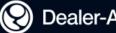


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#### Manheim Used Vehicle Value Index

#### Concept:

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

Steps:

All Manheim U.S. sales

Classify by market segment

Account for differences in mileage

Weight to provide smoother segment mix

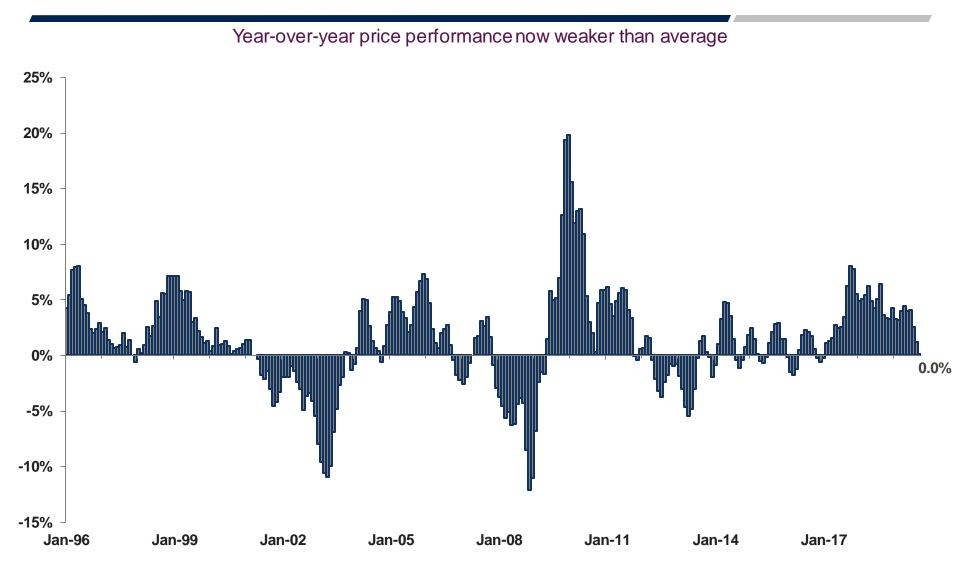
Seasonally adjust

#### Wholesale Prices Decline to Lowest Level in 4 Months

Prices in September decreased 1.04% versus August 2019 and were flat compared to September 2018

