INDUSTRY INSIGHTS 2024 WEBCAST

January 8, 2024
WHERE IT ALL CONNECTS

The most complete and connected ecosystem
AGENDA

Time Check: 60 Minutes

Intro & Cox Automotive

Forecast: 2024

New-Vehicle Market

Electric Vehicle Market

Wholesale and Used-Vehicle Markets

2024 Forecasts & Playlist

Q&A

Mark Schirmer, Director, Corporate Communications

Jonathan Smoke, Chief Economist

Charlie Chesbrough, Senior Economist

Stephanie Valdez Streaty, Director, Industry Insights

Jeremy Robb, Senior Director, Economic and Industry Insights

Jonathan Smoke, Chief Economist and Resident DJ

w/ Michelle Krebs, Executive Analyst

Erin Keating, Senior Director, Economic and Industry Insights
FORECAST: 2024

JONATHAN SMOKE
Chief Economist
**FORECAST: 2024**

5 themes to look for in ‘24


3. In 2024, We Officially *Bid Farewell to the Seller’s Market*.

4. In the Electric Vehicle Market, 2024 Will Be the *Year of More*.


Cox Automotive
SLOW GROWTH AHEAD | An Economic Roadmap for 2024

**JOBS**
Weaker but expected to remain stable

**INFLATION**
Declining throughout 2024

**CONSUMER SENTIMENT**
Up and Improving

**INTEREST RATES**
Still high but declining

**CONSUMER SPENDING**
Up but growth slowing

SLOW GROWTH AHEAD - An Economic Roadmap for 2024
SLOW GROWTH AHEAD | Weak but Stable Job Market

Quarterly Unemployment Forecast (U3 %)

Source: BLS, Moody’s Analytics, Cox Automotive
JOBS
Weaker but expected to remain stable

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Declining throughout 2024

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SLOW GROWTH AHEAD | An Economic Roadmap for 2024
SLOW GROWTH AHEAD | Inflation Declines in 2024

The chart illustrates the projected inflation rates for Base PPI y/y and Base CPI y/y from 2019 to 2028F. Inflation is expected to decline in 2024, indicating a shift towards slower growth.
SLOW GROWTH AHEAD | An Economic Roadmap for 2024

JOBS
Weaker but expected to remain stable

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Declining throughout 2024

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CONSUMER SPENDING
Up but growth slowing
SLOW GROWTH AHEAD | Consumer Sentiment Improving

Morning Consult Index of Consumer Sentiment vs. Average Price of Unleaded

- MC ICS
- AAA Ave Unleaded $ (RH Axis)

Source: Morning Consult, AAA
SLOW GROWTH AHEAD | An Economic Roadmap for 2024

- **JOBS**: Weaker but expected to remain stable
- **INFLATION**: Declining throughout 2024
- **CONSUMER SENTIMENT**: Up and Improving
- **INTEREST RATES**: Still high but declining
- **CONSUMER SPENDING**: Up but growth slowing
SLOW GROWTH AHEAD | Interest Rates Begin to Decline

Fed Funds Rate, 10 Year, and Average Auto Loan Rates

Source: Federal Reserve, Bloomberg, Dealertrack
SLOW GROWTH AHEAD | An Economic Roadmap for 2024

JOBS
Weaker but expected to remain stable

INFLATION
Declining throughout 2024

CONSUMER SENTIMENT
Up and Improving

INTEREST RATES
Still high but declining

CONSUMER SPENDING
Up but growth slowing
SLOW GROWTH AHEAD | Consumer Spending Growth Slows

