Outline

- Overview
- Business Cycle – where we stand
- Key Lead Indicator Review
- Consumer look
- Industry, investment and inventories
- Fed, inflation, and interest
- Overseas and risk factors
- Summary and wrap up
Overview – Business Environment

• Very slow economic growth
• But no recession
• Sector by sector
  • Consumers OK
  • Less despair in energy
• Investment weak – confidence low, capacity excess
• No growth catalyst
• Rest of world troubled – Brazil, Brexit, China, Turkey
• Fed rate hike likely in Dec, 2 more in 2017

Weak grade for the economy:
2016 gets a C, 2017 may be a bit better at B minus

Updated: September 9, 2016

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### U.S. Business Cycles since 1960

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Duration (months)</th>
<th>Compound Annual Growth Rate</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
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<td>GDP</td>
</tr>
<tr>
<td>Feb-61</td>
<td>Dec-69</td>
<td>106</td>
<td>5.1</td>
</tr>
<tr>
<td>Nov-70</td>
<td>Nov-73</td>
<td>36</td>
<td>5.5</td>
</tr>
<tr>
<td>Mar-75</td>
<td>Jan-80</td>
<td>58</td>
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<tr>
<td>Nov-82</td>
<td>Jul-90</td>
<td>92</td>
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</tr>
<tr>
<td>Mar-91</td>
<td>Mar-01</td>
<td>120</td>
<td>3.8</td>
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<tr>
<td>Nov-01</td>
<td>Dec-07</td>
<td>73</td>
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</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td><strong>81</strong></td>
<td><strong>4.4</strong></td>
</tr>
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</table>

| Jun-09 | >Sep-16 | 86 plus | 2.1 | 2.1 |

Source: National Bureau of Economic Research
Phases of the Business Cycle

TYPICAL BUSINESS CYCLE

<table>
<thead>
<tr>
<th>EARLY</th>
<th>MID</th>
<th>LATE</th>
<th>RECESSION</th>
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<tbody>
<tr>
<td>• Activity rebounds (GDP, IP, incomes)</td>
<td>• Growth peaking</td>
<td>• Growth moderating</td>
<td>• Falling activity</td>
</tr>
<tr>
<td>• Credit begins to grow</td>
<td>• Credit growth strong</td>
<td>• Credit tightens</td>
<td>• Credit dries up</td>
</tr>
<tr>
<td>• Profits grow rapidly</td>
<td>• Profit growth peaks</td>
<td>• Earnings under pressure</td>
<td>• Profits decline</td>
</tr>
<tr>
<td>• Policy still stimulative</td>
<td>• Policy neutral</td>
<td>• Policy contractionary</td>
<td>• Policy eases</td>
</tr>
<tr>
<td>• Inventories low; sales improve</td>
<td>• Inventories, sales grow; equilibrium reached</td>
<td>• Inventories grow; sales growth falls</td>
<td>• Inventories, sales fall</td>
</tr>
</tbody>
</table>

Economic Growth

Relative Performance of Economically Sensitive Assets
Green = Strong

Source: Fidelity Investments
Real GDP and Mfg Output Growth

Source: BEA and Federal Reserve
Data through 2016q2 (2 quarter moving average)
Crosscurrents at work

**Good**
- Consumer confidence
- Jobs (July strong, Aug OK)
- Consumer big ticket buys (but autos flattening)
- Oil prices (users)
- Low inflation, interest rates
- Stock market
- Most construction sectors

**Not-so-good**
- Rest-of-world economies
  - China, Brazil, UK maybe
- US$ impact on exports
- Gov’t finance-worldwide
- Oil prices (producers)
- Beltway blues, ‘16 election
- Geopolitical risk (Turkey, China)
Lead Indicator Review

- Yield curve (spread between long/short rates)
- Stock market trends
- Commodity prices
- Sentiment surveys
- Purchasing Managers Indices
- Yield curve spread wide = low recession risk
- Rates will stay low into 2017, perhaps after Fed's next tightening Dec 2016 – 1 or 2x in 2017

Source: U.S. Federal Reserve
Data through August 2016

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U.S. Stock Market
S & P 500

S&P near all-time high (just beyond the trading range of the last 7 quarters)