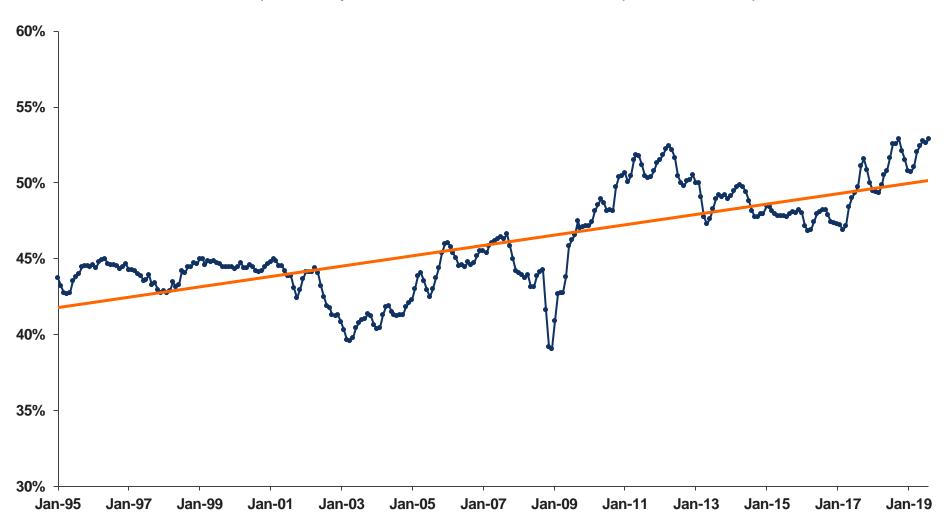


#### Used Vehicle Values Fade From Highs

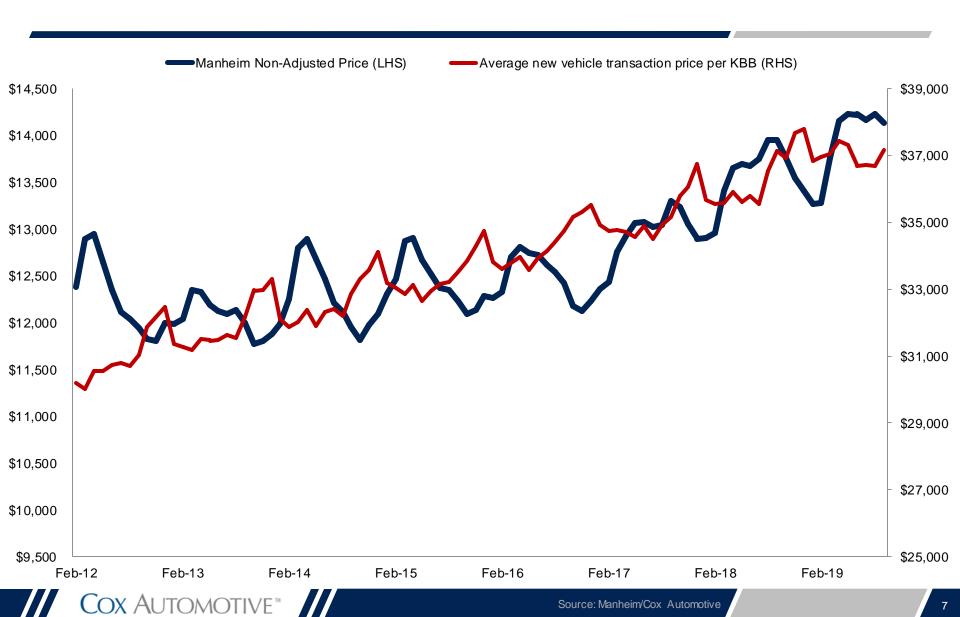


# Manheim Index versus Mix & Quality Adjusted New Vehicle Price with 3 ½ year Lag

Used vehicle prices stay above the historical new vehicle price relationship trend

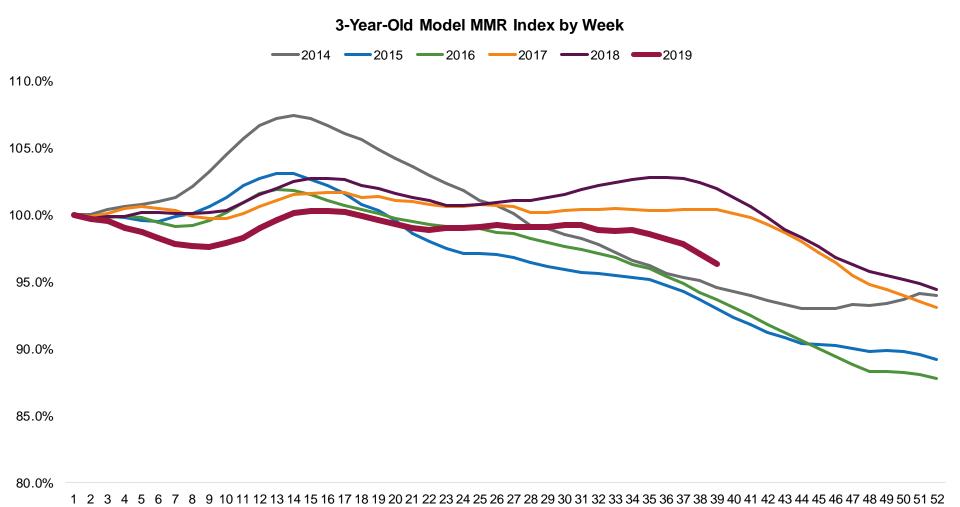


#### Wholesale Used Vehicle Prices vs. New Vehicle Prices



#### 2019 Weekly Price Trend Looking Less Like Last Two Years

Another strong spring and summer, but summer and fall trend not like last two years as depreciation picks up

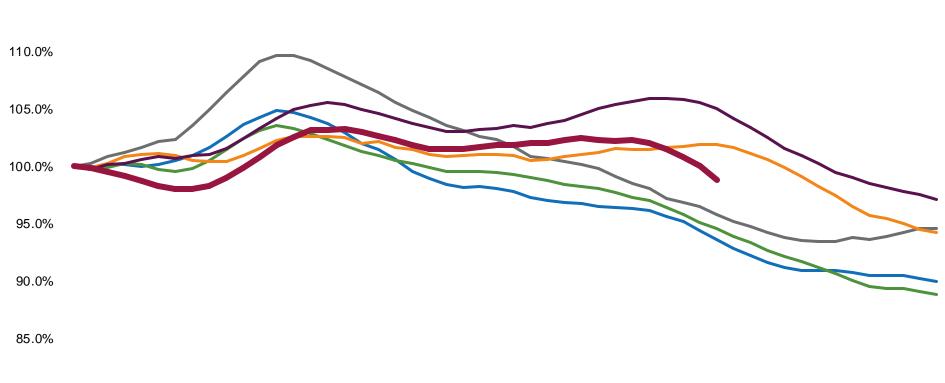


#### Weekly Price Trend Had Been Strong For Non-Luxury

Despite weak start of the year, prices remain above January levels but now showing more depreciation