Year-Over-Year Change in Total Spending by Week in 2023

Source: Verisk, Equifax
**NEW-VEHICLE SALES | 2023 Finishes with 15.46 Million**

A bumpy recovery since hitting bottom, and expected to continue through 2024

### Monthly Light Vehicle Sales SAAR (millions)

<table>
<thead>
<tr>
<th>Period</th>
<th>Sales millions</th>
<th>SAAR millions</th>
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<tbody>
<tr>
<td>Dec 2022</td>
<td>1.27</td>
<td>13.5</td>
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<tr>
<td>Dec 2023</td>
<td>1.43</td>
<td>15.8</td>
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<td>Change</td>
<td>13.0%</td>
<td>+2.3m</td>
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<td>Q4 2022</td>
<td>3.59</td>
<td>14.2</td>
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<td>Q3 2023</td>
<td>3.96</td>
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<tr>
<td>Q4 2023</td>
<td>3.85</td>
<td>15.5</td>
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<tr>
<td>Change Y/Y</td>
<td>7.3%</td>
<td>+1.3m</td>
</tr>
<tr>
<td>Change Q/Q</td>
<td>-2.8%</td>
<td>-0.2m</td>
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<tr>
<td>YTD 2022</td>
<td>13.75</td>
<td>13.8</td>
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<td>YTD 2023</td>
<td>15.46</td>
<td>15.5</td>
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<tr>
<td>Change</td>
<td>12.4%</td>
<td>+1.7m</td>
</tr>
<tr>
<td>CY 2024</td>
<td>15.7m</td>
<td>+200K - 300K</td>
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</table>

Source: Cox Automotive, Bureau of Economic Analysis
SALES CHANNELS | Fleet Sales Drive 2023 Gains

Pent-up rental and commercial demand unleashed, but further growth will be more difficult

YTD Change In 2023 Sales

Retail Share (Purchase-Lease) of Total Sales

Source: Cox Automotive, Kelley Blue Book
## OEM SALES | GM Wins Title – Honda Gains Most Share

