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Auto Finance

Harvey Smooths Speed Bump for Used Vehicles

The Takeaway:

*Hurricane Harvey is estimated to have damaged [300,000](#) (Cox Automotive) to [1 million](#) (Black Book) vehicles. Cox Automotive Chief Economist Jonathan Smoke expects that tighter vehicle supply and increased demand will lift used vehicle prices for two to three months. He expects adjusted used vehicle prices to remain “strong” for the remainder of 2017. JDP and BB indices have been relatively flat since February and Manheim’s Index has increased, which may indicate that used vehicle prices may be more stable in 2H17 versus our expectations. Now it is likely that used car prices will be flat for the next several months due to the vehicle damage caused by Hurricane Harvey. If Hurricane Irma makes landfall in Florida or the eastern seaboard, more vehicles are likely to be damaged and that will add further price support to used vehicle pricing in the coming months, which could result in the JDP and BB indices being up for 2017. Improving used vehicle prices would benefit Ally Financial (**ALLY**), Credit Acceptance Corp (**CACC**), Santander Consumer (**SC**), and Capital One Financial (**COF**). For more information on used car pricing trends, please see our [August 17](#), [July 18](#), [June 16](#), [June 1](#), [May 26](#), and [May 17](#) reports.*

- › **Hurricanes may improve depreciation outlooks.** In their 2Q17 earnings calls, Ally Financial (**ALLY**) maintained its depreciation guidance at 7% for 2017 and General Motors (**GM**) expected more declines in vehicle values in 2H17. The vehicle damage from Hurricane Harvey and possibly from Hurricane Irma could result in these expectations improving as demand for used and new vehicles is expected to increase over the next several months.
- › **Estimated damaged vehicles center around 500,000 units.** Cox Automotive estimates are 300,000 to 500,000 units and Black Book’s estimates are 500,000 to 1 million vehicles damaged. We used Edmunds Used Vehicle Market Report quarterly used car sales data and the St. Louis Federal Reserve Bank’s new car sales data, not seasonally adjusted, and estimated that used vehicles represent 69% of total vehicle sales on average from 1Q12 to 1Q17 (Figure 1). Applying 69% to 500,000 vehicles that will potentially be replaced indicates an increase in used vehicle demand of 346,000 units. These additional units represent an average increase in quarterly used car sales of 3.7%. These additional sales will occur primarily in the third and fourth quarters of 2017. If damaged vehicles are at the high end of 1 million units, then we estimate used vehicle demand will represent an increase of 7.4% of quarterly used car sales. Any impact from Hurricane Irma will only raise the demand for used vehicles.

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Hurricane Harvey on its own may have wreaked enough havoc to cause used vehicle price indices to be flat and possibly up in 2017 versus our pre-hurricane estimate of down at least 7%.

- › **Used vehicle demand to support used price indices.** The Cox Automotive estimate of strong price support in 2H17 is based on Manheim used vehicle data. The Manheim index was up 4.3% for the first seven months of July, compared to the J.D. Power Valuation Services (JDP) and Black Book indices, which were down by 3.8% and 1.6%, respectively. Using Black Book's weekly Market Insights, we estimate the annualized YTD price change for cars to be 14.5% and 11.7% for trucks; however, YoY, cars have depreciated 19.3% and trucks by 16.0% (Fig. 7). Prior to Hurricane Harvey's devastation, we were expecting used vehicle prices to decline by 7% or more. Now prices could be flat, and Hurricane Irma could result in the indices being up for 2017.
- › **Off-lease vehicle volumes set to hit multi-year highs.** JDP reported that late-model vehicle auction volume was 1.68 million units YTD July 2017, up 7.2% from 1.57 units YTD July 2016. Off-lease vehicle volumes will be a record 3.6 million units in 2017 and the number is [expected](#) to continue to increase until it peaks at 4.6 million units in 2020. We expect off-lease volumes to result in above-average annual depreciation in 2017 and 2018. AlixPartners [called](#) this trend a "used-car time bomb."
- › **New car sales timeline is increasing.** JDP highlighted that WardsAuto reported that the days' supply of light vehicles was 69 in July, down 5 days from June, but up 8 days from July 2016. In April, the American International Automobile Dealers Association [reported](#) the "average length of time a car sat on a dealer's lot hit 70 days in March – the longest stretch of time since July 2009." The increased inventory levels do not appear to have abated, which will likely keep incentives high.
- › **New vehicle incentives are elevated.** JDP reported that incentives increased by 6.7% in July, marking 28th consecutive monthly increase. Incentives represented 9.9% of a new vehicle's MSRP, up from 9.6% in July 2016, [according](#) to *Automotive News*. This is the highest level since 2009 when incentives hit 11.4% and is the 11th time in the past 12 months that incentives exceeded 10%. Incentives are likely to remain high to move inventories that are building on dealers' lots.
- › **Conclusion.** Hurricanes Harvey and Irma may provide some temporary relief from declining used car prices; however, the trends of increasing off-lease volumes, constrained auction capacity, tighter underwriting standards, higher new car incentives, and an elongated new car sales timeline are not likely to abate, which should result in continued used vehicle pricing pressure once the hurricane-related demand abates towards the end of 2017.