Non-Luxury 3YO Model MMR Index by Week





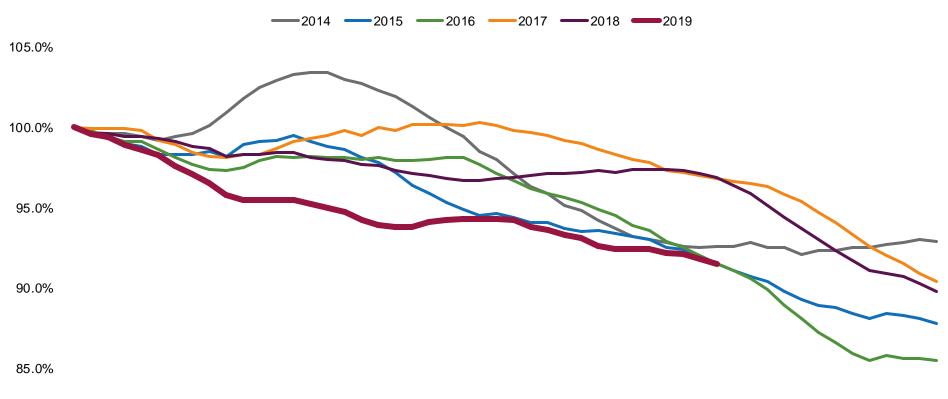
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

80.0%

#### Weekly Price Trend Keeps Changing For Luxury

Luxury vehicles saw steep depreciation in first quarter, then stabilization, then appreciation, and now depreciation again

#### Luxury 3YO Model MMR Index by Week

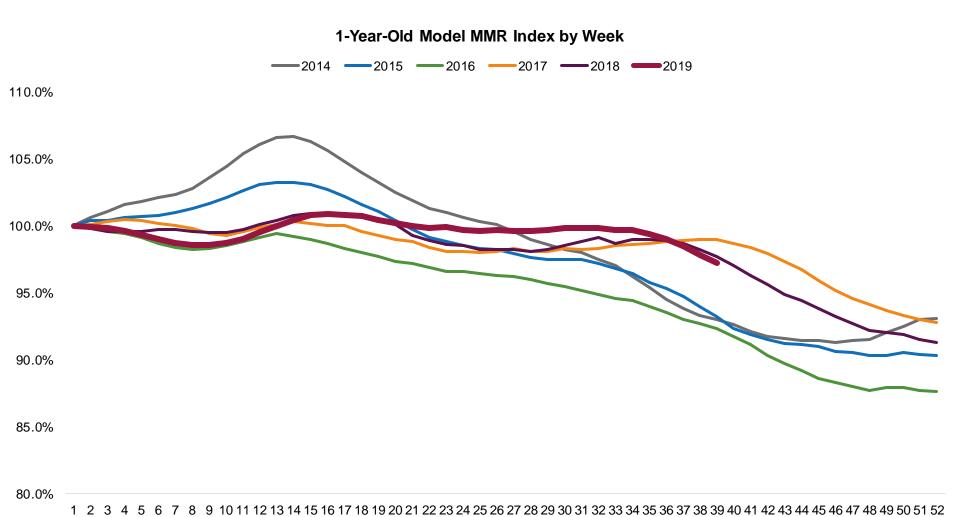


80.0%

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

#### Weekly Price Trend More Stable on One-Year-Old Vehicles

One-year-old vehicle prices have been very stable with little depreciation until recently

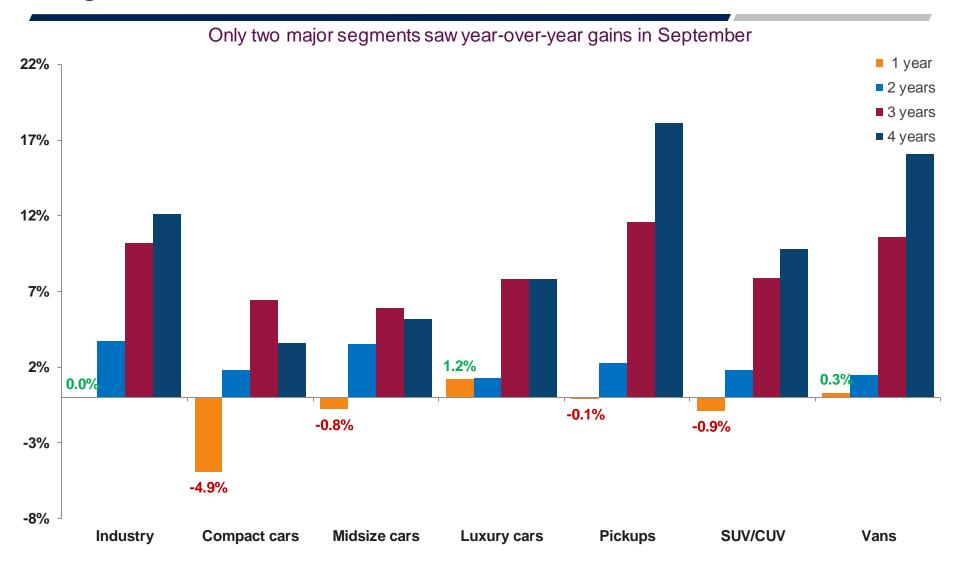


#### Retention Values Now Down 1.5% Relative to Last Year

Relative to MSRP and fixing the basket of vehicles by what was sold leaves residuals down year-over-year 61% 59% 57% 55% 53% 51% 49% 47% (1 to 3 year old models) 45% Feb Jan Mar Apr May Jul Sep Oct Nov Dec Jun Aug

