Autofacts®

Inside China Conference: China’s Automotive Future
Global Overview – Light Vehicle Outlook

By the numbers

104 million:
The number of light vehicles that will likely be produced in 2017

5.5%:
The CAGR for global light vehicle assembly between 2010 - 2017

83%:
Emerging markets’ contribution to growth between 2010 - 2017

Source: Autofacts 2011 Q4 Data Release
Assembly Outlook – **Global**

**Emerging markets in the driver's seat**

Global: Light Vehicle Assembly by Market Type
2000 – 2017 (millions)

Source: Autofacts 2011 Q4 Data Release
Assembly Outlook – Global
Much ado about something . . . in Asia

Global: Contribution to Growth by Region
2000 – 2017 (percentage)

Source: Autofacts 2011 Q4 Data Release
Already the largest automotive market in the world, China is poised to eclipse the 20 million mark in 2013.

Understanding the underlying dynamics of this market is critical to participating in China’s growth story.

From providing much needed growth opportunities to spawning alternative technologies, China will play a pivotal role in the evolution of the auto industry.
### Sales Outlook – China

**Will China achieve Western standards of living?**

US, UK, Germany, China: Light Vehicle Penetration 2010 (number of vehicles)

China’s vehicle PARC would have to grow by more than 650 million to achieve penetration levels of the Western World.
Sales Outlook – China
China is just firing up all its cylinders

<table>
<thead>
<tr>
<th></th>
<th>Japan</th>
<th>Korea</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per Capita (PPP)</td>
<td>8.9%</td>
<td>9.0%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Growth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Age</td>
<td>26 - 29</td>
<td>27 - 29</td>
<td>33 - 36</td>
</tr>
</tbody>
</table>

Japan, Korea and China PV Penetration Comparison
1955 – 2015 (Units/1000people)

Source: Autofacts Analysis
Sales Outlook – China
Sales will grow rapidly, but unlikely at 2009/2010 levels

China: Light Vehicle Sales
2000 – 2017 (millions)

Source: Autofacts 2011 Q4 Data Release
Economic Outlook – China
2015 focus lies on economic optimization & sustainability

China: GDP Growth
1981 – 2016 (RMB trillions)

<table>
<thead>
<tr>
<th>Growth focus</th>
<th>Reforming &amp; opening</th>
<th>Export &amp; low wages</th>
<th>Domestic demand &amp; services</th>
<th>Optimization &amp; sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th FYP</td>
<td>14.9%</td>
<td>15.8%</td>
<td>26.8%</td>
<td>10.4%</td>
</tr>
<tr>
<td>7th FYP</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>8th FYP</td>
<td></td>
<td></td>
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<tr>
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<td></td>
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<tr>
<td>10th FYP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11th FYP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12th FYP</td>
<td></td>
<td></td>
<td></td>
<td>7-8% (f)</td>
</tr>
</tbody>
</table>

Note: Nominal GDP at current prices

Source: Statistical Yearbook 2010, MIIT, MOST
Sales Outlook – Inland China
Catering to a new set of consumers

China: Vehicle Density by Province
2009 (cars per thousand people)

China: Fixed Asset Investment by Province
2010

Passenger Vehicle Density  (cars/1000 ppl)
- 70+
- 51 – 70
- 31-50
- 0-30

2010 FAI YoY Growth less than country average
2010 FAI YoY Growth  more than country average

Source: National statistic bureau, Autofacts Analysis
**Sales Outlook – China’s Smaller Cities**

*Catering to a new set of consumers*

China: Household Disposable Income by City Tier
1995 – 2012(f) (RMB thousands)

China: Sales by City Tier
2010 – 2017 (millions)

- Tier 2 cities gain affordability as Tier 1 cities in 2008
- RMB38,000 for a basic model
- Tier 3 cities gain affordability as Tier 1 cities in 2010

Source: Autofacts 2011 Q4 Data Release
Assembly Outlook – **China**
Assembly growth overtaking capacity additions

China: Light Vehicle Assembly Outlook
2000 – 2017 (millions)

Assembly Volume
Excess Capacity
Utilisation (R-Axis)

Source: Autofacts 2011 Q4 Data Release
Assembly Outlook—China
Western vs. Chinese view of the market

China: Current Alliance Group Assembly Outlook*
2000 – 2017 (millions)

China: Current Automaker Assembly Outlook
2000 – 2017 (millions)

* R-N = Renault-Nissan

Source:  Autofacts 2011 Q4 Data Release
Assembly Outlook—China
Fragmentation limits China’s potential

China: Number of produced series and platforms in selected countries*
2000 vs. 2015 (quantity)

Note*: Series reflect the ‘base model’ - without division by variant, like sedan or wagon

Source: Autofacts 2011 Q4 Data Release
# Assembly Outlook – China

## Consolidation: China’s plan for a new industry structure

### China: Current Industry Structure

**2010**

<table>
<thead>
<tr>
<th></th>
<th>Chinese</th>
<th>Foreign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of OEMs*</td>
<td>&gt;50</td>
<td>14</td>
</tr>
<tr>
<td>Average utilization</td>
<td>80%</td>
<td>95%</td>
</tr>
<tr>
<td>Market share</td>
<td>~40%</td>
<td>~60%</td>
</tr>
<tr>
<td>Export share</td>
<td>~3.9%</td>
<td></td>
</tr>
<tr>
<td>Global Player</td>
<td>none</td>
<td>many</td>
</tr>
</tbody>
</table>