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Figure 1. Comparing Harvey Damaged Vehicles to Quarterly New and Used Car Sales

Quarter	Used Vehicle Sales (MM)	New Vehicle Sales (MM)	Total Vehicle Sales (MM)	Used Sales as a % of Total	New1 Sales as a % of Total	Potential Increase in Used Vehicle Demand		
						208,000	346,000	692,000
1Q12	10.35	3.55	13.89	74.5%	25.5%	2.01%	3.35%	6.69%
2Q12	9.32	3.88	13.21	70.6%	29.4%	2.23%	3.71%	7.43%
3Q12	9.36	3.68	13.04	71.8%	28.2%	2.22%	3.70%	7.40%
4Q12	8.56	3.66	12.22	70.0%	30.0%	2.43%	4.04%	8.09%
1Q13	9.79	3.76	13.55	72.2%	27.8%	2.12%	3.54%	7.07%
2Q13	8.95	4.21	13.17	68.0%	32.0%	2.32%	3.87%	7.73%
3Q13	9.20	4.02	13.22	69.6%	30.4%	2.26%	3.76%	7.52%
4Q13	7.88	3.89	11.77	67.0%	33.0%	2.63%	4.39%	8.78%
1Q14	9.64	3.83	13.47	71.6%	28.4%	2.15%	3.59%	7.18%
2Q14	9.10	4.50	13.60	66.9%	33.1%	2.28%	3.80%	7.61%
3Q14	9.22	4.35	13.57	67.9%	32.1%	2.25%	3.75%	7.51%
4Q14	8.28	4.17	12.45	66.5%	33.5%	2.51%	4.18%	8.36%
1Q15	9.81	4.04	13.85	70.8%	29.2%	2.12%	3.53%	7.06%
2Q15	9.64	4.67	14.30	67.4%	32.6%	2.16%	3.59%	7.18%
3Q15	9.45	4.62	14.07	67.2%	32.8%	2.20%	3.66%	7.33%
4Q15	9.38	4.52	13.90	67.5%	32.5%	2.21%	3.69%	7.38%
1Q16	10.32	4.18	14.50	71.2%	28.8%	2.01%	3.35%	6.71%
2Q16	9.80	4.63	14.43	67.9%	32.1%	2.12%	3.53%	7.06%
3Q16	9.76	4.55	14.31	68.2%	31.8%	2.13%	3.55%	7.09%
4Q16	8.63	4.51	13.14	65.6%	34.4%	2.41%	4.01%	8.02%
1Q17	10.19	4.10	14.29	71.3%	28.7%	2.04%	3.40%	6.79%
Average	9.36	4.16	13.52	69.2%	30.8%	2.23%	3.71%	7.43%

Source: Edmunds Used Vehicle Report for [2016](#), [1Q17](#), [3Q16](#), [2Q16](#), [Black Book](#), [Cox Automotive](#), Height Securities.

Figure 2. Comparing Harvey Damaged Vehicles to Annual New and Used Car Sales

Year	Used Vehicle Sales (MM)	New Vehicle Sales (MM)	Total Vehicle Sales (MM)	Used Sales as a % of Total	New1 Sales as a % of Total	Est Vehicles Damaged by Hurricane Harvey as a % of Used		
						208,000	346,000	692,000
2011	36.92	13.05	49.97	73.9%	26.1%	0.56%	0.94%	1.87%
2012	37.58	14.78	52.36	71.8%	28.2%	0.55%	0.92%	1.84%
2013	35.83	15.88	51.71	69.3%	30.7%	0.58%	0.97%	1.93%
2014	36.24	16.86	53.10	68.3%	31.7%	0.57%	0.95%	1.91%
2015	38.28	17.85	56.12	68.2%	31.8%	0.54%	0.90%	1.81%
2016	38.51	17.87	56.38	68.3%	31.7%	0.54%	0.90%	1.80%
Average	37.23	16.05	53.27	70.0%	30.0%	0.56%	0.93%	1.86%

Source: Edmunds Used Vehicle Report for [2016](#), [1Q17](#), [3Q16](#), [2Q16](#), [Black Book](#), [Cox Automotive](#), Height Securities.