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# Percent Change in Wholesale Prices for Major Market Segments

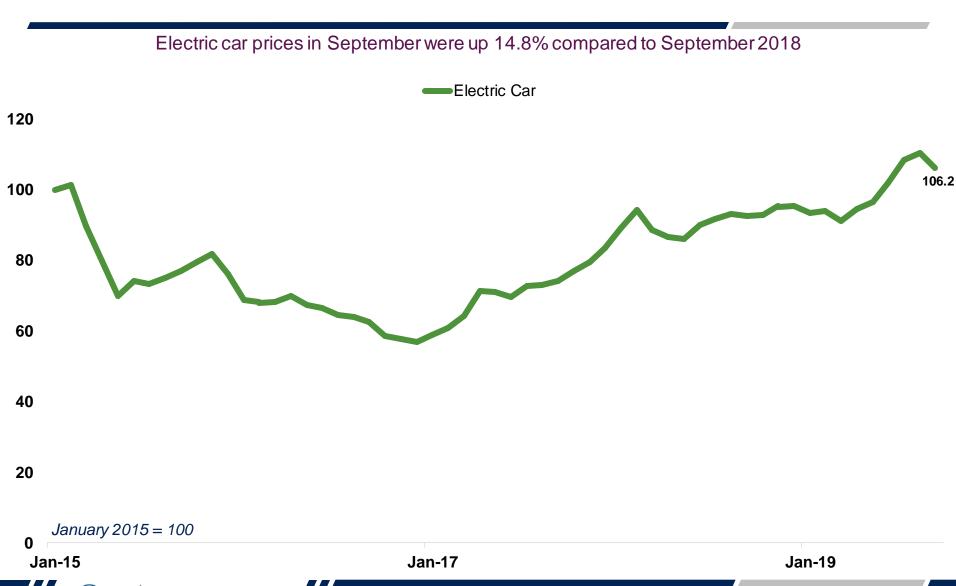


#### 2019 Stronger For Non-Luxury Until September

Luxury prices in September were down 0.1% compared to Sep 2018, while non-luxury prices declined 0.3%

