US Economic and Vehicle Market Outlook

David Teolis
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Overview

• Global economic developments highly unsynchronized – creating uncertainty regarding the pace of the outlook

• US economy still emerging from the Global Financial Crisis, with Fed policy, housing sector, and the labor market being the major factors influencing the strength of the expansion

• US vehicle demand fundamentals generally favorable – supporting a gradually improving sales outlook
Global economic recovery largely uneven

- Economic and political conditions consistent with modest global growth outlook
- North American region reflects generally positive growth prospects; albeit, the outlook for the US, Canada, and Mexico are not without risks

**Real GDP Growth, q/q% change**

- **Country in recovery**: 2 or more qtrs q/q% > 0
- **Country near recovery**: (q/q% < 0 followed by q/q% > 0)
- **Country near recession**: (q/q% > 0 followed by q/q% < 0)
- **Country in recession**: 2 or more qtrs q/q% < 0

Sources: National Statistics Agencies, Haver Analytics
Based on the latest data, the economies of the US, Canada, and Mexico are less than 10% above their pre-crisis peak.

Real GDP Relative to Pre-Crisis Peak

Peak Real GDP = 100 at Time = 0

- Mexico (Peak = 2008 Q2)
- Canada (Peak = 2008 Q3)
- USA (Peak = 2007 Q4)

Sources: National Statistics Agencies, Haver Analytics; Calculations: General Motors Company
Multi-speed recovery with emerging markets generally outperforming developed markets

Real GDP Relative to Pre-Crisis Peak

Peak Real GDP = 100 at Time = 0

Key:

North America
G7 Economies
BRIC
Misc. Other

Quarters After Pre-Crisis Peak

Note: If No Peak, Real GDP Indexed at 2008 Q1

Sources: National Statistics Agencies, Haver Analytics; Calculations: General Motors Company
In line with the post-crisis real GDP development, new vehicle sales since 2007 have been largely uneven.

**New Vehicle Sales Relative to 2007**

Sales = 100 at 2007

Key:
- North America
- G7 Economies
- BRIC
- Misc. Other

Source: Polk; Calculations: General Motors Company
For the US, strong growth in personal consumption was the key factor behind the economy exceeding its pre-crisis peak.
Core PCE inflation is largely contained; albeit, long-term inflation expectations are rising

- Higher Core PCE inflation generally follows rising inflation expectations
- Policy rates tend to rise as inflation expectations exceed 2%

Federal Reserve Policy Rate versus Inflation and Unemployment Rates

Sources: Federal Reserve Board, Bureau of Labor Statistics, Bureau of Economic Analysis, Federal Reserve Bank of Cleveland, Haver Analytics
Low Fed Funds Rate currently supporting low auto finance rates

Despite the low Fed Funds Rate since 2009, auto finance rates did not start to decline until 2012 – around the time that delinquency rates began to fall (see Slide 13).
Several indicators suggest that significant labor market slack still exists.

**Civilian Participation Rate: 16 yr +**

- Lowest since 1978

**Unemployed for 27 Weeks and Over**

- 35.3% have been out of work for 27 or more weeks

**Work Part Time: For Economic Reasons: All Industry**

- 7.5M working part-time, but would prefer to work full-time

**Appraisal Pres Sit: Employment, Jobs Hard to Get**

- More than 30% say that jobs are “hard to get”
Initial unemployment claims have fallen to a level consistent with previous expansions, and are consistent with total new vehicle sales.
Despite Fed tapering, 10-year bond yields have declined – especially as emerging market risks have increased.

Conventional 30-Yr Mortgages, FHLMC
Avg, %

10-Year Treasury Note Yield at Constant Maturity
Avg, % p.a.

May 22: Bernanke tells Congress “step down” in QE could come soon

June 19: Bernanke says Fed may taper bond purchases later this year

Sep 18: In a surprise to markets, Fed puts off decision to taper – citing tighter financial conditions

Dec 18: Fed announces decision to taper bond purchases beginning in January 2014

March 18: Russian annexation of Crimea

Jan 23: Argentina devalues ARS – supporting safe-haven flows into USD-based assets

May 7: Thailand PM ordered to step down; army stages military coup on May 22

May 22: Bernanke tells Congress “step down” in QE could come soon

Sources: Federal Reserve Board, Haver Analytics
The collapse of the housing market has had a broad negative impact on lending, labor mobility, construction, and household wealth – thus reflecting the broad influence the sector has on the overall economy.
Despite rising prices, home ownership remains affordable

Housing Affordability

Index, 1995 Q1 = 100

Source: Standard and Poor's, Bureau of Economic Analysis, Haver Analytics; Calculations: General Motors Company
While rising prices pose a risk to home purchases, it will continue to help those current owners who are under water on their mortgages.

