Source: Haver Analytics

World GDP Forecasts

Percent Changes in Real GDP

- World 2.7 2.5 2.7
- North America 1.9 2.2 2.0
- South America 4.2 3.3 3.9
- Europe 2.2 0.9 1.5
- AME/CIS 6.6 5.8 6.4
- Asia/Pacific 6.4
- Japan 2.5 1.2

Source: Haver Analytics, Caterpillar Business Economics Forecasts as of 10/22/12. We are not updating or reaffirming our 2013 economic outlook.
Metals Prices

**Weekly FIBER Metals Price Index**

(1990 = 100)

- Prices better than last cycle

Source: Foundation for International Business and Economic Research/Haver Analytics

Commodity Prices and Costs

**Commodity Prices vs. Cash Costs of Production**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Cash Cost ($)</th>
<th>Current Price ($)</th>
<th>% Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper ($/lb)</td>
<td>2.00</td>
<td>3.52</td>
<td>76%</td>
</tr>
<tr>
<td>Gold ($/oz)</td>
<td>750</td>
<td>1,751</td>
<td>133%</td>
</tr>
<tr>
<td>Iron Ore ($/ton)</td>
<td>60</td>
<td>114</td>
<td>90%</td>
</tr>
<tr>
<td>Thermal Coal ($/ton)</td>
<td>85</td>
<td>80</td>
<td>-6%</td>
</tr>
</tbody>
</table>

* Cash costs for 90% of production.

Source: Brook Hunt, Anglo American, AME and Haver Analytics.
Australian Mining

Billion of Australian Dollars

Margins declining

Source: Haver Analytics/Australian Bureau of Statistics

Mining Capital Expenditures

140 Metals and Mining Companies
(Billion Dollars)

8.5% drop projected in 2013; 15.6% drop in 2009

Source: Citibank, Global Capital Expenditure Outlook, 9 September 2012
## United States

### U.S.: Is a Recession Coming?

<table>
<thead>
<tr>
<th>Indicator</th>
<th>May 2007</th>
<th>Latest 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield Curve (bps)</td>
<td>-50</td>
<td>+158</td>
</tr>
<tr>
<td>TED Spread (bps)</td>
<td>+48</td>
<td>+28</td>
</tr>
<tr>
<td>Money Growth (% Change)</td>
<td>-0.4</td>
<td>+11.3</td>
</tr>
<tr>
<td>Light Vehicle Sales (% Change)</td>
<td>+5.0</td>
<td>+14.2</td>
</tr>
<tr>
<td>Housing Starts (% Change)</td>
<td>-15.5</td>
<td>+29.1</td>
</tr>
<tr>
<td>Freight Movements (% Change)</td>
<td>-1.3</td>
<td>+1.9</td>
</tr>
</tbody>
</table>

Source: Haver Analytics

Indicators not signaling recession
### U.S. Construction

#### Residential

<table>
<thead>
<tr>
<th>Metric</th>
<th>Prior Cycle Best</th>
<th>Recent Worst</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Starts (SAAR, Thousand Units)</td>
<td>2,273</td>
<td>478</td>
<td>894</td>
</tr>
<tr>
<td>New 1-Family Houses Sold (SAAR, Thousand)</td>
<td>1,389</td>
<td>273</td>
<td>389</td>
</tr>
<tr>
<td>New 1-Family Homes Inventory (Months Supply)</td>
<td>3.5</td>
<td>12.2</td>
<td>4.5</td>
</tr>
<tr>
<td>Composite Housing Affordability Index</td>
<td>137</td>
<td>101</td>
<td>190</td>
</tr>
<tr>
<td>Homes Foreclosed (per 10,000 Homes)</td>
<td>1.9</td>
<td>10.6</td>
<td>6.0</td>
</tr>
</tbody>
</table>

#### Nonresidential

<table>
<thead>
<tr>
<th>Metric</th>
<th>Prior Cycle Best</th>
<th>Recent Worst</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Industry Capacity Utilization (% of Capacity)</td>
<td>81</td>
<td>67</td>
<td>78</td>
</tr>
<tr>
<td>Commercial Real Estate Price Index</td>
<td>232</td>
<td>154</td>
<td>193</td>
</tr>
<tr>
<td>Office Vacancy Rate (%)</td>
<td>12.6</td>
<td>16.9</td>
<td>15.7</td>
</tr>
</tbody>
</table>

Source: Haver Analytics

### U.S. Construction Forecasts

#### Housing Starts (thousand units)

- 2010: 586
- 2011: 612
- 2012: 760
- 2013: 950

#### Non-residential Building Orders (Annual change, %)

- 2010: -11.1
- 2011: -2.9
- 2012: -2.7
- 2013: 1.6

#### Infrastructure Orders (Annual change, %)

- 2010: 4.1
- 2011: 1.8
- 2012: 1.7
- 2013: -4.9

Source: Haver Analytics, Caterpillar Business Economics Forecasts as of 10/22/12. We are not updating or reaffirming our 2013 economic outlook.
### U.S. Mining