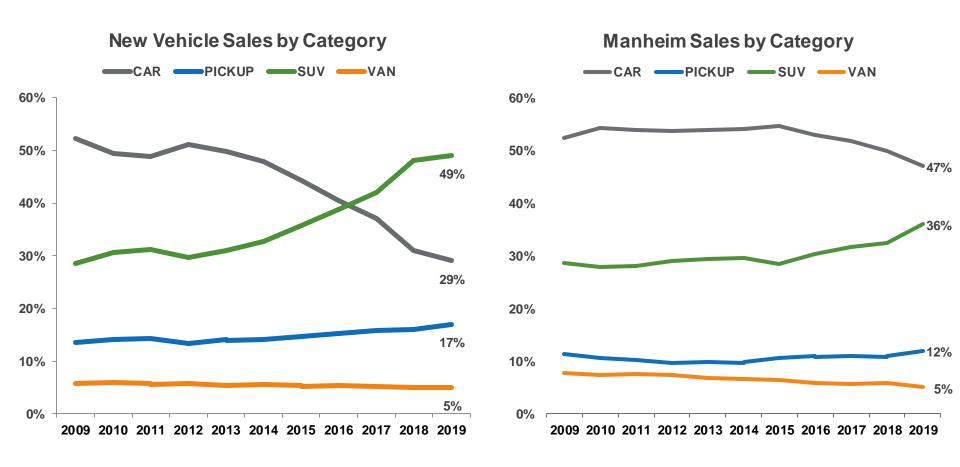


#### Electric Car Prices Improving in 2019

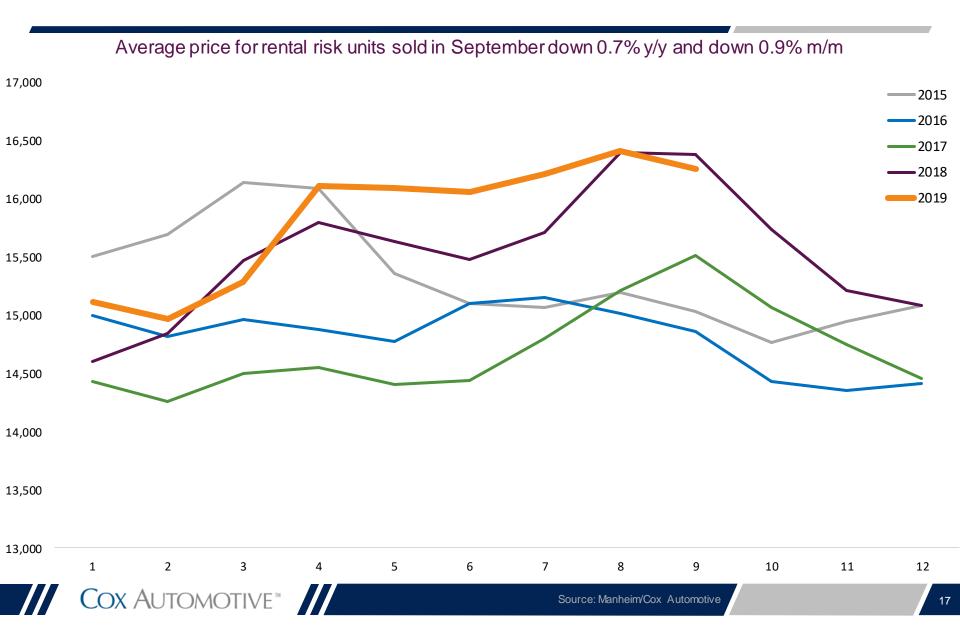


## Shifting Consumer Preferences Not Reflected in Wholesale Market Volumes

The SUV reigns supreme in new vehicle sales while cars still dominated the used car market

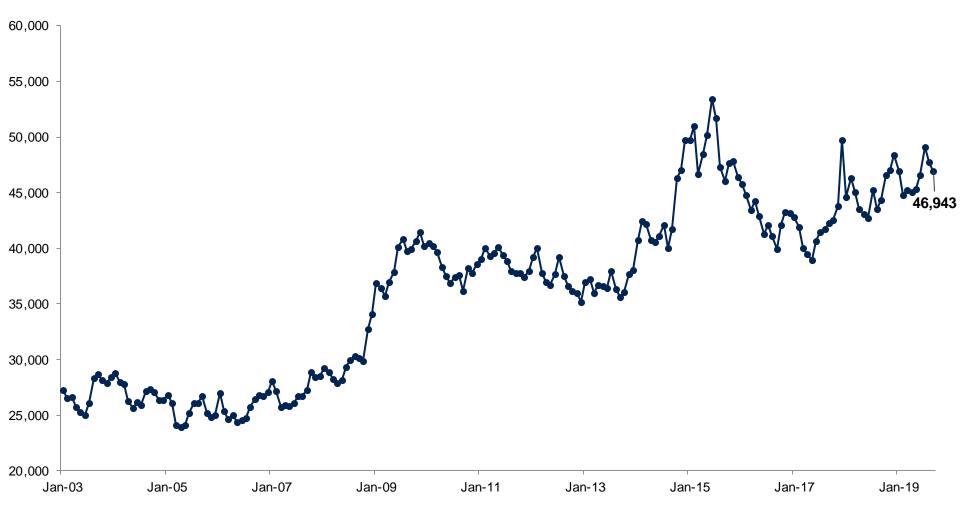


#### Average Auction Price – Rental Risk Units



#### Average Mileage – Rental Risk Units Sold at Auction

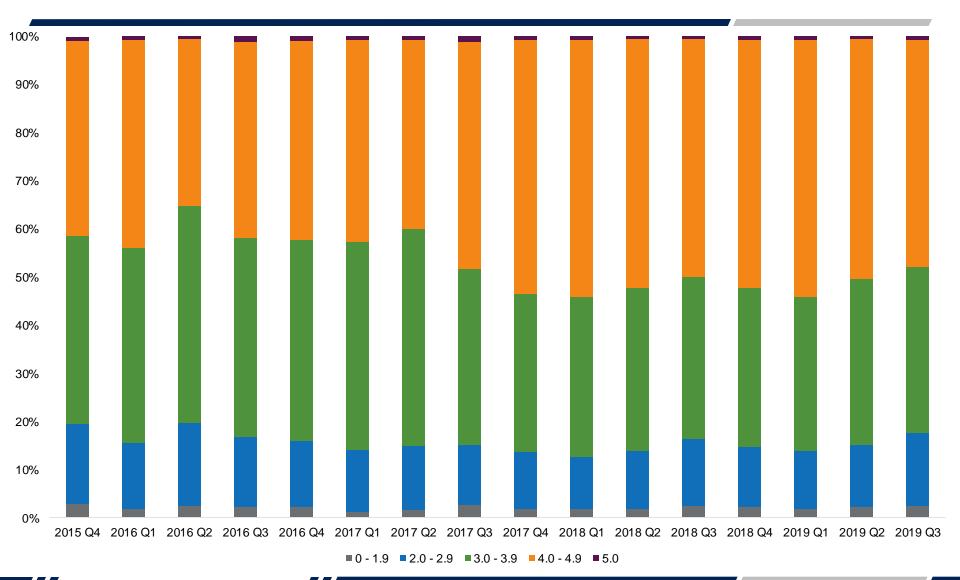
Average mileage for rental risk units in September was up 6% compared to a year ago but down 2% m/m



