Vehicle Odor Impact on Auction Price

September, 2013

Background:

Many consignors struggle with the negative impact vehicle smoke or foul odor has on auction prices. Knowing retail buyers will avoid these units, dealers recognize they may incur additional expense in attempt to disguise or remove the odor. To help an OEM seller understand the sale price implications, Manheim Consulting quantified the auction price deterioration caused by condition report noted odor.

Executive Summary:

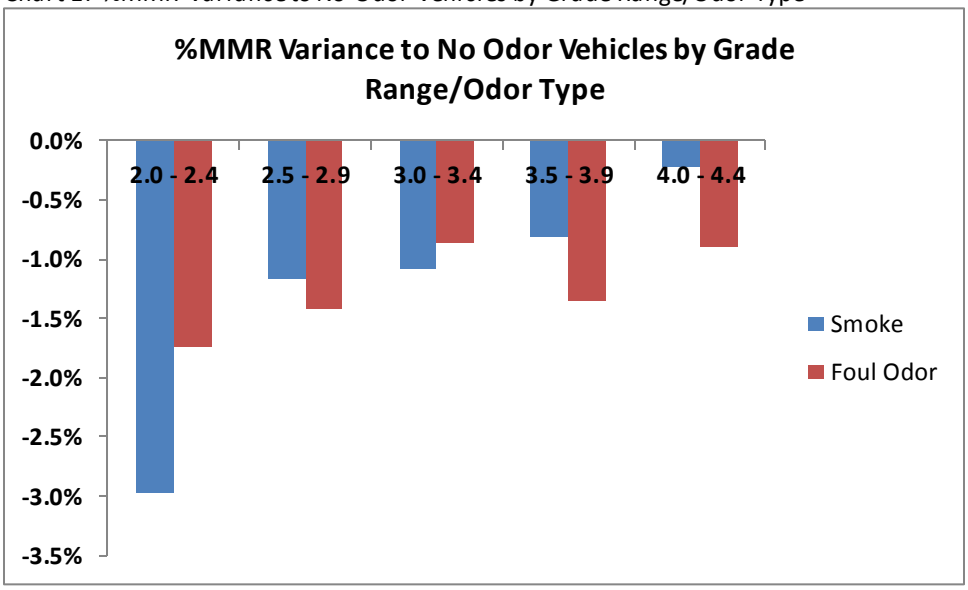
- The impact of odor on sale price is highest on lower grade vehicles
  - No impact to price was noted on vehicles with a grade >= 4.5
  - Odor had a higher impact to price on grade 2.5 – 4.4 units; however, smoke impacted the lowest grade tier in the study, 2.0 – 2.4 more than odor.
- Smoke or foul odor may lower retention up to ~3% points (~$300 on a $10,000 vehicle)
- Auctions offer a rid-odor process that fogs the inside of a car with a chemical and compressed air after detail. The process costs $25. Based on the $300/unit impact to retention, the $25 process has an ROI of $12 per $1 spent.
- Repossessed vehicles had odor noted on the CR nearly 5x more than EOT Lease vehicles

Findings:

Impact by Grade
Odor Impact Highest on Lower Grade Vehicles:

