Presenters

**Mark Schirmer**, Director, Corporate Communications

**Jonathan Smoke**, Chief Economist

**Grace Huang**, President, Inventory Solutions

**Chris Frey**, Senior Manager, Economic and Industry Insights

**Jeremy Robb**, Senior Director, Economic and Industry Insights
The Power of Cox Automotive

Harnessing the power of connected data for game-changing results
Consumer Spending Remains Strong

Total spending in 2022 was up 18% y/y in latest data and showing little evidence of pullback in total spending

Source: Verisk/Equifax

Y/Y Spending % Change for Week Ending December 17, 2022

- Travel Agencies
- Other Transportation
- Airlines
- Discount Stores
- Recreation
- Utilities
- Restaurants/Bars
- Education
- Food Stores
- Wholesale Retailers
- Total
- Vehicles
- Professional Services
- Other Services
- All others
- Health Care
- Gas Stations
- Sporting Goods/Toy Stores
- Auto Rental
- Drug Stores
- Department Stores
- Mail Orders
- Clothing Stores
- Repair Shops
- Hardware Stores
- Interior Furnishing Stores
- Hotel/Motel
- Electric Appliance Stores

Source: Verisk/Equifax
Consumer Sentiment Improving Again

The Index of Consumer Sentiment increased 2.6% in November and 4.3% in December

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

Source: Morning Consult; AAA
Continuing Claims at 1.71 Million Nationally

Source: Moody’s Analytics, U.S. Department of Labor

Note: Latest Employment Numbers for November 2022; Continuing Claims Unemployment Data for Week Ending December 10
The holidays did not deliver the typical uplift in new retail sales, which were down 20% y/y the final week of the year.
Retail Supply Improving in New; Normal in Used

New supply ended the year 22 days higher and up 3 days from Nov; used supply up 1 day y/y and down 2 days from Nov
Cox Automotive Inventory Solutions
Grace Huang | President
**Manheim** is the world’s largest wholesale vehicle marketplace

<table>
<thead>
<tr>
<th>Industry Experience</th>
<th>Network</th>
<th>Land</th>
<th>Workforce</th>
<th>Population</th>
<th>Vehicles Handled</th>
<th>Annual Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>77+ Years</td>
<td>111 Physical, Digital, Mobile Sites</td>
<td>6,500+ Acres</td>
<td>11,000+</td>
<td>84% within 100 miles of a Manheim site</td>
<td>5M</td>
<td>$2.98B</td>
</tr>
</tbody>
</table>
Our Business is Evolving
Our Key Focus Areas

Investing in Vehicle Information, AI

Delivering Actionable Data

Transforming Automotive Logistics
Vehicle Information Is Vital
Actionable Data for Decision Making
Transportation and Logistics Becoming More Integral

- Business Intelligence and Analytics for Risk Management
- Better Vehicle Tracking
- Machine Learning for Rate and Capacity Prediction
INVENTORY SOLUTIONS

Physical and Digital Auctions
Mobile Auctions
Manheim Express
OVE

Inspections
DealShield
Imaging
Condition Reports
Arbitration

Ready Logistics
Central Dispatch

Wholesale and Retail Services

INVENTORY MANAGEMENT

Manheim Dashboard
MMR

WHOLESALE MARKETPLACE

ASSURANCE

FINANCING

RECONDITIONING

LOGISTICS

Manheim 1945

Manheim Dashboard

MMR

vAuto

Instant Cash Offer

UPSIDE

Inspections
DealShield
Imaging
Condition Reports
Arbitration

Ready Logistics
Central Dispatch

Retail Services

INVENTORY SOLUTIONS
Chris Frey
Senior Manager, Economic and Industry Insights
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 Vehicle Values Saw Largest Annual Decrease in History in December

Prices in December increased 0.8% from November and were down 14.9% compared to December 2021.

Source: Manheim
Year-over-year price performance turned negative in September and has accelerated since.

Source: Manheim

-14.9%
Both series moved lower through Q4, though Adjusted Price ticked up in November and December.

Source: Manheim
Wholesale prices kept moving lower, while new-vehicle prices kept moving higher during Q4 closing the gap.

Source: Manheim, Kelley Blue Book
Year-Over-Year Performance Declined in All Segments Compared to 2021

Work-related and Price-sensitive units fared best, compared to the overall industry.

Percent Change in Manheim Index Year Over Year December 2022

- Industry: -14.9%
- Compact cars: -13.5%
- Midsize cars: -15.8%
- Luxury cars: -15.2%
- Pickups: -12.2%
- SUV / CUV: -16.6%
- Vans: -12.0%

Source: Manheim
Wholesale Performance, U.S. Versus Canada

Canadian Index strength was highest in October 2022; gap has since closed to 25 points in December.