- To the extent that negative equity has restricted labor mobility, rising home prices may help relax some of those constraints.

### Negative Equity by State

#### Percent of Mortgages Outstanding

<table>
<thead>
<tr>
<th>State</th>
<th>Q4 2010</th>
<th>Q4 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Carolina</td>
<td>9.1%</td>
<td>11.1%</td>
</tr>
<tr>
<td>New Jersey</td>
<td>14.3%</td>
<td>16.3%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>7.4%</td>
<td>18.5%</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>18.3%</td>
<td>21.2%</td>
</tr>
<tr>
<td>Ohio</td>
<td>19.0%</td>
<td>21.6%</td>
</tr>
<tr>
<td>Illinois</td>
<td>18.7%</td>
<td>21.7%</td>
</tr>
<tr>
<td>Virginia</td>
<td>12.4%</td>
<td>23.4%</td>
</tr>
<tr>
<td>Maryland</td>
<td>16.2%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Georgia</td>
<td>18.0%</td>
<td>30.2%</td>
</tr>
<tr>
<td>California</td>
<td>12.6%</td>
<td>31.8%</td>
</tr>
<tr>
<td>Michigan</td>
<td>18.0%</td>
<td>36.2%</td>
</tr>
<tr>
<td>Florida</td>
<td>28.1%</td>
<td>47.3%</td>
</tr>
<tr>
<td>Arizona</td>
<td>21.5%</td>
<td>50.9%</td>
</tr>
<tr>
<td>Nevada</td>
<td>30.4%</td>
<td>65.4%</td>
</tr>
<tr>
<td>US</td>
<td>13.3%</td>
<td>23.1%</td>
</tr>
</tbody>
</table>

Source: CoreLogic and Wells Fargo Securities, LLC

### LIGHT VEHICLE SALES BY STATE

<table>
<thead>
<tr>
<th>State</th>
<th>2013</th>
<th>% Change 2010 - 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CALIFORNIA</td>
<td>1,713,829</td>
<td>55%</td>
</tr>
<tr>
<td>2 TEXAS</td>
<td>1,424,648</td>
<td>56%</td>
</tr>
<tr>
<td>3 FLORIDA</td>
<td>1,101,613</td>
<td>36%</td>
</tr>
<tr>
<td>4 NEW YORK</td>
<td>929,679</td>
<td>24%</td>
</tr>
<tr>
<td>5 OKLAHOMA</td>
<td>699,555</td>
<td>7%</td>
</tr>
<tr>
<td>6 PENNSYLVANIA</td>
<td>622,954</td>
<td>23%</td>
</tr>
<tr>
<td>7 ILLINOIS</td>
<td>612,287</td>
<td>24%</td>
</tr>
<tr>
<td>8 OHIO</td>
<td>571,719</td>
<td>31%</td>
</tr>
<tr>
<td>9 NEW JERSEY</td>
<td>546,205</td>
<td>18%</td>
</tr>
<tr>
<td>10 MICHIGAN</td>
<td>540,852</td>
<td>26%</td>
</tr>
<tr>
<td>11 GEORGIA</td>
<td>435,444</td>
<td>33%</td>
</tr>
<tr>
<td>12 NORTH CAROLINA</td>
<td>402,380</td>
<td>33%</td>
</tr>
<tr>
<td>13 VIRGINIA</td>
<td>375,649</td>
<td>24%</td>
</tr>
<tr>
<td>14 ARIZONA</td>
<td>356,536</td>
<td>64%</td>
</tr>
<tr>
<td>15 MASSACHUSETTS</td>
<td>333,012</td>
<td>24%</td>
</tr>
</tbody>
</table>

**TOTAL LIGHT VEHICLE SALES** 15,402,924

**TOP 15 AS A % OF TOTAL** 69.2%

Red text denotes states with high negative equity

Source: Polk; Calculations: General Motors Company
Expanded Katona Paradigm for Explaining Consumer Spending

Consumer Spending

Ability to Spend
- Income
- Credit Availability
- Wealth

Willingness to Spend
- Confidence

Need to Spend
- New demand
  - Replacement Demand
  - Complementary Spending
  - Gift Buying

Opportunity to Spend
- Seasonal Demand
- Incentives
- New Model / Technology
- Pent-up Demand

Source: Adapted from Michael P. Niemira
Households’ Ability to Spend strongly supported by favorable credit conditions and rising household wealth, while income gains have been generally modest.

