Planning Through Peaks and Valleys

Federal Reserve Bank of Chicago-Detroit Automotive Symposium

Detroit, Michigan
June 1, 2018

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Original Equipment Suppliers Association
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Championing the business interests of the automotive OE supplier community:

Founded in 1998, the Original Equipment Suppliers Association (OESA), serves as the voice of the automotive supplier and a valuable resource for member organizations. Throughout the supply chain and on legislative and regulatory issues, OESA represents the collective voice of suppliers.

Exclusively for automotive suppliers:
Supplier membership is exclusive to original equipment automotive suppliers that directly provide components, tools, materials and services to the OE light vehicle industry.

Strength in numbers:
Membership is comprised of approximately 375 Tier 1, 2, and 3 automotive suppliers with North American OE sales that range from $10 million to $5+ billion. Affiliate members support the supplier community with thought leadership, industry analysis and other key information.

Led By supplier industry executives:
OESA’s interests are guided by a board of directors consisting of CEOs from member companies of all sizes.

Staff that works for members:
Members enjoy direct access to a staff of dedicated association employees in Detroit and Washington, D.C.
Global Vehicle Sales
Outlook By Region (2016-2018)

- World 2018 forecast: 97.6 mn, up 2.2 mn units from 2017. More of the same?

World
4% 3% 2%
16 17 18F

North America
2% -2% -1%
16 17 18F

Western Europe
6% 3% 2%
16 17 18F

C&E Europe
8% 9%
-2%
16 17 18F

Asia Pacific minus China
2% 5% 3%
16 17 18F

China
13% 2% 2%
16 17 18F

Source: LMC Automotive
Global Vehicle Production
Output By Region (2018-2025)

Global production

Global production growth: 2017-2025

Source: IHS Markit
© 2018 IHS Markit
US: Economic Outlook

- Strong fundamentals remain with low unemployment, firm and steady job creation, strong consumer spending and low interest rates
- Job growth has continued, lifting participation rates yet an even tighter outlook is expected by late 2018 / mid 2019

**GDP (annual)**

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<tbody>
<tr>
<td></td>
<td>2.3%</td>
<td>2.9% ▲</td>
<td>2.4%</td>
<td>1.9%</td>
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</tbody>
</table>

Source: wsj.com – May 2018 monthly economist survey

**Unemployment**

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<tbody>
<tr>
<td></td>
<td>4.1%</td>
<td>3.9% ▼</td>
<td>3.7%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>
Despite higher price volatility, fracking has altered the global energy landscape, holding a constrained pricing outlook.

Greater pricing power has fueled activity for smaller, more affordable homes, pushing builds toward a 1.5M/year pace. Tights supplies & stock market gains have lifted home values.

Oil Prices

Housing Starts

Source: wsj.com – May 2018 monthly economist survey
Trump Policy Implications: Market Reaction
Stocks and treasuries have soared, dollar lower – higher growth, higher inflation, higher interest rates

Equities/Treasuries (indexed to Nov 8)

Exchange Rates (Per US$, indexed to Nov 8)

Planning Through Peaks and Valleys
US: Wage Growth Obstacles
Participation remains low since Great Recession even as unemployment rates reach pre-recession lows

Labor Force Participation Rate %


Unemployment Rate % by Education Level

Source: Department of Labor, Bureau of Labor Statistics

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US: Job Market
6.6 million openings; Quits rising too – workers gaining confidence

Openings: Jobs Open Per 100 Employed (3m average)

Quits: Jobs Quit Per 100 Employed (3m average)

Job opportunities strong – openings at an all time high – well above pre-recession levels

Quits continue to rise, although they remain relatively low. Higher worker confidence will force business to raise wages to reduce turnover.