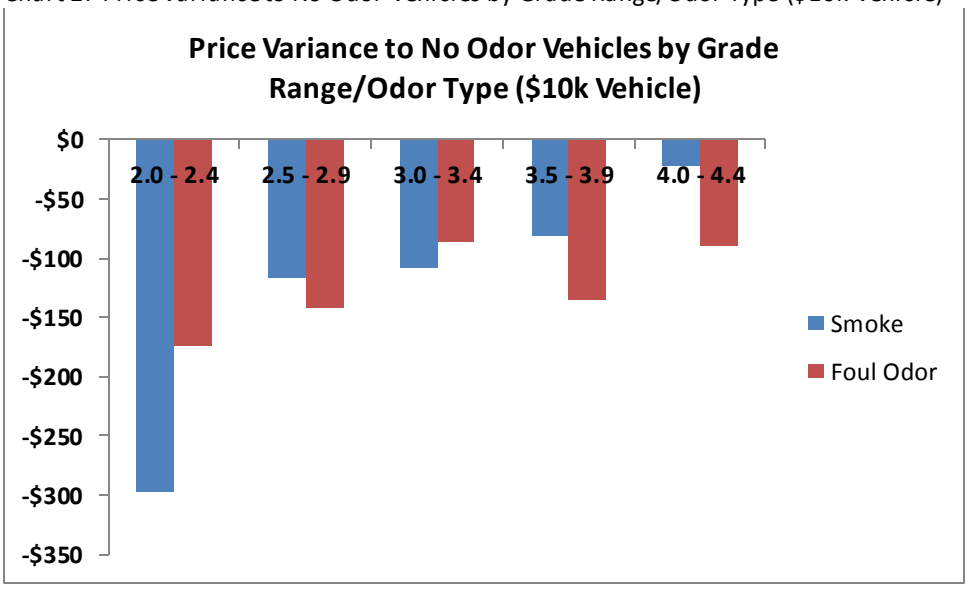
As vehicle grade decreases, the impact of odor affects vehicle values to a higher degree. The chart below compares the %MMR achieved for vehicles identified with smoke or foul odor to vehicles in the same grade band with no odor identified. Within each grade band, damage and vehicle attributes were similar. This demonstrates that vehicles with grades between 4.0 and 4.4 with smoke achieve 0.2% points lower %MMR. Vehicles between grades 2.0 – 2.4 achieved 3.0% points lower %MMR.

Chart 1: %MMR Variance to No Odor Vehicles by Grade Range/Odor Type



The chart below takes the %MMR variance and calculates the price decline based on a $10,000 vehicle. A grade 4.0 – 4.4 vehicle with smoke incurs an average loss of $22, while a grade 2.0 – 2.4 vehicle incurs an average loss of $298.

Chart 2: Price Variance to No Odor Vehicles by Grade Range/Odor Type ($10k Vehicle)

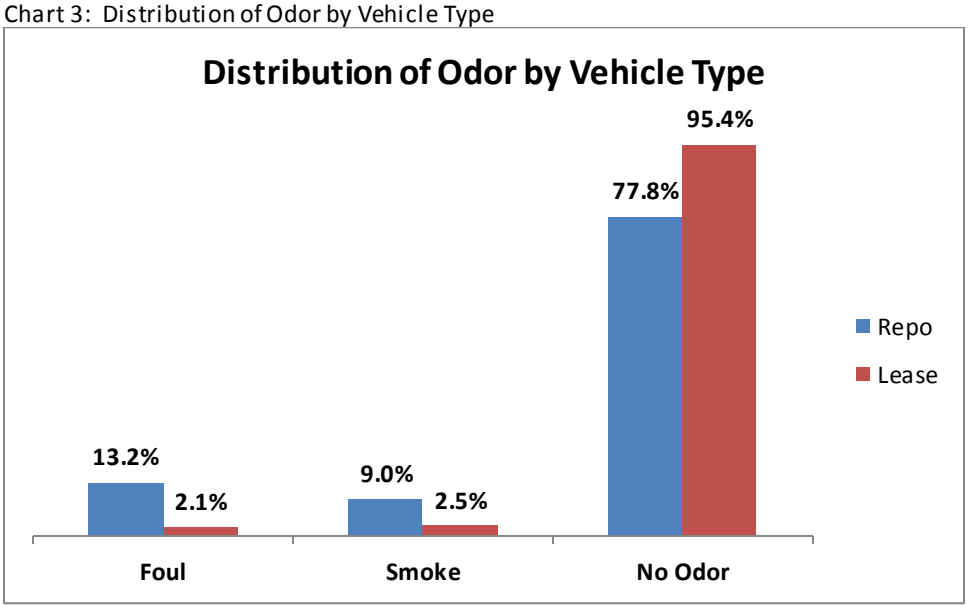


Impact by Type of Customer

Odor Noted on Nearly 5x Times as Many Repos Compared to Lease Vehicles:

Two of the OEM's customer types were analyzed: off lease (end of term) and repossessed vehicles. Not surprisingly, repossessed vehicles had a much higher instance of odor noted in the CR. 22.2% of repos had odor noted (13.2% with foul odor and 9.0% with smoke), compared to only 4.6% of off lease vehicles.