Source: Manheim
Jeremy Robb
Senior Director, Economic & Industry Insights, Cox Automotive
Overall Wholesale Depreciation Trends Remained Above Average

Weekly declines in Resale Value have been 30 basis points higher than normal in Q4: Overall MMR Index ended at 80.2%

Overall MMR Index Trends
(All Model Years)

Resale Values continued to show meaningful declines in Q4

Weekly Change in Resale Value
All Model Years

Covid Impact in 2020

Appreciation in 2021

Spring Depreciation was more normal

Q4 Weekly Trends were +0.3% higher than normal on average

Source: Manheim
Consistent 2022 Depreciation Patterns in Q4 Across All Age Brackets

All age groups continued to decline over the quarter, dropping by 7.1% in Q4 alone.
In wholesale depreciation patterns, Compact Cars outperformed SUVs by almost 9 points in 2022.
MMR Retention & Lane Efficiency

MMR Retention rose in Q4 as prices continued to decline, pushing sales conversion back towards more normal levels.
The 1YO ended with the least depreciation on the year, but declines picked up a bit into year-end as new car supply rose.

Source: Manheim
3 Year Old MMR Index Trends

Depreciation on 3YO units was the strongest of all age groups, with Resale Value $ down almost 15% vs 2021

Source: Manheim
Non-Luxury fared better than Luxury – both segments declined 6.6% in Q4
CALE: Equity in Maturing Leases Declined Steadily in Q4

CALE trends on 36M term are about $5K positive overall but vary greatly by make

CALE = Cox Automotive Lease Equity Position

Measures the difference between Wholesale MMR at Maturity and Residual Value for 36-month term leases

As we continue to see declines, more brands are getting closer to $0 or breakeven in CALE. We expect this to continue into 1H 23’.
Commercial Supply – Moving Up, Ever So Slowly

Repo check-ins finally picked up a bit closer to normal, as Lease check-ins averaged 4,200 in Q4.

Source: Manheim

+10.9% vs 21’ & (26%) vs 2019

+83% vs 21’ & down (44%) vs 2019

Down (54%) vs 21’ &
down (85%) vs 2019

+11% vs 21’ & down (19%) vs 2019
Retention Values End Year Lower Than End of 2021

Retention values peaked at 94% in January; declines since leave retention at year end at 71%
Average price for rental risk units sold in December down 5.3% year over year and down 3.4% from November.

Source: Manheim
Rental Risk Vehicle Variety Represented in Sales

Configuration count was the highest since 2015 Q4’s 4,178; YMMB shares similar to Pandemic onset in Q1 2020.

<table>
<thead>
<tr>
<th></th>
<th>2020 Q4</th>
<th>2021 Q4</th>
<th>2022 Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique year, make, model, body configurations sold</td>
<td>3,792</td>
<td>2,543</td>
<td>4,164</td>
</tr>
<tr>
<td>Share accounted for top 10 YMMB</td>
<td>13.9%</td>
<td>20.6%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Share accounted for top 25 YMMB</td>
<td>24.1%</td>
<td>34.1%</td>
<td>20.5%</td>
</tr>
<tr>
<td>Number of YMMB to reach 50% share</td>
<td>125</td>
<td>64</td>
<td>137</td>
</tr>
</tbody>
</table>

Source: Manheim
Average mileage in December was down 19% compared to a year ago but up 3% from November.

Source: Manheim
Rental Risk Sales Condition

Q4 2022 distribution almost identical to Q3 2021; more 2.0 – 3.9 and fewer 4.0 - 4.9 from Q3 2022.
Chevy, Ford, and Toyota lost 1.4% share compared to Nissan’s 3.5% gain from Q3.
Compact and Midsize cars gained 3.8% total vs. a 5.0% loss for SUVs from Q3 to Q4.
Manheim Insights on Top Volume Vehicles