Source: Department of Labor, Bureau of Labor Statistics
US: Labor Market Wages
Wage growth weak since recession; FED watching closely as a potential inflation “spark”

Average Hourly Earnings (monthly)

Annual Change (3m average)

Source: Department of Labor, Bureau of Labor Statistics, Production Non-supervisory
US: Interest Rates
More aggressive tightening likely; FED walking a tightrope to avoid recession

Effective Federal Funds Rate (%), overnight

Key Interest Rate Forecasts (%)

Source: Federal Reserve, WSJ, Mortgage Bankers' Association

Source: Federal Reserve Bank
### US Light Vehicle Sales By Segment – 2017

**Divergent Trajectory Remains**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Dec 2017</th>
<th>% Chg from Dec ‘16</th>
<th>YTD 2017</th>
<th>% Chg from YTD 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars</td>
<td>518,325</td>
<td>-17.0</td>
<td>6,332,925</td>
<td>-10.9</td>
</tr>
<tr>
<td>Midsize</td>
<td>225,471</td>
<td>-20.8</td>
<td>2,792,346</td>
<td>-13.1</td>
</tr>
<tr>
<td>Small</td>
<td>201,094</td>
<td>-15.8</td>
<td>2,615,386</td>
<td>-9.6</td>
</tr>
<tr>
<td>Luxury</td>
<td>91,742</td>
<td>-8.8</td>
<td>924,500</td>
<td>-7.3</td>
</tr>
<tr>
<td>Large</td>
<td>18</td>
<td>-85.5</td>
<td>693</td>
<td>-32.1</td>
</tr>
<tr>
<td>Light-duty trucks</td>
<td>1,084,804</td>
<td>1.7</td>
<td>10,897,511</td>
<td>4.3</td>
</tr>
<tr>
<td>Pickup</td>
<td>285,404</td>
<td>5.8</td>
<td>2,822,839</td>
<td>4.8</td>
</tr>
<tr>
<td>Cross-over</td>
<td>537,711</td>
<td>2.4</td>
<td>5,351,370</td>
<td>8.1</td>
</tr>
<tr>
<td>Minivan</td>
<td>37,913</td>
<td>-8.9</td>
<td>484,608</td>
<td>-12.4</td>
</tr>
<tr>
<td>Small Van</td>
<td>8,644</td>
<td>-0.5</td>
<td>81,950</td>
<td>-9.3</td>
</tr>
<tr>
<td>Large Van</td>
<td>32,594</td>
<td>-17.6</td>
<td>365,263</td>
<td>-2.0</td>
</tr>
<tr>
<td>Midsize SUV</td>
<td>94,584</td>
<td>3.2</td>
<td>957,964</td>
<td>-0.8</td>
</tr>
<tr>
<td>Large SUV</td>
<td>46,989</td>
<td>0.2</td>
<td>339,425</td>
<td>-0.3</td>
</tr>
<tr>
<td>Small SUV</td>
<td>19,538</td>
<td>-7.5</td>
<td>252,102</td>
<td>3.4</td>
</tr>
<tr>
<td>Luxury SUV</td>
<td>27,422</td>
<td>-2.1</td>
<td>241,990</td>
<td>2.7</td>
</tr>
<tr>
<td>Total SUV/Cross-over</td>
<td>720,244</td>
<td>1.9</td>
<td>7,142,851</td>
<td>6.0</td>
</tr>
<tr>
<td>Total SUV</td>
<td>182,533</td>
<td>0.5</td>
<td>1,791,481</td>
<td>0.3</td>
</tr>
<tr>
<td>Total Cross-over</td>
<td>537,711</td>
<td>2.4</td>
<td>5,351,370</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Source: [www.motorintelligence.com](http://www.motorintelligence.com)
US Light Vehicle Sales (SAAR)
Year end 2017 Boost – Not repeatable

US Light Vehicle Sales (SAAR, Mils.)

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US: New Vehicle Financing
Extended terms keeping monthly payments low, despite record financing amounts and rising interest rates

Source: Federal Reserve Bank, Weighted Average Finance Rate at Finance Companies

Source: Federal Reserve Bank, New Car Loans at Finance Companies
US: New Vehicle Financing
Extended terms keeping monthly payments low, despite record financing amounts and rising interest rates

A 1% rise in interest rates raises monthly payments by about $14 or $950 in total
FED rate increases may add around $1,500 over near-term
US: Borrowing Conditions
Tightening lending standards have curbed share of subprime loan originations

US Auto Loan Originations by Credit Score (Bils., 4Q Avg.)

Auto Loan Availability

Source: Federal Reserve Bank of New York

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Sales Success – All About Mix
You Can’t Sell What You Don’t Have

Crossovers help Mazda post its best January sales in 24 years
A tough month for Mazda cars, though.