Source: U.S. Federal Reserve
Data through September 02, 2016

ACT Research Co., LLC, Copyright 2016
U.S. Oil and Gasoline Prices

- WTI Crude in a 40-50 trading range, likely into 2017
- Year-over-year comps now roughly even for crude oil & refined

Source: U.S. DOE, Energy Information Agency
Weekly data through September 05, 2016
Small business confidence isn’t back to pre-recession levels

Average reading since July 2009 trough = 92.5

Average reading 1992 to 2007 = 100.2

Source: NFIB
Monthly data through July 2016
ISM Purchasing Managers’ Index
Manufacturing

Above 50 = growing
Below 50 = declining

• August dips below 50 after Mar-July above

Source: ISM Manufacturing Report on Business
Monthly data through August 2016
Lead Indicator Review

- **Yield curve (long/short rate spread):**
  - Wide spread, very low rates
- **Purchasing Managers’ Index:**
  - Soft August after good Mar-July – problem?
- **Commodity prices:**
  - Off bottom, tentative signals of investment interest
- **Stock market trends**
  - Beyond high end of ‘trading range’
- **Business Sentiment surveys:**
  - Back to the 2010-2013 range after 2014-15 pickup
Consumers

• Confident and troubled
• Employed
• Spending
• Restored balance sheet post recession trauma
• Older
• Best sector performance (lackluster comps)
U.S. Consumer Attitudes Measures and Unemployment

Sources: U.S. Bureau of Labor Statistics, University of Michigan
Data through January 2016
US Retail Sales (excl Auto, Gasoline) and adjusted for inflation

<table>
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<th>Growth Rates</th>
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<tr>
<td>July 2016/July 2015</td>
</tr>
<tr>
<td>CAGR since June 2009</td>
</tr>
</tbody>
</table>

2016-July YTD Change From 2015-July YTD

- Nonstore (online) up 10.5%
- Hot sectors: Health, personal care (up 7.1%)
  Building materials (up 6.4%)
- Cold sectors: Dept stores (down 3.9%)
  Electronics & appliance (down 3.0%)

Sources: US Census Bureau
Data through July 2016
U.S. Light Vehicle Retail Sales

Millions of units - 3 Month Mov Avg (SAAR)

Sources: Ward’s Automotive and Motor Intelligence
Sales data through August 2016
U.S. Housing Starts

Source: U.S. Census Bureau
Data through July 2016

Growth Trends

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<tr>
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<th>Total</th>
<th>Single Family</th>
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<tr>
<td>July 2016/July 2015</td>
<td>1.2</td>
<td>6.7</td>
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<tr>
<td>CAGR since June 2009</td>
<td>13.3</td>
<td>9.0</td>
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</table>
U.S. Household Net Worth (at period ending)

$ Trillion

Year
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2015q1
2015q2
2015q3
2015q4
2016q1

Net Worth
66.1
66.6
56.2
58.1
62.3
63.5
69.6
79.4
84.2
87.2
86.0
86.5
85.1
87.2
88.1

Source: U.S. Federal Reserve Board
June 9, 2016 Flow of Funds Release (2016q1)
https://www.federalreserve.gov/releases/z1/current/accessible/summary.htm

Up 32% from Y/E 2007
No surprise . . . but effecting change

Older demographics

Source: Shedlock Advisor Perspectives
http://www.advisorperspectives.com/dshort/short/ Shedlock-.php
Industry, investment & Inventory

- Manufacturing output flat
- Traditional capital goods falling
- Inventories in excess
Manufacturing Industrial Production Indices
Non-durables and Durables Sectors

- Durables flat since mid-2014 after 5 years of pent-up demand fueling growth
- Nondurables flat for 6 years

Growth Trends

<table>
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<tr>
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<th>Durables</th>
<th>Nondurables</th>
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<tr>
<td>Latest 12 Months</td>
<td>0.1</td>
<td>(0.1)</td>
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<tr>
<td>CAGR since June 2009</td>
<td>3.8</td>
<td>0.3</td>
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</table>

Source: U.S. Federal Reserve Bank through July 2016
### U.S. Industrial Sector Performance 2009 to date