While Toyota, Ford and Stellantis had tough year

<table>
<thead>
<tr>
<th>OEM</th>
<th>Q4 2022</th>
<th>Q3 2023</th>
<th>Q4 2023</th>
<th>Y/Y Change</th>
<th>Q/Q Change</th>
<th>CY 2022</th>
<th>CY 2023</th>
<th>Change</th>
<th>Share 2022</th>
<th>Share 2023</th>
<th>Difference</th>
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<td>GM</td>
<td>618,692</td>
<td>669,234</td>
<td>619,834</td>
<td>0.2%</td>
<td>-7.4%</td>
<td>2,258,429</td>
<td>2,577,648</td>
<td>14.1%</td>
<td>16.3%</td>
<td>16.5%</td>
<td>0.3%</td>
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<tr>
<td>Toyota</td>
<td>536,740</td>
<td>590,296</td>
<td>619,661</td>
<td>15.4%</td>
<td>5.0%</td>
<td>2,108,457</td>
<td>2,248,477</td>
<td>6.6%</td>
<td>15.2%</td>
<td>14.4%</td>
<td>-0.8%</td>
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<tr>
<td>Ford</td>
<td>479,769</td>
<td>497,108</td>
<td>484,458</td>
<td>1.0%</td>
<td>-2.5%</td>
<td>1,850,925</td>
<td>1,981,332</td>
<td>7.0%</td>
<td>13.3%</td>
<td>12.7%</td>
<td>-0.6%</td>
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<tr>
<td>Hyundai</td>
<td>386,898</td>
<td>430,302</td>
<td>402,339</td>
<td>4.0%</td>
<td>-6.5%</td>
<td>1,474,224</td>
<td>1,652,821</td>
<td>12.1%</td>
<td>10.6%</td>
<td>10.6%</td>
<td>0.0%</td>
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<td>Stellantis</td>
<td>347,669</td>
<td>380,563</td>
<td>343,552</td>
<td>-1.2%</td>
<td>-9.7%</td>
<td>1,547,076</td>
<td>1,527,090</td>
<td>-1.3%</td>
<td>11.1%</td>
<td>9.8%</td>
<td>-1.3%</td>
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<td>Honda</td>
<td>255,250</td>
<td>339,143</td>
<td>337,511</td>
<td>32.2%</td>
<td>-0.5%</td>
<td>983,507</td>
<td>1,308,186</td>
<td>33.0%</td>
<td>7.1%</td>
<td>8.4%</td>
<td>1.3%</td>
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<tr>
<td>Nissan Mitsu</td>
<td>211,768</td>
<td>239,074</td>
<td>221,351</td>
<td>4.5%</td>
<td>-7.4%</td>
<td>815,160</td>
<td>986,136</td>
<td>21.0%</td>
<td>5.9%</td>
<td>6.3%</td>
<td>0.5%</td>
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<tr>
<td>Tesla</td>
<td>131,574</td>
<td>156,621</td>
<td>161,375</td>
<td>22.6%</td>
<td>3.0%</td>
<td>522,444</td>
<td>654,888</td>
<td>25.4%</td>
<td>3.8%</td>
<td>4.2%</td>
<td>0.4%</td>
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<td>VW</td>
<td>143,979</td>
<td>167,279</td>
<td>176,248</td>
<td>22.4%</td>
<td>5.4%</td>
<td>558,009</td>
<td>632,994</td>
<td>13.4%</td>
<td>4.0%</td>
<td>4.1%</td>
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<tr>
<td>Subaru</td>
<td>155,466</td>
<td>163,131</td>
<td>164,863</td>
<td>6.0%</td>
<td>1.1%</td>
<td>556,581</td>
<td>632,083</td>
<td>13.6%</td>
<td>4.0%</td>
<td>4.1%</td>
<td>0.0%</td>
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<td>BMW</td>
<td>112,057</td>
<td>91,849</td>
<td>108,795</td>
<td>-2.9%</td>
<td>18.4%</td>
<td>361,892</td>
<td>385,927</td>
<td>6.6%</td>
<td>2.6%</td>
<td>2.5%</td>
<td>-0.1%</td>
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<tr>
<td>Mazda</td>
<td>79,517</td>
<td>88,834</td>
<td>90,737</td>
<td>14.1%</td>
<td>2.1%</td>
<td>294,909</td>
<td>363,354</td>
<td>23.2%</td>
<td>2.1%</td>
<td>2.3%</td>
<td>0.2%</td>
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<td>Mercedes-Benz Group</td>
<td>88,493</td>
<td>90,011</td>
<td>92,992</td>
<td>5.1%</td>
<td>3.3%</td>
<td>350,949</td>
<td>354,723</td>
<td>1.1%</td>
<td>2.5%</td>
<td>2.3%</td>
<td>-0.3%</td>
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<tr>
<td>Geely Volvo</td>
<td>32,655</td>
<td>36,098</td>
<td>39,561</td>
<td>21.1%</td>
<td>9.6%</td>
<td>111,509</td>
<td>140,590</td>
<td>26.1%</td>
<td>0.8%</td>
<td>0.9%</td>
<td>0.1%</td>
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<tr>
<td>Tata JLR</td>
<td>21,806</td>
<td>21,059</td>
<td>21,338</td>
<td>-2.1%</td>
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<td>68,546</td>
<td>80,101</td>
<td>16.9%</td>
<td>0.5%</td>
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<tr>
<td>Rivian</td>
<td>8,054</td>
<td>15,564</td>
<td>13,972</td>
<td>73.5%</td>
<td>-10.2%</td>
<td>20,332</td>
<td>50,122</td>
<td>146.5%</td>
<td>0.1%</td>
<td>0.3%</td>
<td>0.2%</td>
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<tr>
<td>Lucid</td>
<td>1,060</td>
<td>1,457</td>
<td>1,512</td>
<td>42.6%</td>
<td>3.8%</td>
<td>2,656</td>
<td>5,779</td>
<td>117.6%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
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<td>Vinfast</td>
<td>0</td>
<td>1,159</td>
<td>1,120</td>
<td>-</td>
<td>-3.4%</td>
<td>0</td>
<td>3,129</td>
<td>-</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
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<tr>
<td>Fisker</td>
<td>0</td>
<td>997</td>
<td>1,672</td>
<td>-</td>
<td>67.7%</td>
<td>0</td>
<td>2,669</td>
<td>-</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
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<tr>
<td>NATION</td>
<td>3,611,447</td>
<td>3,979,779</td>
<td>3,902,891</td>
<td>8.1%</td>
<td>-1.9%</td>
<td>13,885,605</td>
<td>15,588,049</td>
<td>12.3%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Source: Cox Automotive, Kelley Blue Book
NEW-VEHICLE INVENTORY | Finished Up 51% vs. Last Year

Currently over 900K more units than last year, days of supply at 71 – up 20%

Available Supply  weekly

Days of Supply  weekly

Source: Cox Automotive, vAuto
Some brands remain in limited availability while others have accumulation.