GM: Fleet, crossovers help keep volume in the black
February 9, 2018 at 3:01 am
Michael Robinson

Hyundai sees tough U.S. market, after dismal 2017
January 6, 2018 @ 6:31 am
Hyunjoon Jin

SEOUL — Hyundai Motor Co. said challenges are expected to persist in the U.S. market, where its sales have already been battered by a lack of crossovers/SUVs, after earlier reporting its worst annual earnings in seven years.

U.S. sales start 2018 with a gain behind trucks, spiffs, fleet
Toyota, Nissan, GM rise; Ford, Honda, FCA slip
February 1, 2018 @ 11:15 am
David Phillips

Planning Through Peaks and Valleys
### US: Light Vehicle Sales Outlook

Forecasts vary among firms – yet all reflect different rates of sales taper

<table>
<thead>
<tr>
<th>Annual Sales (millions)</th>
<th>Forecast Avg</th>
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<tr>
<td></td>
<td>17.2M</td>
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<tr>
<td></td>
<td>-1.8%</td>
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<tr>
<td></td>
<td>-320K</td>
</tr>
<tr>
<td></td>
<td>16.8M</td>
</tr>
<tr>
<td></td>
<td>-2.4%</td>
</tr>
<tr>
<td></td>
<td>-420K</td>
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<tr>
<td></td>
<td>16.8M</td>
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<tr>
<td></td>
<td>0.0%</td>
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<tr>
<td></td>
<td>-60K</td>
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<tr>
<td></td>
<td>16.6M</td>
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<td></td>
<td>0.1%</td>
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<tr>
<td></td>
<td>-110K</td>
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- **History**
- **PWC-Autofacts**
- **IHS-Markit**
- **LMC Automotive**
- **Wards Auto Intelligence**

Source: 1Q 2018 OESA Affiliate Forecast Matrix – PWC/Autofacts, IHS Markit, LMC Automotive, Wards Auto Intelligence
• Sales declines forecast for US, Canada and Mexico in 2018

• Sales trend recovers in 2019 and retains stable demand outlook

• Sourcing penetration climbs as output transitions from car to truck, helped by added capacity expansion

Source: Wards Auto Intelligence
The current U.S. economic expansion began in mid-2010. When is it most likely to end?

Source: WSJ Survey of Economic Forecasters
North America – Industry Production Cycles

Source: Wards Auto Intelligence, IHS-Markit

Planning Through Peaks and Valleys
Top Automotive States

Top 20 - Supplier Employment (000s)

Michigan
Ohio
Indiana
Tennessee
Kentucky
Alabama
Illinois
North Carolina
South Carolina
Texas
California
Pennsylvania
Georgia
New York
Wisconsin
Missouri
Iowa
Virginia

Source: 2017 MEMA Economic Study – 2015CY; Share of total direct employment

US Vehicle Output - 2016 (Millions)

Michigan
Ohio
Indiana
Kentucky
Alabama
Tennessee
Missouri
Illinois
Texas
Mississippi
South Carolina
Georgia
Kansas
California

Source: LMC Automotive, OESA Analysis

Planning Through Peaks and Valleys
## North America Vehicle Production Forecast

<table>
<thead>
<tr>
<th>(in millions)</th>
<th>2018 Forecast</th>
<th>2019 Forecast</th>
<th>2020 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1Q</strong></td>
<td>4.31</td>
<td>17.05</td>
<td>17.62</td>
</tr>
<tr>
<td><strong>2Q</strong></td>
<td>4.51</td>
<td>4.14</td>
<td>17.62</td>
</tr>
<tr>
<td><strong>3Q</strong></td>
<td>4.09</td>
<td></td>
<td>17.62</td>
</tr>
<tr>
<td><strong>4Q</strong></td>
<td>4.14</td>
<td></td>
<td>17.62</td>
</tr>
</tbody>
</table>

**Forecast Average:** 4.39, 4.53, 4.18, 4.14, 17.22, 17.40, 17.66

**Forecast Spread:** 0.14, 0.12, 0.13, 0.11, 0.32, 0.55, 0.89

**2017 Average:** 4.51, 4.47, 4.07, 4.26, 17.31

Source: 1Q 2018 OESA Affiliate Forecast Matrix – PWC/Autofacts, IHS Markit, LMC Automotive, Wards Auto (Car/Trk Class 1-5)

Last Update: 1Q 2018
OESA Supplier Barometer: 1Q 2018 Results

Describe the general twelve month outlook for your business. Over the past three months, has your opinion become…?