### Ability to Spend

- **Income**
- **Credit Availability**
- **Wealth**

<table>
<thead>
<tr>
<th>Ability to Spend</th>
<th>Wealth</th>
<th>Credit Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.5%</td>
<td></td>
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<tr>
<td></td>
<td>7.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.5%</td>
<td></td>
</tr>
</tbody>
</table>

**Data Sources:** Bureau of Economic Analysis, Census Bureau, PIN (All Sales Types), Haver Analytics.

**Calculations:** General Motors Company

**New Vehicle Payment as a Percent of Household Income**

- 2001: 3.5%
- 2002: 4.0%
- 2003: 4.5%
- 2004: 5.0%
- 2005: 5.5%
- 2006: 6.0%
- 2007: 6.5%
- 2008: 7.0%
- 2009: 7.5%
- 2010: 8.0%
- 2011: 8.5%
- 2012: 4.0%
- 2013: 3.5%
- 2014: 3.0%

**Source:** Federal Reserve Board / Haver Analytics
Consumer Confidence still has upside in this cycle

- In the current cycle, it has taken longer for households to feel better about the present situation relative to future conditions.
- Further upside regarding the present situation should favorably spill over into improving conditions for new vehicle purchases.
On net, Need to Spend is favorable to the vehicle sales outlook

- Rising working-age population supports growth in new licensed drivers
- Age of vehicle parc supports Need to Spend; albeit, some of the increase could be structural
- Given current slack in the labor market, further declines in the unemployment rate could likely support cyclical scrappage

**Working-Age Population versus Number of Licensed Drivers**

Sources: United Nations, Federal Highway Administration, Haver Analytics

**Share of vehicles, by age, 2001–2012**

The weather was mentioned 119 times in the March 5, 2014 release of the Beige Book.

* Likely provides a better explanation of near-term developments rather than longer term drivers of vehicle sales.
Consensus long-term US real GDP growth outlook has been downgraded; albeit, the 2015-17 economic forecast surveyed in April 2014 reflects a gradual return to optimism since the years immediately following the April 2007 survey.
The downgrading of the real GDP growth outlook from the April 2007 Consensus Forecast to the April 2014 Consensus Forecast results in a cumulative loss of real GDP of nearly USD 2.3 trillion from 2007 to 2017.

- Absent “catch-up” growth, short-term economic risks can have long-term permanent negative consequences on real GDP.
- “Loss” of real GDP reflects, in part, significant pent-up demand yet to be released.

**Sources:** World Bank, Haver Analytics, Consensus Economics (various issues)

**Calculations:** General Motors Company
US New Vehicle Sales Outlook

New vehicle Demand

Ability to Spend
- Income
- Credit Availability
- Wealth

Willingness to Spend
- Confidence

Need to Spend
- New demand

Opportunity to Spend
- Pent-up Demand

Source: Adapted from Michael P. Niemira
New vehicle sales among NAFTA countries accounts for roughly one-fifth of global vehicle sales; upside potential remains.

### New Vehicle Sales, 1993-2013

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>14,087</td>
<td>16,406</td>
<td>14,191</td>
<td>21,331</td>
</tr>
<tr>
<td>Japan</td>
<td>6,467</td>
<td>9,245</td>
<td>10,536</td>
<td>15,768</td>
</tr>
<tr>
<td>Germany</td>
<td>3,455</td>
<td>5,350</td>
<td>4,604</td>
<td>3,760</td>
</tr>
<tr>
<td>France</td>
<td>2,007</td>
<td>3,482</td>
<td>4,049</td>
<td>3,258</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1,975</td>
<td>2,796</td>
<td>3,208</td>
<td>3,139</td>
</tr>
<tr>
<td>Italy</td>
<td>1,833</td>
<td>2,794</td>
<td>2,685</td>
<td>2,898</td>
</tr>
<tr>
<td>South Korea</td>
<td>1,436</td>
<td>2,776</td>
<td>2,358</td>
<td>2,956</td>
</tr>
<tr>
<td>Canada</td>
<td>1,187</td>
<td>2,585</td>
<td>2,267</td>
<td>2,173</td>
</tr>
<tr>
<td>Brazil</td>
<td>1,147</td>
<td>2,495</td>
<td>2,220</td>
<td>1,797</td>
</tr>
<tr>
<td>Russia</td>
<td>1,135</td>
<td>1,977</td>
<td>1,527</td>
<td>1,797</td>
</tr>
<tr>
<td>Mexico</td>
<td>608</td>
<td>1,149</td>
<td>776</td>
<td>1,099</td>
</tr>
<tr>
<td>Top 10% of Total</td>
<td>73.9%</td>
<td>68.2%</td>
<td>71.4%</td>
<td>71.7%</td>
</tr>
<tr>
<td>NAFTA % of Total</td>
<td>33.8%</td>
<td>16.6%</td>
<td>19.2%</td>
<td>21.6%</td>
</tr>
</tbody>
</table>