Source: Cox Automotive, vAuto

Note: Days Supply calculation includes vehicles in dealer inventory and in-transit/pipeline
CHANGING PRICES | Seller’s Market Shifting Towards Buyers

Incentives rising again and price strength is eroding

Source: Cox Automotive, Dealertrack, Kelley Blue Book
DEALER SENTIMENT | Price Pressure Having Impact

As the market returns to normal so is profitability

Source: Cox Automotive Dealer Sentiment Index, Q4 2023

Note: Scale 1 - 100
Q4 up only slightly from Q3; year over year growth of 46% pushes total sales to 1.1 million

Source: Kelley Blue Book
Low penetration of EVs in some states suggests product knowledge, value proposition and consumer interest lacking

**EV SALES ADOPTION | Uneven, An Opportunity**

**EV Share of Retail = 7.4% Nationally**
- >7.4%
- 4%-7.4%
- <4%

**EV Share of Retail Sales**
- CALIFORNIA: 21.1%
- WASHINGTON: 15.4%
- NEW JERSEY: 10.3%
- NATION: 7.4%
- CONNECTICUT: 6.6%
- TEXAS: 5.4%
- NEW YORK: 4.7%
- PENNSYLVANIA: 4.1%
- MICHIGAN: 3.1%
- OHIO: 3.0%
- WEST VIRGINIA: 1.1%
- NORTH DAKOTA: 0.7%

Source: Cox Automotive analysis of S&P Global registrations data, YTD 2023 retail registrations
EV INVENTORY | Well Above Industry Average

EV inventory increased by 92% in 2023, averaging 113 days’ supply to end the year

Note: Tesla, Rivian and Brands with a “Direct to Consumer Platform” are not represented.

Source: Cox Automotive Analysis
EV TRANSACTION PRICE | Tesla Leads the Way Down

EV prices near parity with ICE, driven by surplus inventory, higher incentives and competition

Source: Kelley Blue Book
EV LEASING | Expected to Rise Further in 2024

Electric vehicle leases continue to increase with stricter eligibility for IRA tax credits.

Treasury announces leased EVs not assembled in North America can receive IRA tax credit. December 2022

Source: Kelley Blue Book
POWERTRAIN SHARE ESTIMATES | 24% in 2024

Role of alternatives rising and will accelerate in coming years.

Source: Cox Automotive analysis of S&P Global registrations data
**EV STAMPEDE | More Models, More Choice, More Sales**

<table>
<thead>
<tr>
<th></th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>37</td>
<td>34</td>
</tr>
</tbody>
</table>

**NEW VEHICLES COMING IN 2 YEARS**

70+
WHOLESALE MARKET

JEREMY ROBB
Senior Director, Economic and Industry Insights
EVs AT AUCTION: | Increased Year Over Year at Manheim

Q4 EV transactions growth climbed, +73% year over year though unit sales were down against prior quarter

Source: Manheim
MANHEIM USED VEHICLE VALUE INDEX

Concept
A single measure of used vehicle price change that is independent of underlying segment shifts in the characteristics of vehicles being sold

Steps
1. All Manheim U.S. sales
2. Classify by market segment
3. Account for differences in mileage
4. Weight to provide smoother segment mix
5. Seasonally adjust
WHOLESALE VALUE | Down in December and Year Over Year

Prices declined 0.5% from November and were down 7.0% from December 2022.
THE MUVVI INDEX | A Natural Upward Bias

MUVVI values typically rise by 2.3% each year on the index, as higher price units enter the sample.
Depreciation trends were a bit stronger for most of Q4, with the overall index ending at 84.6%.

Overall MMR Index Trends
All Model Years

Source: Manheim
Repo & lease check-in rates continue to rise, but a long road to normal for off-lease.

- **Repo Check-In Index (2019=100)**
  - 2019: 100%
  - 2020: 95%
  - 2021: 74%
  - 2022: 66%
  - 2023: 77%

- **Rental Check-In Index (2019=100)**
  - 2019: 100%
  - 2020: 83%
  - 2021: 31%
  - 2022: 56%
  - 2023: 48%

- **Lease Check-In Index (2019=100)**
  - 2019: 100%
  - 2020: 75%
  - 2021: 33%
  - 2022: 15%
  - 2023: 27%

- Repo +29% vs 22' but down (5%) vs 19'
- Lease +76% vs 22' yet down (73%) vs 19'
- Rental down (14%) vs 22' and down (52%) vs 19'

Source: Manheim
After a 13% decline in 2022, the wholesale market should see gradual recovery to 2020 levels by 2028.