### China: Ideal Industry Structure

**2015**

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<th>Chinese</th>
<th>Foreign</th>
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<tbody>
<tr>
<td>Number of OEMs*</td>
<td>5-8</td>
<td>n/a</td>
</tr>
<tr>
<td>Average utilization</td>
<td>~100%</td>
<td>~100%</td>
</tr>
<tr>
<td>Market share</td>
<td>&gt;50%</td>
<td>&lt;50%</td>
</tr>
<tr>
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<td></td>
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<tr>
<td>Global Player</td>
<td>some</td>
<td>n/a</td>
</tr>
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*Note: *With local production in China

Source: MIIT, MOST, NDRC, CAAM, PwC Autofacts (Q2/2011)
Industry Outlook – China
China’s perspective on new propulsion technology

China: Overtaking Without Catching Up

Fossil

“Post-fossil”

Hybrids (HEV)

Plug-in Hybrids (PHEV)

Battery EV (BEV)

Fuel Cell EV (FCEV)

ICE

New Energy Vehicle

Source: Manufacturer Websites
## Industry Outlook – China

### China’s new energy vehicle policies

China: Significant programs and regulations to develop the New Energy Vehicles

<table>
<thead>
<tr>
<th>Plan Description</th>
<th>Time Frame</th>
<th>National people’s congress:</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th five-year plan</td>
<td>2011-2015</td>
<td>• Development of seven strategic industries – including the industry “New Energy Vehicle” (NEV)</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Plan Description</th>
<th>Time Frame</th>
<th>Ministry of Science and Technology (MOST):</th>
</tr>
</thead>
<tbody>
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<td>“863”-Plan – Project for EVs</td>
<td>2011-2015</td>
<td>• Goals for 2015 concerning the battery and EV production (1 million vehicle units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RMB 738 million for programs in the years 2011-2013; 42% of the development with focus on battery technology (about RMB 300 million)</td>
</tr>
</tbody>
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<tr>
<th>Plan Description</th>
<th>Time Frame</th>
<th>Ministry of Industry and Information Technology (MIIT) &amp; Ministry of Science and Technology (MOST):</th>
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</thead>
<tbody>
<tr>
<td>New Energy Vehicle Industry Development Plan</td>
<td>2011-2020</td>
<td>• Planned subsidies of around RMB 100 million (~$15 million) to 2020</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Announced the biggest share of those subsidies for R&amp;D, especially in battery technologies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Goals for EVs till 2020 (5 million existing units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Up to RMB 60,000 incentive for private buyers</td>
</tr>
</tbody>
</table>

Source: Press releases and documents of MOST, MIIT
Final Thoughts – China

Question is not IF but rather HOW China gets to 30 million

China: Light Vehicle Assembly Scenario Forecast
2010 – 2017 (millions)

Cumulative additional quantity upside vs. base case ('11-'17):
+16.3 million units

Cumulative shortage downside vs. base case ('11-'17):
-17.0 million units

Source: Autofacts 2011 Q4 Data Release
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Autofacts – Our Business Model in Context

Autofacts is a team of auto industry specialists within PwC’s Global Automotive practice dedicated to ongoing sector analysis. Autofacts data and analyses is used by the practice and by our clients to assess implications, make recommendations, and support auto industry decisions.
**Autofacts** – Forecast Methodology: A Comprehensive and Tested Approach

### Market Drivers

- **Macroeconomic Metrics**
  - Gross Domestic Product
  - Interest Rate Trends
  - Credit Availability Metrics
  - Consumer Spending/Sentiment
  - Employment
  - Debt/Equity Accumulation
  - Commodity Prices
  - Inflationary Measures (CPI)
  - Manufacturing/Housing Indices
  - Demographics
  - Government Stimulus

- **Industry Indicators**
  - Imports/Exports/Inventory
  - Plant Capacity/Utilisation
  - Product Portfolio/Technology
  - Incentives/Auto Financing
  - Environmental/Safety Regulation
  - Competitive Landscape

### Modeling

- **Balancer Output**

### Application

- **Forecast Level**
  - Region / Country
  - Alliance Group / OEM
  - Size Class / Segment
  - Platform / Product Code
  - Brand / Nameplate

### Forecast

- **Quarterly Release**
  - Synchronous Forecasting
  - Integrated Data & Analysis
  - Online Client Access

- **Light Vehicle Assembly**
  - Capacity / Utilisation
  - Powertrain
Autofacts – Capabilities Summary

**Forecasts**
Synchronous Global Update
Integrated Data & Analysis
Online Client Access

Tested and trusted detailed planning data and analysis on the global light vehicle sector:
- Assembly
- Capacity
- Powertrain

**Analyst Briefings**
Issues-based POV analysis
Regional market outlooks

Covering key issues facing companies operating in the global automotive sector:
- Deep regional insights
- Market trend analysis
- Powertrain outlook

**Custom Analysis**
Decision support
Business planning
Thought leadership

Working in tandem with PwC’s automotive practice, Autofacts can assist with:
- M&A valuation support
- Industry studies
- Portfolio risk analysis

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- Access to industry specialists with deep expertise

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