Source: Polk; Calculations: General Motors Company
Segment shifts in 2009-13 reflect stronger preferences for increased fuel economy and affordability. Increase in Fullsize Pickups reflects partial recovery from the recession and gradually improving housing market.

### Segment Changes, Thousands

<table>
<thead>
<tr>
<th>2000-07</th>
<th>2007-09</th>
<th>2009-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact CUV</td>
<td>Small Car</td>
<td>Compact Car</td>
</tr>
<tr>
<td>Midsize CUV</td>
<td>Fullsize CUV</td>
<td>Midsize Car</td>
</tr>
<tr>
<td>Small Car</td>
<td>Small SUV</td>
<td>Compact CUV</td>
</tr>
<tr>
<td>Fullsize CUV</td>
<td>Compact SUV</td>
<td>Fullsize CUV</td>
</tr>
<tr>
<td>Small CUV</td>
<td>Small CUV</td>
<td>Midsize CUV</td>
</tr>
<tr>
<td>Fullsize Pickup</td>
<td>Van</td>
<td>Fullsize Pickup</td>
</tr>
<tr>
<td>Small SUV</td>
<td>Midsize Pickup</td>
<td>Small CUV</td>
</tr>
<tr>
<td>Midsize SUV</td>
<td>Sport</td>
<td>Fullsize Car</td>
</tr>
<tr>
<td>Van</td>
<td>Fullsize SUV</td>
<td>MPV</td>
</tr>
<tr>
<td>Fullsize SUV</td>
<td>Midsize CUV</td>
<td>Small SUV</td>
</tr>
<tr>
<td>Sport</td>
<td>Fullsize SUV</td>
<td>Fullsize SUV</td>
</tr>
<tr>
<td>Compact Car</td>
<td>MPV</td>
<td>Fullsize Car</td>
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<tr>
<td>Fullsize Car</td>
<td>Midsize SUV</td>
<td>Sport</td>
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<tr>
<td>MPV</td>
<td>Fullsize Car</td>
<td>Compact CUV</td>
</tr>
<tr>
<td>Midsize Pickup</td>
<td>Midsize Car</td>
<td>Midsize Pickup</td>
</tr>
<tr>
<td>Compact SUV</td>
<td>Fullsize Pickup</td>
<td>Midsize SUV</td>
</tr>
<tr>
<td>Midsize Car</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: IHS Automotive; Calculations: General Motors Company
Summary

• Global backdrop reflects significant downside risks

• US economy still transitioning from crisis
  – Global risks are muting the impact of the Federal Reserve’s tapering
  – Rising inflation expectations – to the extent they are sustained – likely supports rate hikes in 2015; policy rate normalization should be balanced against still-persistent labor market slack
    • Improving credit conditions and bank balance sheets could limit the impact of policy rate normalization on auto finance rates
  – Housing market still correcting from past imbalances; with the sector’s outlook biased toward the upside, its strong multiplier effect is expected to provide underlying support to the broader economy

• US vehicle demand fundamentals are generally favorable; absent a negative shock, economic drivers point toward a sideways to upward new vehicle sales forecast trajectory
  – Consensus Forecasts reflect gradually improving medium-term outlook
  – Improving fundamentals should help release pent-up demand
Thank You for Your Attention!

[GM Logo]
Back-up Chart
Components of New Vehicle Payments as a % of HH Income

- Disposable Income per Household
- Vehicle Price Less Customer Cash Rebate
- Finance Rate
- Percent Financed
- Term

Financial data and trends over time.