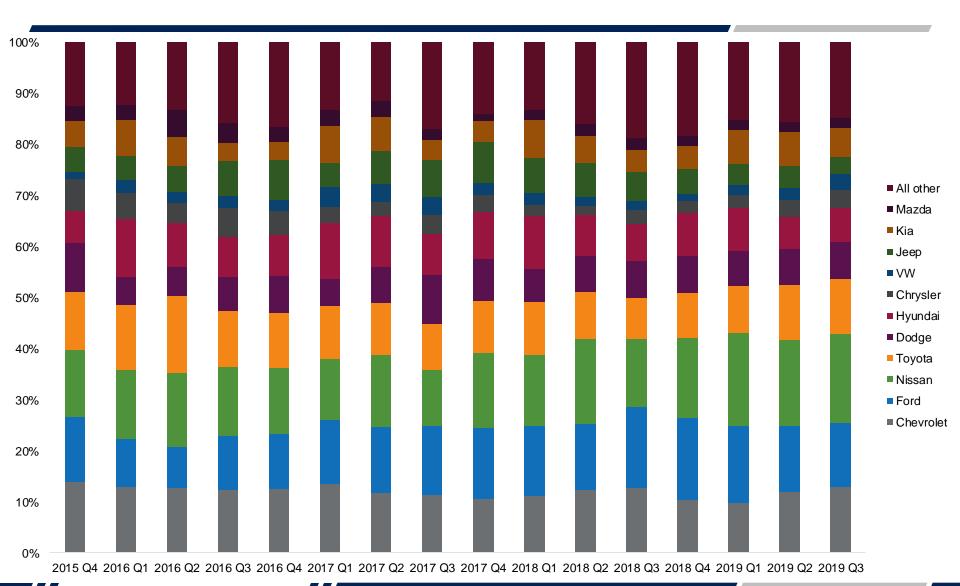
#### Distribution of Rental Risk Vehicles

	2017 Q3	2018 Q3	2019 Q3
Number of unique year, make, model, body configurations sold	2,404	2,980	3,496
Share accounted for top 10 YMMB	11.8%	11.1%	12.7%
Share accounted for top 25 YMMB	21.2%	20.6%	23.6%
Number of YMMB to reach 50% share	117	132	106

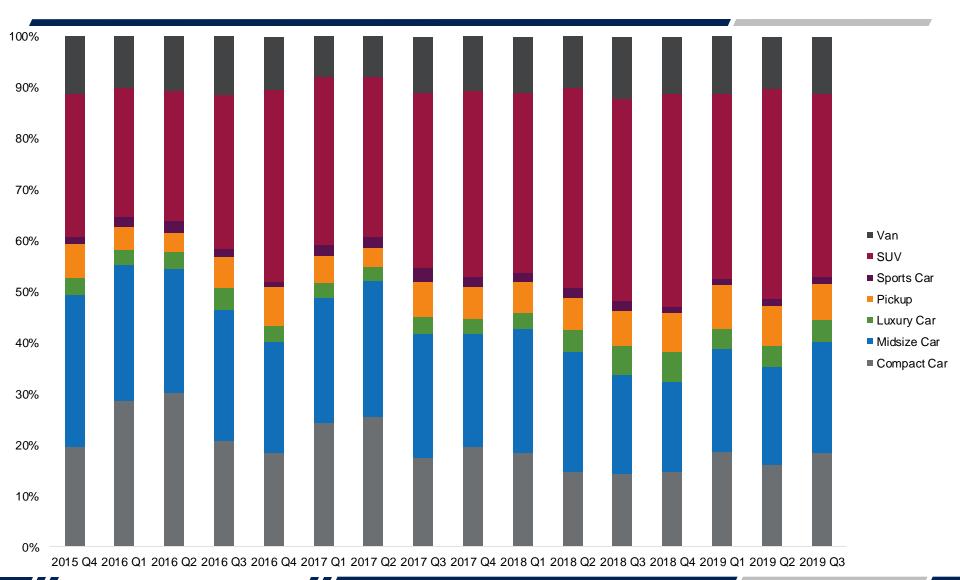
### Rental Risk Units Sold by Condition



#### Rental Risk Units Sold by Make



#### Rental Risk Units Sold by Segment



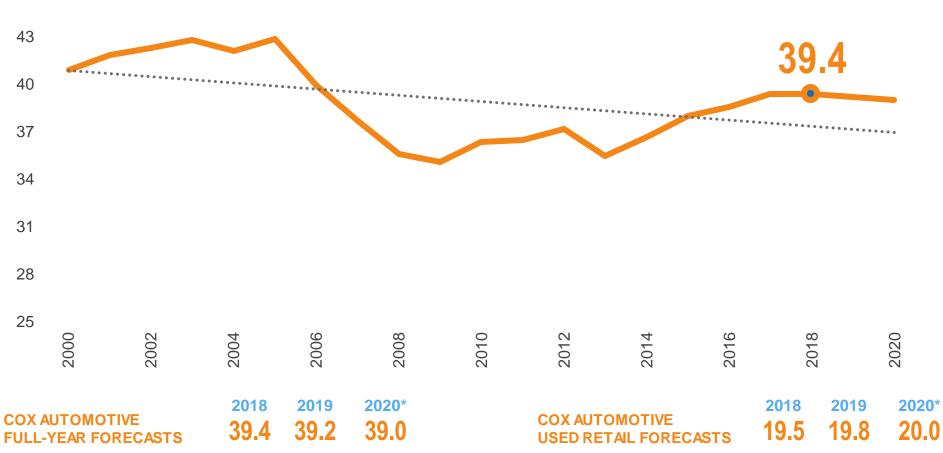
#### Manheim Market Report (MMR) Vehicle Insights