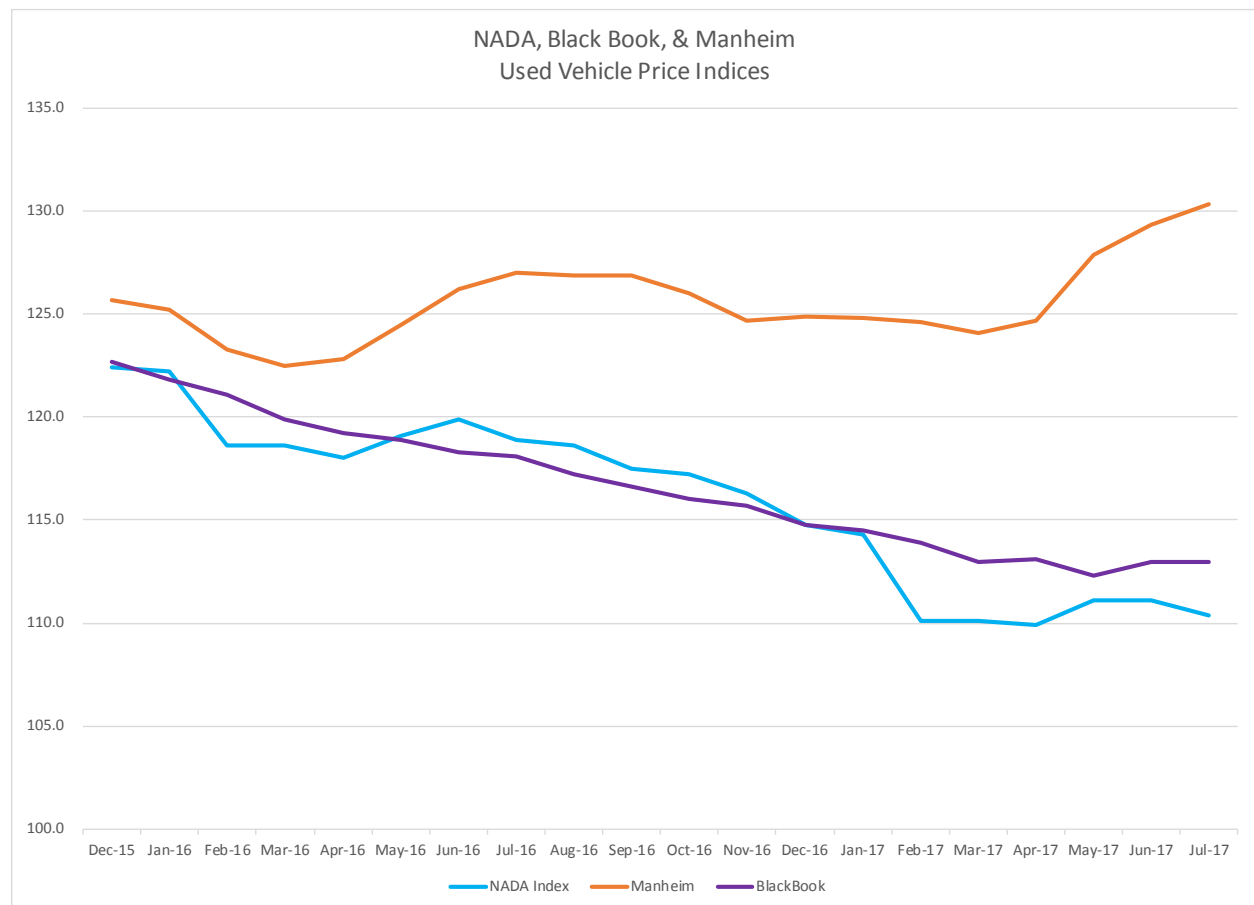
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Figure 3. J.D. Power Valuation Services Used Car Price Index – YTD and YOY changes

