Vehicle Market Insights
Manheim Used Vehicle Value Index Call
October 7, 2021
Presenters

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Grace Huang, President, Manheim

coxautoinc.com/newsroom
publish.manheim.com/en/services/consulting/used-vehicle-value-index.html
OUR PURPOSE
Empower clients to thrive in a rapidly changing marketplace

OUR VISION
Transform the way the world buys, sells, owns and uses vehicles

Cox Automotive
COVID-19 DAILY CASE AND VACCINATION TRENDS

Source: Cox Automotive
ECONOMIC ACTIVITY IMPACTED IN SEPTEMBER BY DELTA WAVE AND STORMS

Moody’s-CNN Business Back-To-Normal Index (February 29 = 100)

Data as of October 4, 2021

Source: Moody’s Analytics and CNN Business
CONSUMER SPENDING GROWTH SLOWED IN THE SUMMER

Total spending in 2021 has exceeded 2019 spending levels; peak spending so far in weeks 13, 17, 26, and 35.
RETAIL SALES ESTIMATES SHOW SLOWING MARKET FROM PEAK IN SPRING
RETAIL INVENTORY REMAINS TIGHT BUT DAYS’ SUPPLY NO LONGER DECLINING

Source: Cox Automotive
PREPARING FOR AN “ELECTRIFIED” FUTURE

OCTOBER 7, 2021
## Manheim Is Well-Positioned

<table>
<thead>
<tr>
<th>Category</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Experience</td>
<td>75+ Years</td>
</tr>
<tr>
<td>Network</td>
<td>110 Physical, Digital</td>
</tr>
<tr>
<td></td>
<td>and Mobile Sites</td>
</tr>
<tr>
<td>Land</td>
<td>6,500+ Acres</td>
</tr>
<tr>
<td>Workforce</td>
<td>11,500+</td>
</tr>
<tr>
<td>Population</td>
<td>84% within 100 miles</td>
</tr>
<tr>
<td></td>
<td>of a Manheim site</td>
</tr>
<tr>
<td>Vehicles Handled</td>
<td>5.5M</td>
</tr>
<tr>
<td>Infrastructure Investment</td>
<td>$100M+</td>
</tr>
</tbody>
</table>
Traditional vs. Electric Vehicles

**Key drivers** of vehicle value differ

A battery pack is the **single most costly part** of an EV

Consumer **adoption of EVs faces skepticism**

**Battery health as a vital component** in increasing confidence in EV performance
Preparing for EV Influx

In 2020, Manheim processed roughly **114,000 electrified vehicles**.*

Preparing for a **larger mix of traditional and EVs**

The EV market is forecasted to grow to **32.8 million units in 2030**.**

Kelley Blue Book estimates between now and 2030, there will be about **100 new EV models** entering the market.

*Includes battery electric, hybrid and plug-in vehicles

**Source: IHS Markit
Infrastructure Investment

Technology **processes and innovations**

Vehicle **information improvements**

Charging stations

EV **battery health tool** & testing

Specialized equipment, **training for employees**
Spiers New Technologies (SNT) is a leading provider of EV battery life cycle management. Developing a health diagnostic tool in partnership with SNT and powered by Cox Automotive.

Battery health pilots at select Manheim locations with high EV volumes.

Test being conducted with seven OEM clients.
Battery Vitals Scorecard

EV Battery Vitals are VIN-specific, industry standard, reports leveraging patented algorithm to assess health and improve transparency, trust and valuations for EVs.

1 Battery vitals score
Industry standard score informed by key measures of energy in and out

2 Comparison to new & range snapshot
At birth what is range and battery capability and how much range available today at full charge vs. New

3 Battery warranty
Battery warranty information included

EV information

Battery Health Report (4.7)

Current Range 110 mi
Connector Type CCS
State of Charge --
Charging Cable Present
Battery Capacity 38.3 kWh
Charging Level DC Level 2
EPA Mileage 170 mi
Battery Warranty 10 year / 100,000 miles
Battery Chemistry Lithium Ion
Benefits for Automotive Clients and the Industry

Support **EV adoption**

Set **new and used EV values**

Create **greater understanding**

Enables **transparency and confidence**

Help build the **industry standard**
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 INCREASE IN SEPTEMBER

Prices in September increased 5.3% from August 2021 and were up 27.1% compared to September 2020.