Top selling vehicles in September at Manheim mostly saw higher levels of depreciation in the last 30 days (September 1 – October 1) as the top selling vehicles were also largely unchanged. Most top selling vehicles saw higher than normal depreciation in September. Prices year-over-year saw lower than normal depreciation for most and even appreciation in the case of the Elantra.

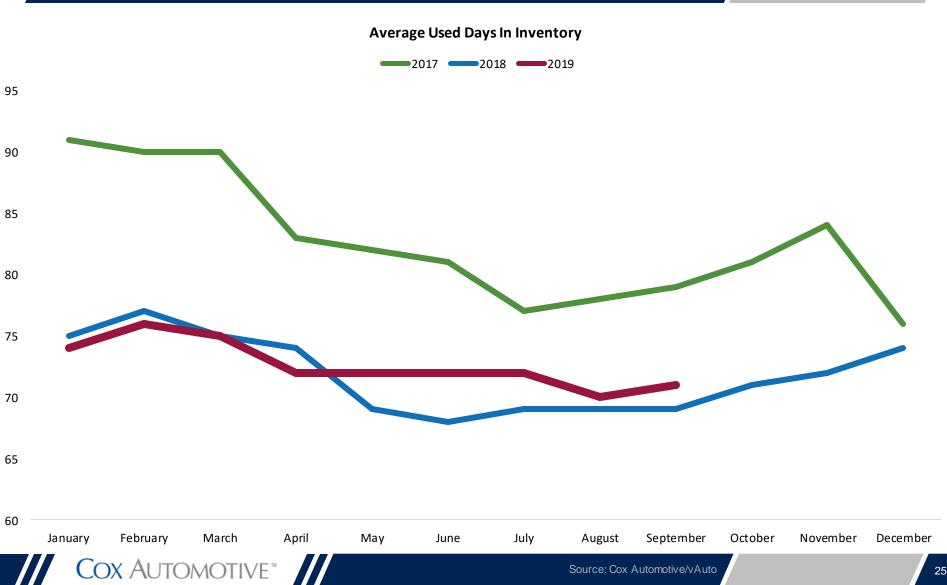
Rank	Source(Rank)	Category	Subcategory	Vehicle	1-Oct	Past 30 Days	Last Year	Current Dep	L12M Dep/Mo
1	All	Compact Car	Compact Car Premium	2017 HYUNDAI ELANTRA 4D SEDAN SE	\$10,350	\$10,500	\$10,100	-1.4%	0.2%
2	All	SUV	SUV Midsize	2016 NISSAN ROGUE AWD 4D SUV 2.5L SV	\$13,700	\$14,000	\$15,250	-2.1%	-0.8%
3	All	SUV	SUV Entry	2017 FORD ESCAPE FWD 4D SUV 1.5L SE	\$13,150	\$13,450	\$13,500	-2.2%	-0.2%
4	All	Midsize Car	Midsize Car Premium	2016 NISSAN ALTIMA 4C 4D SEDAN S	\$9,875	\$10,100	\$10,650	-2.2%	-0.6%
5	All	SUV	SUV Midsize	2016 NISSAN ROGUE AWD 4D SUV 2.5L S	\$12,450	\$12,700	\$13,650	-2.0%	-0.7%
1 Dealer	Dealer	Pickup	Pickup Lite Duty Fulls	2016 FORD F150 4WD V8 FFV CREW CAB 5.0L XLT	\$25,300	\$25,700	\$27,800	-1.6%	-0.7%
1 Lease	Lease	Compact Car	Compact Car Premium	2017 HYUNDAI ELANTRA 4D SEDAN SE	\$10,350	\$10,500	\$10,100	-1.4%	0.2%
1 Rental	Rental	Midsize Car	Midsize Car Premium	2018 NISSAN ALTIMA 4C 4D SEDAN SL	\$13,200	\$13,500	\$15,850	-2.2%	-1.4%

#### Used Vehicle Sales Plateau

# USED VEHICLE SALES OUTLOOK (MILLIONS) 46



#### Retail Inventory Trend Slide



#### Q3 2019 Cox Automotive Dealer Sentiment Index

According to the Q3 2019 2019 Cox Automotive Dealer Sentiment Index (CADSI), U.S. automobile dealers view the current market as negative, with an index score of 48. The slight decrease from Q2's score of 49 was not statistically significant. The index reading of 48 indicates that slightly more dealers feel that the current market is weak compared to the number who feel the current market is strong.