Estimated Wholesale Volumes by Inflow Channel (Annual Volume)

<table>
<thead>
<tr>
<th>Year</th>
<th>Dealer</th>
<th>Off Lease</th>
<th>Repo</th>
<th>Rental</th>
<th>Fleet/Factory/Other</th>
<th>Total</th>
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<tbody>
<tr>
<td>2018</td>
<td>6.6</td>
<td>1.8</td>
<td>1.6</td>
<td>2.5</td>
<td>2.5</td>
<td>12.7</td>
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<tr>
<td>2019</td>
<td>6.1</td>
<td>1.6</td>
<td>1.7</td>
<td>2.5</td>
<td>2.5</td>
<td>12.3</td>
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<td>2020</td>
<td>6.3</td>
<td>1.3</td>
<td>1.3</td>
<td>2.4</td>
<td>1.2</td>
<td>11.6</td>
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<td>2021</td>
<td>7.3</td>
<td>0.6</td>
<td>1.1</td>
<td>1.2</td>
<td>0.4</td>
<td>10.4</td>
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<td>2022</td>
<td>6.4</td>
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<td>1.5</td>
<td>1.5</td>
<td>0.7</td>
<td>9.0</td>
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<td>1.5</td>
<td>1.5</td>
<td>0.8</td>
<td>10.3</td>
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<td>6.7</td>
<td>1.2</td>
<td>1.2</td>
<td>1.6</td>
<td>1.0</td>
<td>10.4</td>
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<td>2025</td>
<td>6.6</td>
<td>1.2</td>
<td>1.2</td>
<td>1.6</td>
<td>1.4</td>
<td>10.7</td>
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<td>2026</td>
<td>6.4</td>
<td>1.2</td>
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<td>1.7</td>
<td>10.8</td>
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<td>2027</td>
<td>6.4</td>
<td>1.2</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
<td>11.3</td>
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<tr>
<td>2028</td>
<td>6.5</td>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
<td>11.6</td>
</tr>
</tbody>
</table>

Source: Manheim, Cox Automotive
Weekly sales estimates declined at the end of December, up 4% Y/Y for Week 52; YTD -3%
RETAIL USED INVENTORY | Steady Improvement Since Spring

Total supply up 2% or 37K from last year; Days’ supply at 56, down 3% from the end of 2022
RETAIL USED PRICES | Downward Price Pressure Continues

Listing price held lower than 2022 all year and was flat in December

Average Listing Price weekly
2024 FORECASTS & PLAYLIST

JONATHAN SMOKE
Chief Economist
2024 FORECASTS
Jan. 8, 2024

15.7M
NEW SALES
(2023: 15.5M)

12.7M
NEW RETAIL SALES
(2023: 12.7M)

3.0M
FLEET SALES
(2023: 2.6M)

2.9M
NEW LEASE VOLUME
(2023: 2.6M)

23%
LEASE PENETRATION
(2023: 20%)

2.7M
CPO SALES
(2023: 2.6M)

36.2M
USED SALES
(2023: 35.9M)

19.2M
USED RETAIL SALES
(2023: 19.0M)

+0.5%
DEC 2024 Y/Y MANHEIM
USED VEHICLE
VALUE INDEX
(2023: -7.0%)
2024 PLAYLIST

Everytime We Touch
By Cascada

The Weapon of Choice
By Fatboy Slim

Slow Growth Ahead
Vehicle Supply Is Back to Favoring Consumers

The Pursuit of Happiness (Steve Aoki Remix)
By Kid Cudi

Bid Farewell to the Seller’s Market

Gonna Make You Sweat (Everybody Dance Now)
By C+C Music Factory

It’s Not Unusual
By Tom Jones

Normal Is Nice

Year of More
Q&A
MORE AUTO INDUSTRY DATA AND INSIGHTS FROM COX AUTOMOTIVE

The go-to source for insights based on the largest breadth of first-party data in the automotive ecosystem

Cox Automotive Newsroom: www.coxautoinc.com/newsroom/
Fresh content from Chief Economist Jonathan Smoke and the Industry Insights team is published regularly.

Auto Market Snapshot: www.coxautoinc.com/marketsnapshot
This dashboard is a one-stop dashboard for the most recent data points our team is tracking.

From the Newsroom: www.coxautoinc.com/signup
The Cox Automotive biweekly newsletter, published every other Tuesday, is a round-up of news from Cox Automotive and perspectives from its analysts and experts on topics dominating the automotive industry.
THANK YOU FOR ATTENDING!

Contact us with questions or to speak with an expert:

**Dara Hailes**  
Senior Manager  
Cox Automotive Corporate Communications  
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