January 1995 = 100
Year-over-year price performance set records this spring

Monthly Average = 1.3%
WHOLESALE USED VEHICLE PRICES VS. NEW VEHICLE PRICES

New Vehicle ATP  Manheim Non-Adjusted Price

Source: Manheim
VANS OUTPERFORMING OTHER SEGMENTS

PERCENT CHANGE IN MANHEIM INDEX YEAR-OVER-YEAR SEPTEMBER 2021

- Industry: 27.1%
- Compact cars: 25.6%
- Midsize cars: 24.6%
- Luxury cars: 24.1%
- Pickups: 17.8%
- SUV/CUV: 28.2%
- Vans: 40.9%

Source: Manheim
Prices are on the rise again after peaking in week 24 and declining for much of June and July.
Luxury vehicles saw a later start and less of a summer decline

**2021 LUXURY WEEKLY PRICE TREND**

WELL ABOVE SPRING PEAK

Luxury 3-Year-Old Model MMR Index by Week

Source: Manheim
ONE-YEAR-OLD PRICES ALSO AT NEW PEAK

One-year-old vehicle prices peaked later and saw less depreciation in June and July

1-Year-Old Model MMR Index by Week

Source: Manheim
RESALE VALUE CHANGE RECORD INCREASES ACROSS THE BOARD

After brief mid-summer pause. Resale Values are Breaking Records again

Source: Manheim
COMMERCIAL SUPPLY SOURCES REMAIN WELL BELOW HISTORICAL NORMS

Commercial Auction Inventory is less than half Pre-COVID levels

Running ~15% of Normal
Extremely High Equity Positions keeping most off-lease units out of auctions

Running ~2/3rds Normal
Repo Rate Remains Near Record Lows

Running ~40% of Normal
Lack of New Replacement Vehicles Suppressing de-fleeting activity

Source: Manheim
Sales Conversion back up near historic highs following brief correction in June/July

High Sales Conversion Rate indicates strong wholesale demand likely through October
Retention values peaked up 22 percentage points vs. 2019 in June, but now at record +26 percentage points.

**Auction Retention Value**

(1-3 year old vehicles)
Average price for rental risk units sold in September up 37% y/y and up 12% m/m
## RENTAL RISK  VEHICLE VARIETY REPRESENTED IN SALES