<table>
<thead>
<tr>
<th>NAICS code</th>
<th>Sector</th>
<th>%Share of IP Output</th>
<th>Rate of Change</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td>July 2015 to July 2016</td>
</tr>
<tr>
<td>Total (Mfg, Mining, Utilities)</td>
<td>100.0</td>
<td>-1.4</td>
<td>2.3</td>
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<tr>
<td>Manufacturing Total</td>
<td>74.4</td>
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<tr>
<td>Nondurable manufacturing</td>
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<td>311</td>
<td>Food</td>
<td>6.2</td>
<td>2.0</td>
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<tr>
<td>312</td>
<td>Beverage and tobacco product</td>
<td>1.9</td>
<td>-4.1</td>
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<tr>
<td>313-4</td>
<td>Textiles and products</td>
<td>0.7</td>
<td>1.6</td>
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<tr>
<td>315-6</td>
<td>Apparel and leather goods</td>
<td>0.2</td>
<td>-11.6</td>
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<tr>
<td>322</td>
<td>Paper</td>
<td>2.6</td>
<td>-1.5</td>
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<tr>
<td>323</td>
<td>Printing and related support activities</td>
<td>1.5</td>
<td>-3.8</td>
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<tr>
<td>324</td>
<td>Petroleum and coal products</td>
<td>2.7</td>
<td>-0.1</td>
</tr>
<tr>
<td>325</td>
<td>Chemical</td>
<td>12.3</td>
<td>0.9</td>
</tr>
<tr>
<td>326</td>
<td>Plastics and rubber products</td>
<td>3.5</td>
<td>-1.8</td>
</tr>
<tr>
<td>Durable manufacturing</td>
<td></td>
<td></td>
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<td>321</td>
<td>Wood product</td>
<td>1.2</td>
<td>-0.3</td>
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<td>327</td>
<td>Nonmetallic mineral product</td>
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<td>331</td>
<td>Primary metal</td>
<td>2.3</td>
<td>-1.7</td>
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<td>332</td>
<td>Fabricated metal product</td>
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<td>-2.5</td>
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<tr>
<td>333</td>
<td>Machinery</td>
<td>5.9</td>
<td>-3.4</td>
</tr>
<tr>
<td>334</td>
<td>Computer and electronic product</td>
<td>5.9</td>
<td>2.9</td>
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<tr>
<td>335</td>
<td>Electrical equipment, appliance, and components</td>
<td>2.0</td>
<td>0.2</td>
</tr>
<tr>
<td>3361-3</td>
<td>Motor vehicles and parts</td>
<td>5.8</td>
<td>1.8</td>
</tr>
<tr>
<td>3364-9</td>
<td>Aerospace and miscellaneous transportation eq.</td>
<td>4.6</td>
<td>-1.1</td>
</tr>
<tr>
<td>337</td>
<td>Furniture and related product</td>
<td>1.3</td>
<td>-1.6</td>
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<tr>
<td>339</td>
<td>Miscellaneous</td>
<td>3.2</td>
<td>6.4</td>
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</tbody>
</table>
U.S. Non-defense Cap Goods (excluding aircraft)

Source: U.S. Census Bureau
Data through August 2016

Shipments Rates of Change

<table>
<thead>
<tr>
<th>Latest 12 month trend</th>
<th>(6.7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAGR since June 2009</td>
<td>3.1</td>
</tr>
</tbody>
</table>
Inventory-to-Sales Ratios

Total Business (Mfg+Wholesale+Retail) & Retail

Sources: U.S. Census Bureau
Data through June 2016
NA Class 8 Inventories (new)

- Inventory trimming likely to take to 17Q1
- Need to get below 45K total, 28K tractors
Fed, inflation, and interest rates

- Inflation benign
- Commodity prices likely weak for some time
- Labor costs could be rising, some risk here
- Interest rates likely to remain low
- Federal reserve under scrutiny
  - Easy target (recent WSJ Hilsenrath, Warsh op-ed)
  - Political scrutiny
  - Over-optimistic forecasts
  - Expectations too high
No Commodity Price Pressure

Sources: Nasdaq & Quandl
Unit Labor Costs
(compensation less productivity)

