Chinese GDP growth
Slowing down gradually over years, not collapsing overnight

GDP development 2006–16

Source: IHS Markit

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How much payback should we expect in 2017?
Total industry volume

- Vehicle Purchase Tax cut from 10% to 5% for vehicles (1.6L and below) in October 2015–December 2016
- Improving GDP growth of 6.6% in 2016
- GDP growth to trough out from 2018 with an average growth of 6.4% in 2018–20
- Supported by replacement demand coming from scrappage of vehicles (Euro I and below) in 2014–17
- Termination of tax incentives
- GDP growth rate of 6.2% in 2017
- The government could usher in vehicle demand management because of rising energy security concerns
When will the JV share cap be lifted in the auto industry?

Unit: 100 million USD

FDI inflow  FDI outflow  Outflow as % of inflow

2005-2013 CAGR: 28%

Sources: UNCTAD; ( ) refers to Outward Investment Ranking by Country. China excl. Hongkong and Taiwan
The day of JV share cap to be numbered
Body types diversity
SUV sales keep expanding over proportionally in the long term
IQS between domestic and international OEMs narrowed again in 2016...

Unit: Problems per 100 Vehicles

Source: JD Power
Would the Chinese OEMs’ share continue to rise?

- **Sales of JV cars based on old platform**
- **Chinese OEMs market share (as % of PV)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales of JV cars based on old platform</th>
<th>Chinese OEMs market share (as % of PV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2.3 (30.6%)</td>
<td>30.5% (2.9%)</td>
</tr>
<tr>
<td>2011</td>
<td>2.4 (27.5%)</td>
<td>33.2% (2.6%)</td>
</tr>
<tr>
<td>2012</td>
<td>2.7 (26.7%)</td>
<td>31.3% (2.2%)</td>
</tr>
<tr>
<td>2013</td>
<td>2.8 (26.6%)</td>
<td>31.6% (2.2%)</td>
</tr>
<tr>
<td>2014</td>
<td>3.1 (25.2%)</td>
<td>31.3% (2.1%)</td>
</tr>
<tr>
<td>2015</td>
<td>3.2 (25.2%)</td>
<td>31.8% (2.1%)</td>
</tr>
<tr>
<td>2016</td>
<td>3.2 (25.2%)</td>
<td>32.0% (2.1%)</td>
</tr>
</tbody>
</table>

- Citroen C-Elysee
- Hyundai Elantra
- VW Lavida
- Chevrolet Cruze Classic

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## IHS definitions of China city tiers

<table>
<thead>
<tr>
<th>TIER-1</th>
<th>TIER-1.5</th>
<th>TIER-2</th>
<th>TIER-3</th>
<th>TIER-4</th>
<th>TIER-5</th>
<th>TIER-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Cities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beijing, Shanghai, Guangzhou, Shenzhen</td>
<td>Tianjin, Chongqing, Hangzhou, Suzhou</td>
<td>Changsha, Dongguan, Foshan, Qingdao</td>
<td>Changzhou, Changchun, Harbin, Shijiazhuang</td>
<td>Guiyang, Lanzhou, Luoyang, Handan</td>
<td>Anqing, Changde, Datong, Guilin</td>
<td>Aksu, Baiyin, Garzee, Puer</td>
</tr>
<tr>
<td>Number of Cities (%)</td>
<td>4 Cities (1.2%)</td>
<td>7 Cities (2.1%)</td>
<td>11 Cities (3.2%)</td>
<td>37 Cities (10.8%)</td>
<td>30 Cities (8.8%)</td>
<td>87 Cities (25.5%)</td>
</tr>
<tr>
<td>Location</td>
<td>Core area of major economic zones</td>
<td>Key cities in coastal or central China</td>
<td>Important cities in coastal or central China</td>
<td>Important cities in coastal or central China</td>
<td>Most cities in Central and West China</td>
<td>Most cities in Central and West China</td>
</tr>
<tr>
<td>Total Population</td>
<td>70.7 million (6.5%)</td>
<td>98.8 million (9.0%)</td>
<td>72 million (6.6%)</td>
<td>177.4 million (16.2%)</td>
<td>98.3 million (9.0%)</td>
<td>278.6 million (25.5%)</td>
</tr>
<tr>
<td>GDP (%)</td>
<td>8,354 billion yuan (11.8%)</td>
<td>8,824 billion yuan (12.5%)</td>
<td>8,286 billion yuan (11.7%)</td>
<td>14,764 billion yuan (20.8%)</td>
<td>7,855 billion yuan (11.1%)</td>
<td>12,754 billion yuan (18.0%)</td>
</tr>
<tr>
<td>GDP per Capita (average)</td>
<td>125,000 renminbi</td>
<td>99,000 renminbi</td>
<td>90,000 renminbi</td>
<td>64,000 renminbi</td>
<td>45,000 renminbi</td>
<td>42,000 renminbi</td>
</tr>
<tr>
<td>2015 PV SALES</td>
<td>1.2 million (6.4%)</td>
<td>2.2 million (11.8%)</td>
<td>2.5 million (13.3%)</td>
<td>4.5 million (23.8%)</td>
<td>2.1 million (11.2%)</td>
<td>3.4 million (17.9%)</td>
</tr>
</tbody>
</table>