#### Coal

<table>
<thead>
<tr>
<th>Prior Cycle Best</th>
<th>Recent Worst</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Appalachian Coal Price ($ per Ton)</td>
<td>129</td>
<td>46</td>
</tr>
<tr>
<td>Coal Mining Industrial Production (2007–100)</td>
<td>104.8</td>
<td>82.5</td>
</tr>
<tr>
<td>Coal Exports (Thousand Short Ton)</td>
<td>8,653</td>
<td>3,513</td>
</tr>
<tr>
<td>Electric Power Generation IP (2007–100)</td>
<td>102.9</td>
<td>94.1</td>
</tr>
<tr>
<td>Natural Gas/Coal Ratio (%)</td>
<td>22.7</td>
<td>20.9</td>
</tr>
</tbody>
</table>

#### Other Mining

- **LME Copper Price ($ per Pound)**: 3.94, 1.39, 3.48
- **Gold Bullion Price ($ per Troy Oz.)**: 972, 758, 1,731
- **Metal Ore Mining Industrial Production (2007–100)**: 108.1, 84.3, 96.0
- **Nonmetal Mining Industrial Production (2007–100)**: 115.3, 66.8, 72.5

Source: Haver Analytics

### U.S. Mining Production Forecasts

#### Annual Percent Changes

- **Nonmetals**: -19.7, -0.2, 0.8, 1.3
- **Metals**: -12.2, 2.5, 1.2, 2.2
- **Coal**: -8.4, 0.4, -5.3

Source: Haver Analytics, Caterpillar Business Economics Forecasts as of 10/22/12. We are not updating or reaffirming our 2013 economic outlook.
Central and South America

Short-term Interest Rates

Monetary Policy Rate (%)

Source: Haver Analytics
Construction – Americas South

Real GDP - Construction
Year-over-Year Percent Change

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>8.8</td>
</tr>
<tr>
<td>2005</td>
<td>6.9</td>
</tr>
<tr>
<td>2006</td>
<td>9.1</td>
</tr>
<tr>
<td>2007</td>
<td>6.7</td>
</tr>
<tr>
<td>2008</td>
<td>6.7</td>
</tr>
<tr>
<td>2009</td>
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<tr>
<td>2011</td>
<td>5.3</td>
</tr>
<tr>
<td>2012</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Source: Haver Analytics, Caterpillar Business Economics Forecasts as of 10/22/12. We are not updating or reaffirming our 2013 economic outlook.

Europe/Africa Middle East

Construction remains solid in most key countries.
Eurozone Liquidity

Eurozone Base Money Estimate
(Billion Euro)

- Up 54% since end of July 2011
- 2.4% Average GDP Growth

Eurozone Interest Rates

Key Eurozone Interest Rates
(Percents)

- Record low rates

Source: European Central Bank/Haver Analytics
Eurozone Lending

Year-on-Year Percent Change

Lending to nonfinancial corporations down 2.1%

(Mortgage lending)

To Nonfinancial Corporations

(Data through September 2012)

Source: European Central Bank/Haver Analytics

Industrial Production Indices

Indices 2005=100

Moderating growth since mid 2011

Turkey

South Africa

(Data through September 2012)

Source: Haver Analytics/Business Economics calculations
Asia/Pacific

China: Bank Loan Growth

Net Increase from Prior Month
(Billion RMB)

Source: People's Bank of China, Haver Analytics

Record increases in July to September 2012
China FAI: Infrastructure

China Fixed Asset Investment: Infrastructure
(YOY %)

Source: CNBS, Haver Analytics,

China Railway Investment

China Fixed Asset Investment in Railway: Construction
(Billion RMB)

Source: The Ministry of Railways, Haver Analytics, Caterpillar Business Economics

November 30, 2012
Japanese Bank Reserves

Trillions of Yen

Source: Bank of Japan, Haver Analytics

Caterpillar Sales Trends


- Asia Pacific +6
- Europe, Africa ME +4
- Latin America +9
- ROW +6
- North America +13
- World +8

Source: www.caterpillar.com/investors/financial-information/dealer-statistics
Key Points

Developed countries growing slowly
• Record low interest rates; central banks boosting liquidity
• U.S. construction should improve
• Europe in recession; little improvement expected

Developing countries to fare better
• Policy easing underway
• Economic growth should improve more than a half percentage point

Commodity prices to improve slightly
• Production likely to increase
• Coal still facing problems