Manufacturing Unit Labor Costs
Nonfarm (total business) Unit Labor Costs

Source: Bureau of Labor Statistics
Data through 2016q2
• Yield curve spread wide = low recession risk
• Rates will stay low into 2017, perhaps after
• Fed’s next tightening Dec 2016 – 1 or 2x in 2017

Source: U.S. Federal Reserve
Data through August 2016
Federal Reserve Under Scrutiny

- Easy target
  - Recent WSJ Hilsenrath article before Jackson Hole
  - Kevin Warsh op-ed
- Political lightning rod
- Criticism on ZIRP (rates too low too long), QE
- Over-optimistic forecasts
- What’s in the toolkit for the next recession?
- Expectations too high
Overseas & risk factors

- Global lack of growth (Europe, Brazil, China)
- Risks
  - Expansion geriatrics
  - USA political dysfunction
  - European banks (Greece, Italy)
  - Middle East disorder
  - Russia and China aggression
  - International trade under fire
## Manufacturers’ Purchasing Managers Indexes

<table>
<thead>
<tr>
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<td><strong>Global</strong></td>
<td>50.6</td>
<td>51.4</td>
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<td>50.0</td>
<td>50.5</td>
<td>50.1</td>
<td>50.0</td>
<td>50.4</td>
<td>51.0</td>
<td>50.8</td>
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<td>49.3</td>
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<td>48.6</td>
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<td><strong>India</strong></td>
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<td>46.0</td>
<td>45.7</td>
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### Source
Markit Economics
Key takeaways

• Business picture
  • Sluggish economy but no recession
  • Solid consumer, construction OK, weak mfg
    • Esp machinery/capital goods and energy
  • Financial mkts steady after start of year volatility
  • Consumer is the place to be

• 2017 and beyond
  • Auto sales may be on a plateau
  • Hard to see a catalyst for growth
    • Maybe election in the rear view
  • Extended duration expansion
  • But perhaps slow growth gives long legs
    • History suggests inverted yield curve + shock
# U.S. Macroeconomic Outlook

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<td>Real GDP</td>
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<td>2.4</td>
<td>2.6</td>
<td>1.5</td>
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<td>Consumer Spending</td>
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<td>Capital Spending</td>
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<td>Equipment</td>
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<td>Intellectual Property</td>
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<td>Residential Investment</td>
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<td>4.9</td>
<td>3.3</td>
</tr>
<tr>
<td>Government Consumption</td>
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<td>-0.9</td>
<td>1.8</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Net Exports (2009 $B)</td>
<td>-405</td>
<td>-426</td>
<td>-540</td>
<td>-580</td>
<td>-630</td>
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<tr>
<td>Mfg Industrial Production</td>
<td>1.1</td>
<td>1.3</td>
<td>1.1</td>
<td>0.2</td>
<td>2.5</td>
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<tr>
<td>Housing Starts (M)</td>
<td>0.92</td>
<td>1.00</td>
<td>1.11</td>
<td>1.20</td>
<td>1.33</td>
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<tr>
<td>US Light Vehicle Sls (M)</td>
<td>15.5</td>
<td>16.4</td>
<td>17.4</td>
<td>17.2</td>
<td>17.1</td>
</tr>
<tr>
<td>NA Lt Veh Production (M)</td>
<td>16.1</td>
<td>17.0</td>
<td>17.4</td>
<td>17.4</td>
<td>17.3</td>
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<tr>
<td>Unemployment Rate (%)</td>
<td>7.4</td>
<td>6.2</td>
<td>5.3</td>
<td>4.9</td>
<td>4.6</td>
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<tr>
<td>90 Day Treasury Yield</td>
<td>0.1</td>
<td>0.0</td>
<td>0.1</td>
<td>0.3</td>
<td>0.8</td>
</tr>
<tr>
<td>10 Year Treasury Yield</td>
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<td>2.2</td>
<td>1.7</td>
<td>1.8</td>
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<tr>
<td>GDP Deflator</td>
<td>1.6</td>
<td>1.6</td>
<td>1.0</td>
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<td>2.0</td>
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Percent Changes except where indicated

Updated: September 08, 2016