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Economy vs. car sales: City tier development
Tier 4–Tier 6 cities market shares increase with Tier 1 share declining

GDP share by city tier 2010–15

PV market share by city tier 2010–15
Are Tier 4-6 cities the new El Dorado?

Where are the +11k new dealers? Q2 2016 vs 2013

City tier dealer share vs. city tier sales share

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Dealer throughput 2013–15: Profitability pressure not only for dealers but ultimately for OEMs/suppliers

China dealer throughput 2013–15 by city tier

US dealer throughput 2005–15
New OEM entrances and brand expansion
New entrants from other industries drive brand expansion

<table>
<thead>
<tr>
<th>Brand number</th>
<th>2000</th>
<th>2010</th>
<th>2015</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium brands</td>
<td>4</td>
<td>19</td>
<td>20</td>
<td>23</td>
</tr>
</tbody>
</table>

Mega tech companies
Google
Baidu

Existing small OEMs

New OEMs

Sharing economy

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Product nameplates for sales

OEMs moving to emerging market quickly to gain customers

Number of nameplates 2006–23

Source: IHS Markit

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Economics of pepper

GDP growth by province H1 2016 (%)

- Chongqing: 10.6%
- Tianjin: 10.5%
- Anhui: 9.1%
- Fujian: 8.3%
- Jiangsu: 8.2%
- Xinjiang: 8.0%
- Ningxia: 7.9%
- Zhejiang: 7.8%
- Sichuan: 7.7%
- Shandong: 7.6%
- Guangxi: 7.5%
- Jilin: 6.7%
- Beijing: 6.7%
- Yunnan: 6.6%
- Heilongjiang: 5.7%
- Liaoning: 3.4%

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Car sales by provinces: Is pepper still hot?

2016 YTD PV sales y/y (%)

- SHANXI: 0%
- NINGXIA: 1%
- HEBEI: 2%
- FUJIAN: 3%
- ZHEJIANG: 5%
- INNER MONGOLIA: 6%
- CHONGQING: 7%
- National: 8%
- JIANGSU: 9%
- YUNNAN: 10%
- BEIJING: 10%
- GUANGXI: 13%
- ANHUI: 13%
- TIBET: 15%
- GUANGDONG: 16%
- GUIZHOU: 18%

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NEV development in China
EV demand is exploding in the near future; hybrid as main driver in the long term

**EV/hybrid PV production in China**

- **Inception period**: 48V system will be the first priority option in the mild hybrid sector
- **Development period**: EV might NOT be market dominator despite strong stimulus policy today

Source: IHS Markit
Car sharing growing rapidly but business models challenged with lack of profitability
Is car sharing becoming a real threat to vehicle demand?: What P2P tells us

No. of models by body type
- Sedan: 92%
- MPV: 8%
- SUV: 5%

No. of models by car age
- >=3 yrs: 29%
- <3 yrs: 71%

No. of models by brand positioning
- Mass: 88%
- Luxury: 11%

Total No of cars: +17k
Cities Covered: 22

Source: AT Zuche, PP Zuche as of Sept 2016
Car sharing, or really?