Chart 3: Distribution of Odor by Vehicle Type



Appendix 1: Methodology and Data Sample:

Five months of Manheim transactions were collected and analyzed for an OEM, including a field from Manheim's Insight Condition Report indicating whether the CR writer indicated no odor, smoke or foul odor on a vehicle. This information was analyzed based on: vehicle grade, JD Power category and seller category (lease or repossession).

The basis for comparison was retention, otherwise known as %MMR (sale price / MMR value). Because vehicles with odor are generally rougher condition, to ensure similar vehicles were compared, this study grouped results by 0.5 grade bands. Within each band, the average grade was the same for the three vehicle categories (No Odor, Smoke or Foul Odor).

Data Sample:

Time: January, 2013 – May, 2013
Seller: OEM/Captive Finance Seller
Data Fields Analyzed: Date, open/closed sale, price compared to MMR, grade, JD Power category, mileage, odor type (none, smoke, foul)

Appendix 2: Calculations

%MMR (Retention) = Sale Price (for vehicles with an MMR value established) / MMR Value

MMR Point Difference = %MMR No Odor Vehicles - %MMR Vehicles with CR identified odor

Price Variance (in dollars) = MMR Point Difference x MMR Value

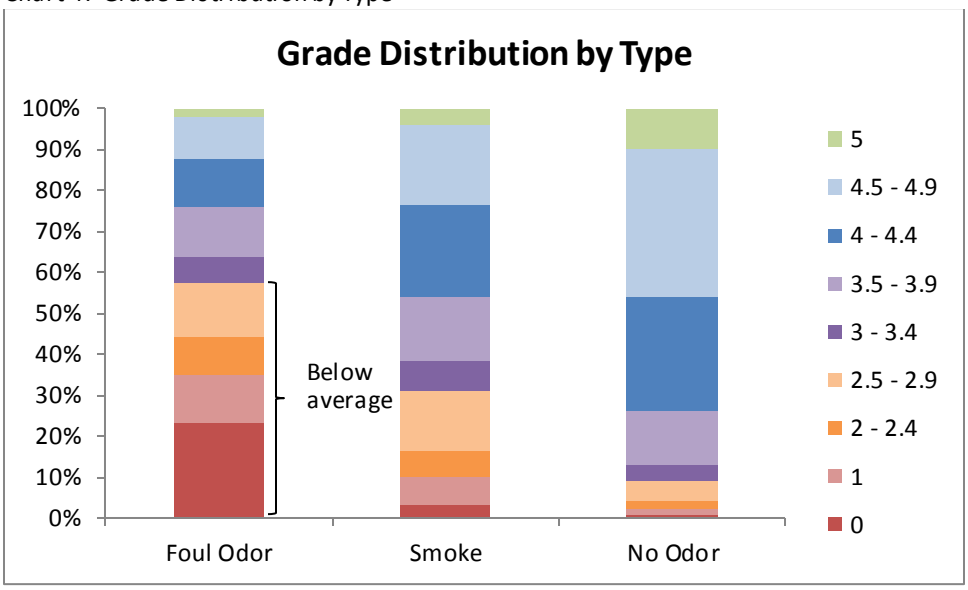
Appendix 3: Vehicle Averages

Vehicles identified as smokers achieved a lower %MMR, but, on average, were lower grade:

- No Odor: 99.1% MMR, Avg Grade: 4.2
- Smoke: 95.5% MMR, Avg Grade: 3.6
- Foul Odor: 75.2% MMR, Avg Grade: 2.5
- Note: At this time, the identification of smoke or odor does not deduct any points off the calculated grade on Manheim's Insight Condition Report

Appendix 4: Grade Distribution by Odor Type

Chart 4: Grade Distribution by Type



- Summary: % Transactions below average grade (<3.0):
  - Foul Odor: 57.4%
  - Smoke: 31.1%
  - No Odor: 9.2%