U.S. Industrial Outlook

EO-159

Presented by:
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Vice President and Chief Economist
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## Table 1 – Forecast for Manufacturing Production

<table>
<thead>
<tr>
<th></th>
<th>Annual Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>1.8</td>
</tr>
<tr>
<td>Computer and electronic</td>
<td>1.4</td>
</tr>
<tr>
<td>products</td>
<td></td>
</tr>
<tr>
<td>Non-high-tech manufacturing</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source(s): MAPI Foundation
## Table 2 – Forecasts for Manufacturing and Related Production

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing starts</td>
<td>11</td>
<td>15</td>
<td>12</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Motor vehicles and parts</td>
<td>9</td>
<td>7</td>
<td>3</td>
<td>-1</td>
<td>-2</td>
</tr>
<tr>
<td>Household appliance</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Pharmaceutical and medicine</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Iron and steel products</td>
<td>-10</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Alumina and aluminum production and processing</td>
<td>-1</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Fabricated metal products</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Basic chemicals</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Paper</td>
<td>-1</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Construction machinery</td>
<td>7</td>
<td>-3</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Mining and oil and gas field machinery</td>
<td>-15</td>
<td>-21</td>
<td>14</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Industrial machinery</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Source(s): MAPI Foundation
### Table 2 – Forecasts for Manufacturing and Related Production (continued)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Ventilation, heating, air conditioning, and commercial refrigeration equipment</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Metalworking machinery</td>
<td>-1</td>
<td>-2</td>
<td>4</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Engine, turbine, and power transmission equipment</td>
<td>2</td>
<td>-3</td>
<td>4</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Communications equipment</td>
<td>-2</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Navigational, measuring, electromedical, and control instruments</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Electric lighting equipment</td>
<td>-3</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Electrical equipment</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Medical equipment and supplies</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Aerospace products and parts</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Private nonresidential construction</td>
<td>13</td>
<td>9</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Public works construction</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Source(s): MAPI Foundation
Figure 1 – Industrial Sector by Phase of Cycle, November 2015

Source(s): MAPI Foundation
Figure 2a – Housing Starts

Thousands of Units

F=Forecast
Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 2b – Housing Starts

Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 3a – Motor Vehicles and Parts Production

Index 2012=100

F=Forecast

Source(s): Federal Reserve Board and MAPI Foundation
Figure 3b – Motor Vehicles and Parts Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 4a – Household Appliance Production

Index 2012=100

2007  2008  2009  2010  2011  2012  2013  2014  2015 (F)  2016 (F)  2017 (F)  2018 (F)  2019 (F)  2020 (F)

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 4b – Household Appliance Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 5a – Pharmaceutical and Medicine Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 5b – Pharmaceutical and Medicine Production

Percent Change in a 3-Month Moving Average (Year/Year)

Source(s): Federal Reserve Board and MAPI Foundation
Figure 6a – Iron and Steel Products Production

Index 2012=100

Source(s): Federal Reserve Board and MAPI Foundation
Figure 6b – Iron and Steel Products Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 7a – Alumina and Aluminum Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 7b – Alumina and Aluminum Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 8a – Fabricated Metal Products Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 8b – Fabricated Metal Products Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 9a – Basic Chemicals Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 9b – Basic Chemicals Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 10a – Paper Production

Index 2012=100

2007 2008 2009 2010 2011 2012 2013 2014 2015 (F) 2016 (F) 2017 (F) 2018 (F) 2019 (F) 2020 (F)

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
U.S. Industrial Outlook

Figure 10b – Paper Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 11a – Construction Machinery Production

Index 2012=100

2007 2008 2009 2010 2011 2012 2013 2014 2015 (F) 2016 (F) 2017 (F) 2018 (F) 2019 (F) 2020 (F)

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 11b – Construction Machinery Production

Percent Change in a 3-Month Moving Average (Year/Year)

Source(s): Federal Reserve Board and MAPI Foundation
Figure 12a – Mining and Oil and Gas Field Machinery Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 12b – Mining and Oil and Gas Field Machinery Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 13a – Industrial Machinery Production

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 13b – Industrial Machinery Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 14a – Ventilation, Heating, Air Conditioning, and Commercial Refrigeration Equipment Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 14b – Ventilation, Heating, Air Conditioning, and Commercial Refrigeration Equipment Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 15a – Metalworking Machinery Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 15b – Metalworking Machinery Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 16a – Engine, Turbine, and Power Transmission Equipment Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 16b – Engine, Turbine, and Power Transmission Equipment Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 17a – Material Handling Equipment New Orders

Billions of 2012 Dollars

F=Forecast
Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 17b – Material Handling Equipment New Orders

Percent Change in a 3-Month Moving Average (Year/Year)

Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 18a – Electronic Computer Equipment Shipments

Billions of Dollars


F=Forecast
Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 18b – Electronic Computer Equipment Shipments

Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 19a – Communications Equipment Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 19b – Communications Equipment Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 20a – Semiconductor Global Billings

Billions of Dollars

2007  2008  2009  2010  2011  2012  2013  2014  2015 (F)  2016 (F)  2017 (F)  2018 (F)  2019 (F)  2020 (F)

F=Forecast
Source(s): Semiconductor Industry Association and MAPI Foundation
Figure 20b – Semiconductor Global Billings

Source(s): Semiconductor Industry Association and MAPI Foundation
Figure 21a – Navigational, Measuring, Electromedical, and Control Instruments Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 21b – Navigational, Measuring, Electromedical, and Control Instruments Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 22a – Electric Lighting Equipment Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 22b – Electric Lighting Equipment Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 23a – Electrical Equipment Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 23b – Electrical Equipment Production

Percent Change in a 3-Month Moving Average (Year/Year)

Source(s): Federal Reserve Board and MAPI Foundation
Figure 24a – Medical Equipment and Supplies Production

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 24b – Medical Equipment and Supplies Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 25a – Aerospace Products and Parts Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 25b – Aerospace Products and Parts Production

Percent Change in a 3-Month Moving Average (Year/Year)

Source(s): Federal Reserve Board and MAPI Foundation
Figure 26a – Oil and Gas Well Drilling Production

Index 2012=100

F=Forecast
Source(s): Federal Reserve Board and MAPI Foundation
Figure 26b – Oil and Gas Well Drilling Production

Source(s): Federal Reserve Board and MAPI Foundation
Figure 27a – Private Nonresidential Construction Put-in-Place

F=Forecast
Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 27b – Private Nonresidential Construction Put-in-Place

Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 28a – Public Construction Put-in-Place

F=Forecast
Source(s): U.S. Bureau of the Census and MAPI Foundation
Figure 28b – Public Construction Put-in-Place

Source(s): U.S. Bureau of the Census and MAPI Foundation