Expectations for the next quarter fell in the Q3 survey as well, but remain in positive territory with an index score of 51. The decline in expectations was statistically significant from last quarter's score of 55, and it was driven by a decline in expectations by both franchised and independent dealers.

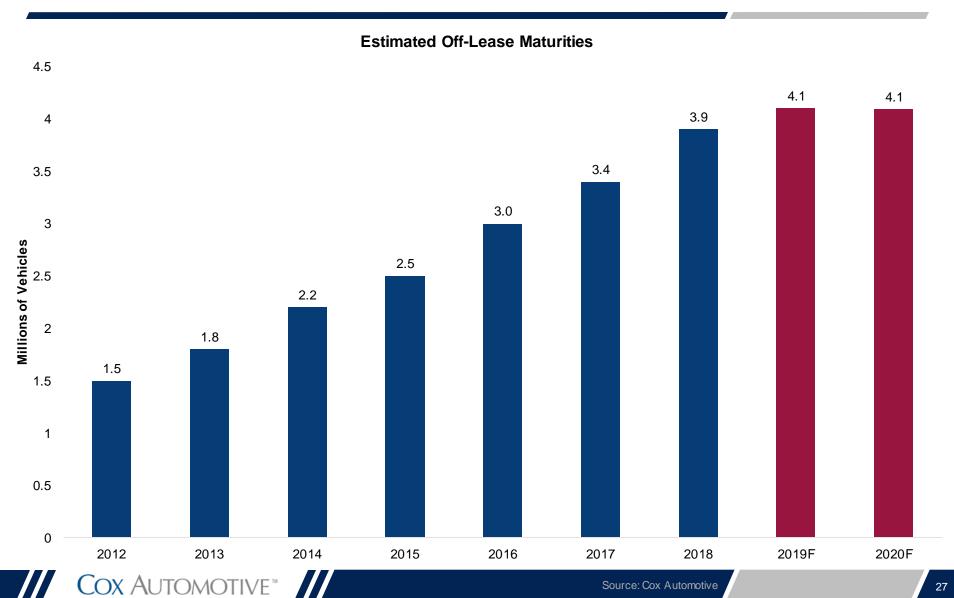
Year-over-year comparisons reveal an important contrast among dealers in expectations for the next quarter.

Franchise dealers saw a decline, but remained in positive territory. Independent dealers, on the other hand, saw a larger decline, and their expectations score fell below 50 for only the second time since the CADSI began in Q2 2017.

For franchises, the current new-vehicle sales index was also down compared to last year, but stable compared to last quarter. The new-vehicle sales index remains above 50 indicating a good market. Franchises continue to see the used-vehicle sales as stronger than new. They also report both new- and used-vehicle inventory continues to grow.

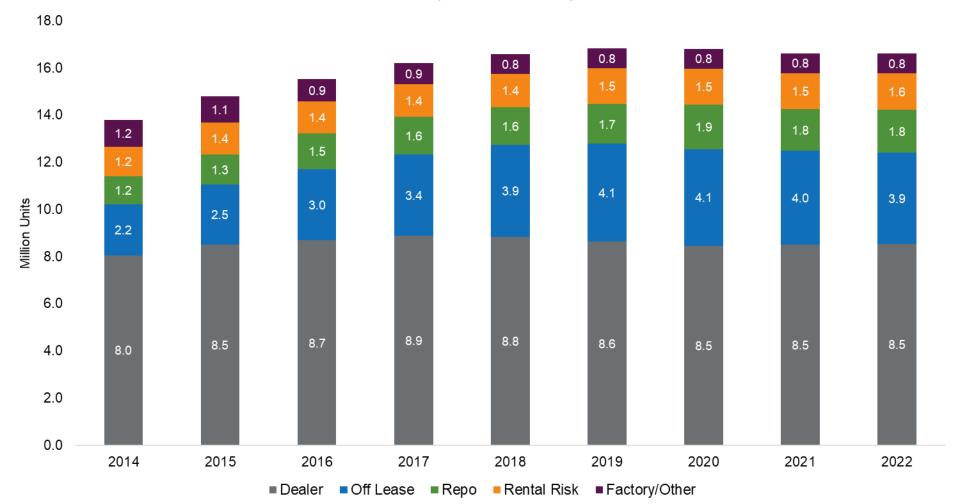
For independents, the used-vehicle sales index in Q3 was negative at 49, a score slightly lower than last quarter and Q3 2018. Factors influencing a pessimistic view of the current market are the perception of a weakening economy, consumers being less interested or more cautious about purchasing vehicles, and having a hard time to find inventory or having a lack of used-vehicle inventory.

#### Growth of Off-Lease Has Reached Its Peak



#### Total Wholesale Volumes Also Reaching Peak

#### ESTIMATED WHOLESALE VOLUMES BY INFLOW CHANNEL (ANNUAL VOLUME)



## Thank You

#### Jonathan Smoke & Zo Rahim

Economic Industry Insights

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