<table>
<thead>
<tr>
<th></th>
<th>2019 Q3</th>
<th>2020 Q3</th>
<th>2021 Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique year, make, model, body configurations sold</td>
<td>3,496</td>
<td>3,903</td>
<td>2,890</td>
</tr>
<tr>
<td>Share accounted for top 10 YMMB</td>
<td>12.7%</td>
<td>16.9%</td>
<td>17.2%</td>
</tr>
<tr>
<td>Share accounted for top 25 YMMB</td>
<td>23.6%</td>
<td>30.0%</td>
<td>30.0%</td>
</tr>
<tr>
<td>Number of YMMB to reach 50% share</td>
<td>106</td>
<td>75</td>
<td>77</td>
</tr>
</tbody>
</table>
Average mileage for rental risk units in September was up 33% compared to a year ago and down 19% m/m.
Price trends on top selling vehicles in September at Manheim showed clear appreciating trends as all top selling vehicles gained value over the last 30 days (September 1 – October 1). All vehicles saw year-over-year gains.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Source(Rank)</th>
<th>Category</th>
<th>Subcategory</th>
<th>Vehicle</th>
<th>1-Oct</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>$19,450</td>
<td>$19,150</td>
<td>$13,600</td>
<td>1.6%</td>
<td>3.6%</td>
</tr>
<tr>
<td>2</td>
<td>All</td>
<td>Midsize Car</td>
<td>Midsize Car Entry</td>
<td>2020 CHEVROLET MALIBU 4D SEDAN LT</td>
<td>$20,100</td>
<td>$19,750</td>
<td>$15,050</td>
<td>1.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>3</td>
<td>All</td>
<td>Compact Car</td>
<td>Compact Car Premium</td>
<td>2019 TOYOTA COROLLA 4D SEDAN LE</td>
<td>$17,900</td>
<td>$17,600</td>
<td>$12,150</td>
<td>1.7%</td>
<td>3.9%</td>
</tr>
<tr>
<td>4</td>
<td>All</td>
<td>SUV</td>
<td>SUV Midsize</td>
<td>2018 NISSAN ROGUE AWD 4D SUV SV</td>
<td>$22,200</td>
<td>$21,800</td>
<td>$15,950</td>
<td>1.8%</td>
<td>3.3%</td>
</tr>
<tr>
<td>5</td>
<td>All</td>
<td>Compact Car</td>
<td>Compact Car Premium</td>
<td>2019 NISSAN SENTRA 4D SEDAN S</td>
<td>$15,950</td>
<td>$15,650</td>
<td>$10,700</td>
<td>1.9%</td>
<td>4.1%</td>
</tr>
<tr>
<td>1 Dealer</td>
<td>Dealer</td>
<td>SUV</td>
<td>SUV Midsize</td>
<td>2018 NISSAN ROGUE AWD 4D SUV SV</td>
<td>$22,200</td>
<td>$21,800</td>
<td>$15,950</td>
<td>1.8%</td>
<td>3.3%</td>
</tr>
<tr>
<td>1 Lease</td>
<td>Lease</td>
<td>Luxury Car</td>
<td>Luxury Car Premium</td>
<td>2018 MERCEDES-BENZ C CLASS 4D SEDAN C300 4MATIC</td>
<td>$31,700</td>
<td>$31,200</td>
<td>$28,900</td>
<td>1.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td>1 Rental</td>
<td>Rental</td>
<td>SUV</td>
<td>SUV Midsize</td>
<td>2020 CHEVROLET MALIBU 4D SEDAN LT</td>
<td>$20,100</td>
<td>$19,750</td>
<td>$15,050</td>
<td>1.8%</td>
<td>2.8%</td>
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WHOLESALE AND RETAIL USED PRICES INCREASING AGAIN

Source: Cox Automotive
<table>
<thead>
<tr>
<th>Category</th>
<th>Forecast 2021</th>
<th>Forecast 2021 Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Sales</td>
<td>15.5M</td>
<td></td>
</tr>
<tr>
<td>New Retail Sales</td>
<td>13.3M</td>
<td>+30%</td>
</tr>
<tr>
<td>Fleet Sales</td>
<td>2.2M</td>
<td></td>
</tr>
<tr>
<td>New Lease Volume</td>
<td>3.5M</td>
<td></td>
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<tr>
<td>Lease Penetration</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>CPO Sales</td>
<td>2.7M</td>
<td></td>
</tr>
<tr>
<td>Used Sales</td>
<td>39.2M</td>
<td></td>
</tr>
<tr>
<td>Used Retail Sales</td>
<td>21.4M</td>
<td></td>
</tr>
<tr>
<td>Dec 2021 Y/Y Manheim Used Vehicle Value Index</td>
<td>+30%</td>
<td></td>
</tr>
<tr>
<td>2022 FORECASTS</td>
<td>16.3M</td>
<td>13.6M</td>
</tr>
<tr>
<td>----------------</td>
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</tr>
<tr>
<td>NEW SALES</td>
<td></td>
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<tr>
<td>NEW RETAIL SALES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLEET SALES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEW LEASE VOLUME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28%</td>
<td></td>
<td></td>
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<tr>
<td>LEASE PENETRATION</td>
<td></td>
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<td></td>
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<tr>
<td>22.1M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USED RETAIL SALES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEC 2022 Y/Y MANHEIM USED VEHICLE VALUE INDEX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TOTAL WHOLESALE VOLUMES WILL REMAIN BELOW PEAK

2021 will see little growth from 10% decline in 2020; modest 2% growth expected in 2022 followed by decline in 2023

Estimated Wholesale Volumes by Inflow Channel (Annual Volume)

Source: Cox Automotive
THANK YOU!

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