Price trends on top selling vehicles in December at Manheim showed declining values for the month and year.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Source(Rank)</th>
<th>Category</th>
<th>Subcategory</th>
<th>Vehicle</th>
<th>3-Jan</th>
<th>Past 30 Days</th>
<th>Last Year</th>
<th>Current Dep</th>
<th>L12M Dep/Mo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All</td>
<td>Compact Car</td>
<td>Compact Car Premium</td>
<td>2020 TOYOTA COROLLA 4D SEDAN LE</td>
<td>$15,550</td>
<td>$15,850</td>
<td>$18,800</td>
<td>-1.9%</td>
<td>-1.4%</td>
</tr>
<tr>
<td>2</td>
<td>All</td>
<td>Compact Car</td>
<td>Compact Car Premium</td>
<td>2021 TOYOTA COROLLA 4D SEDAN LE</td>
<td>$17,950</td>
<td>$18,150</td>
<td>$21,400</td>
<td>-1.1%</td>
<td>-1.3%</td>
</tr>
<tr>
<td>3</td>
<td>All</td>
<td>Mid-Size Car</td>
<td>Mid-Size Car Premium</td>
<td>2020 NISSAN ALTIMA FWD 4D SEDAN 2.5L S</td>
<td>$15,800</td>
<td>$16,150</td>
<td>$20,600</td>
<td>-2.2%</td>
<td>-1.9%</td>
</tr>
<tr>
<td>4</td>
<td>All</td>
<td>SUV</td>
<td>SUV Midsize</td>
<td>2020 FORD EXPLORER 4WD 4C 4D SUV XLT</td>
<td>$29,900</td>
<td>$30,200</td>
<td>$39,000</td>
<td>-1.0%</td>
<td>-1.9%</td>
</tr>
<tr>
<td>5</td>
<td>All</td>
<td>Mid-Size Car</td>
<td>Mid-Size Car Entry</td>
<td>2021 KIA FORTE 4D SEDAN LXS</td>
<td>$16,100</td>
<td>$16,400</td>
<td>$20,600</td>
<td>-1.8%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>1 Dealer</td>
<td>Dealer</td>
<td>Compact Car</td>
<td>Compact Car Premium</td>
<td>2020 TOYOTA COROLLA 4D SEDAN LE</td>
<td>$15,550</td>
<td>$15,850</td>
<td>$18,800</td>
<td>-1.9%</td>
<td>-1.4%</td>
</tr>
<tr>
<td>1 Lease</td>
<td>Lease</td>
<td>SUV</td>
<td>SUV Luxury</td>
<td>2020 VOLVO XC90 AWD 4D SUV T6 MOMENTUM</td>
<td>$34,600</td>
<td>$34,900</td>
<td>$51,800</td>
<td>-0.9%</td>
<td>-2.8%</td>
</tr>
<tr>
<td>1 Rental</td>
<td>Rental</td>
<td>Compact Car</td>
<td>Compact Car Entry</td>
<td>2021 NISSAN VERSA 4D SEDAN SV</td>
<td>$13,350</td>
<td>$13,950</td>
<td>$16,900</td>
<td>-4.3%</td>
<td>-1.8%</td>
</tr>
</tbody>
</table>

Source: Manheim, Cox Automotive
Used Prices Ended Down Year with Larger Declines

The average MY 2019 wholesale price declined 0.8% in last week of December, and retail declined 0.6%.

MY 2019 Retail and Wholesale Price Indices

Source: Dealertrack, Manheim, Cox Automotive
Wholesale Days’ Supply Ending Year Below Normal

Level of supply was most elevated this summer giving more power to buyers

Estimated Wholesale Days' Supply

Source: Manheim, Cox Automotive
Wholesale Flows to Bottom in 2023

After a 7% decline in 2022, 2023 will decline another 4.5% as dealer consignments slow but commercial grows.
Used Vehicle Value Outlook

Above-normal depreciation expected through spring 2023; Manheim Index to see another down year

Y/Y % Change Manheim Index, As Of December
Forecast Range Needed with Recession 50/50

Minimal upside potential with most likely outcome between soft landing and recession

New Vehicle Sales

Used Retail Sales

Source: Manheim, Cox Automotive
EV and Hybrid Volume Forecast | 4.4 Million BEVs By 2027

Gains in hybrids only temporary as only pure EV growth expected to continue

Source: Cox Automotive analysis of IHS-Markit Propulsion Forecast June 2022
<table>
<thead>
<tr>
<th>Category</th>
<th>2023 Forecasts</th>
<th>2024 Forecasts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Sales</strong></td>
<td>14.1M</td>
<td>11.9M</td>
</tr>
<tr>
<td><strong>New Retail Sales</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fleet Sales</strong></td>
<td>2.2M</td>
<td></td>
</tr>
<tr>
<td><strong>New Lease Volume</strong></td>
<td>2.5M</td>
<td></td>
</tr>
<tr>
<td><strong>Lease Penetration</strong></td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td><strong>CPO Sales</strong></td>
<td></td>
<td>2.2M</td>
</tr>
<tr>
<td><strong>Used Sales</strong></td>
<td>35.6M</td>
<td></td>
</tr>
<tr>
<td><strong>Used Retail Sales</strong></td>
<td>18.9M</td>
<td></td>
</tr>
<tr>
<td><strong>Dec 2023 Y/Y Manheim Used Vehicle Value Index</strong></td>
<td>-4.3%</td>
<td></td>
</tr>
</tbody>
</table>
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/marketnapshot
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:

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