Current Supplier Outlook (Share of Respondents)

- Q4 2017
- Q1 2018

Supplier Barometer Index: (SBI and 6m Average)

- SBI Score = 57; soars 11 points from Q4 level of 46
- Tax Reform, a more hopeful view on NAFTA and continued Market Strength all Drive Optimism

Planning Through Peaks and Valleys

121 responses
## Passenger Cars: Under Pressure
Steady March To Reduce US3 Car Portfolios and Utilize Global Sourcing

<table>
<thead>
<tr>
<th>Segment</th>
<th>FCA</th>
<th>Ford</th>
<th>GM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/B</td>
<td></td>
<td>Fiesta</td>
<td>Sonic</td>
</tr>
<tr>
<td>C</td>
<td>Dart</td>
<td>Focus</td>
<td>Volt?</td>
</tr>
<tr>
<td>D</td>
<td>200</td>
<td>Fusion</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Taurus</td>
<td>LaCrosse?</td>
<td>Impala?</td>
</tr>
</tbody>
</table>
Future Launch Activity

Source: IHS Markit, Kelly Blue Book

Average Transaction Price By Segment ($) – June 2017

- D-Segment: +46%
- C-Segment: +39%
- B-Segment: +51%

Planning Through Peaks and Valleys
The Race to Fill White Space

Execution

Planning Through Peaks and Valleys
Double Edged Sword of Strong Exports
Overseas Demand Often Drives Local Sourcing

- 25% import tariff, cut to 15% by 7/1
- Luxury growth
- Minority ownership cap removed

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North American Vehicle Production
Segment Shares Highlight Portfolio Strategy Differences

Percent of NA Production

SUV  Truck  Car

General Motors
Ford
FCA
Toyota
Honda
Renault/Nissan
Hyundai/Kia
Volkswagen
Industry

Planning Through Peaks and Valleys

Sources: Automotive News, IHS Markit

+14%  -14%  35%  49%
North American Light Vehicle Output
By Country and Segment

<table>
<thead>
<tr>
<th>Light Vehicle Model Segment</th>
<th>U.S.</th>
<th>Mexico</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Pickup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Pickup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Van</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUV</td>
<td>1.4 mio [12%]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large and Luxury CUV</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mid-Size CUV</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Small CUV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large and Luxury Car</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid-Size Car</td>
<td>2.2 mio [19%]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Car</td>
<td></td>
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Size of circle scaled to 2016 volume


Planning Through Peaks and Valleys
Research & Development Technology Investments

If you had additional dollars for R&D investment, rating in terms of importance, how would you allocate it across the following technology areas?

<table>
<thead>
<tr>
<th>Technology Area</th>
<th>2018 Average Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Materials Technologies (composites, lightweight materials, etc.)</td>
<td>2.4</td>
</tr>
<tr>
<td>Sustainable Manufacturing Technologies</td>
<td>2.6</td>
</tr>
<tr>
<td>Powertrain Technologies (ICE Hybrid, Electric, Alternate Fuels, Fuel Cell, Transmissions)</td>
<td>2.7</td>
</tr>
<tr>
<td>Driver Assist Technologies (park assist, crash avoidance, lane departure, etc.)</td>
<td>3.8</td>
</tr>
<tr>
<td>Autonomous Driving Technologies (V2X)</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Source: 1Q 2018 Supplier Barometer
Global Propulsion Design Islands - 2025

North America
- ICE Only: 66%
- Stop-start: 4%
- MHEV: 5%
- FHEV: 6%
- PHEV: 5%
- Electric: 5%

Europe
- ICE Only: 25%
- Stop-start: 2%
- MHEV: 6%
- FHEV: 6%
- PHEV: 61%
- Electric: 5%

Japan/South Korea
- ICE Only: 18%
- Stop-start: 5%
- MHEV: 5%
- FHEV: 5%
- PHEV: 52%
- Electric: 52%

Source: IHS Markit Production Forecast – September 2017
Global BEV Demand By Market

2017 BEV Sales ('000s)
- China: 465
- Europe: 132
- USA: 93
- Other: 30

720k
China: 65%

2027 BEV Sales (000s) – CAGR from 2017 = 33%
- China: 6,370
- Europe: 3,350
- USA: 650
- Other: 1,900

12.3mn
China: 52%

Source: LMC Automotive Global Hybrid & EV Forecast
Planning Dynamics
Electrification Push Drives Profound Change

We are reducing the pace of cost growth

<table>
<thead>
<tr>
<th>Automotive Cost Performance</th>
<th>Future 5-Year Incremental Efficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 - 2016</td>
<td>2017 - 2022</td>
</tr>
<tr>
<td>Automotive Cost Growth</td>
<td></td>
</tr>
<tr>
<td>$50%</td>
<td></td>
</tr>
</tbody>
</table>

Mercedes will cut costs to fund EVs  September 11, 2017 - AutoNews
‘to launch a $4.8 billion cost-cutting program’

BMW Aims to Cut Parts Costs by $2.4 Billion in E-Car Shift
September 13, 2017 - Bloomberg

- German automaker seeks to trim component spending by 5%
- Suppliers to face more competition amid savings

Reducing global material cost by an incremental $10 billion through 2022

Planning Through Peaks and Valleys
GM – Future Electrification Bandwidth and Plan

- FLEXIBLE STRATEGY
- BUILD SCALE
- LEVERAGE CHINA
The EV Profit Challenge

‘All In’
- Clean sheet design
- Ground up capex
- ‘New Everything’
- Must scale to survive
- Low margin of error

‘Incremental’
- Incremental approach
- Incremental capex
- Weighs on current profits, yet can reinvest proceeds
- Enables transition

“We wanted to wait for the fifth generation (to scale) to be much more cost competitive,” BMW CEO Harald Krueger

Expects its EVs to be profitable by 2020 after first EV launched in 2013.
OESA Supplier Barometer: 2018 Planning

Over the next 12 months, what is the likelihood that your company will make acquisitions and/or divestitures?

Percent of respondents

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<thead>
<tr>
<th></th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
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</thead>
<tbody>
<tr>
<td>Acquisitions Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25%</td>
<td></td>
<td>35%</td>
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<tr>
<td>$150 million or less</td>
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<td>10%</td>
<td></td>
<td>30%</td>
<td></td>
<td>40%</td>
<td>50%</td>
</tr>
<tr>
<td>$151-$500 million</td>
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<td></td>
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<td></td>
<td>10%</td>
<td></td>
<td>30%</td>
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<td>40%</td>
<td>50%</td>
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<tr>
<td>$501 million-$1 billion</td>
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<td>10%</td>
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<td>30%</td>
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<td>40%</td>
<td>50%</td>
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<tr>
<td>More than $1 billion</td>
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<td>30%</td>
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<td>40%</td>
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<table>
<thead>
<tr>
<th></th>
<th>0%</th>
<th>10%</th>
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<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
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<tbody>
<tr>
<td>Divestitures Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4%</td>
<td></td>
<td>22%</td>
<td></td>
<td>74%</td>
<td></td>
</tr>
<tr>
<td>$150 million or less</td>
<td></td>
<td></td>
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<td>10%</td>
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<td>30%</td>
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<td>40%</td>
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<tr>
<td>$151-$500 million</td>
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<td>10%</td>
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<td>30%</td>
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<td>$501 million-$1 billion</td>
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<td>40%</td>
<td>50%</td>
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<tr>
<td>More than $1 billion</td>
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<td>10%</td>
<td></td>
<td>30%</td>
<td></td>
<td>40%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Up from 2017 levels, suppliers are actively assessing acquisitions and divestitures; acquisitions from larger companies, divestitures from smaller (ref appendix)

Planning Through Peaks and Valleys
Summary

- **Market**: Global opportunity, US demand slowing, divergent performance
- **Offense**: SUV growth/Truck peak—opportunities and risks (*i.e.* competition)
- **Defense**: Growing scope of passenger car dislocation, turbulence
- **Strategy**: Requires counter-cyclical innovation planning
- **Flexibility**: Liquidity is key; vital to balance ‘Core’ vs Emerging
- **Stretch**: Surge in BEV opportunities, not all created equal - prioritize
Thank You!

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Detroit Automotive Symposium

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