	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17
NADA Index	122.4	122.2	118.6	118.6	118.0	119.1	119.9	118.9	118.6	117.5	117.2	116.3	114.8	114.3	110.1	110.1	109.9	111.1	111.1	110.4
MoM Change	-1.1%	-0.2%	-2.9%	0.0%	-0.5%	0.9%	0.7%	-0.8%	-0.3%	-0.9%	-0.3%	-0.8%	-1.3%	-0.4%	-3.7%	0.0%	-0.2%	1.1%	0.0%	-0.6%
YTD Change	-1.4%	-0.2%	-3.1%	-3.1%	-3.6%	-2.7%	-2.0%	-2.9%	-3.1%	-4.0%	-4.2%	-5.0%	-6.2%	-0.4%	-4.1%	-4.1%	-4.3%	-3.2%	-3.2%	-3.8%
YoY Change	-1.4%	-2.2%	-4.0%	-4.6%	-5.0%	-3.8%	-3.1%	-3.0%	-3.7%	-4.3%	-4.3%	-6.1%	-6.2%	-6.5%	-7.2%	-7.2%	-6.9%	-6.7%	-7.3%	-7.1%
BlackBook Index	122.7	121.8	121.1	119.9	119.2	118.9	118.3	118.1	117.2	116.6	116.0	115.7	114.8	114.5	113.9	113.0	113.1	112.3	113.0	113.0
MoM Change	-0.5%	-0.7%	-0.6%	-1.0%	-0.6%	-0.3%	-0.5%	-0.2%	-0.8%	-0.5%	-0.5%	-0.3%	-0.8%	-0.3%	-0.5%	-0.8%	0.1%	-0.7%	0.6%	0.0%
YTD Change	-3.2%	-0.7%	-1.3%	-2.3%	-2.9%	-3.1%	-3.6%	-3.7%	-4.5%	-5.0%	-5.5%	-5.7%	-6.4%	-0.3%	-0.8%	-1.6%	-1.5%	-2.2%	-1.6%	-1.6%
YoY Change	-3.2%	-3.9%	-4.5%	-5.3%	-5.7%	-5.6%	-5.7%	-5.7%	-6.3%	-6.5%	-6.6%	-6.2%	-6.4%	-6.0%	-5.9%	-5.8%	-5.1%	-5.6%	-4.5%	-4.3%
Manheim Index	125.7	125.2	123.3	122.5	122.8	124.5	126.2	127.0	126.9	126.9	126.0	124.7	124.9	124.8	124.6	124.1	124.7	127.9	129.3	130.3
MoM Change	0.5%	-0.4%	-1.5%	-0.6%	0.2%	1.4%	1.4%	0.6%	-0.1%	0.0%	-0.7%	-1.0%	0.2%	-0.1%	-0.2%	-0.4%	0.5%	2.6%	1.1%	0.8%
YTD Change	1.5%	-0.4%	-1.9%	-2.5%	-2.3%	-1.0%	0.4%	1.0%	1.0%	1.0%	0.2%	-0.8%	-0.6%	-0.1%	-0.2%	-0.6%	-0.2%	2.4%	3.5%	4.3%
YoY Change	1.5%	-0.1%	-1.4%	-1.6%	-1.1%	0.6%	1.9%	2.3%	2.1%	1.7%	0.6%	-0.3%	-0.6%	-0.3%	1.1%	1.3%	1.5%	2.7%	2.5%	2.6%

Source: J.D. Power Valuation Services Guidelines December 2015 - [August 2017](#), [Black Book](#), [Manheim](#), [Height Securities](#).

Figure 4. J.D. Power Valuation Services, Black Book, & Manheim Used Vehicle Price Indices



Source: J.D. Power Valuation Services Guidelines December 2015 - [August 2017](#), [Black Book](#), [Manheim](#), [Height Securities](#).

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Figure 5. JDP Used Vehicle Annual Price Changes 2013 - 2016 & YTD 2017

2013 MoM Wholesale Used Car Price Change													YTD Change											
AVERAGE	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13												
AVERAGE	-0.8%	0.0%	1.2%	-0.5%	-2.6%	-3.7%	-4.7%	-5.8%	-8.4%	-11.9%	-11.4%	-12.4%												
Compact Car	-1.2%	0.6%	2.7%	0.7%	-2.6%	-4.3%	-6.1%	-7.5%	-10.6%	-14.2%	-14.7%	-15.8%												
Compact Utility	-0.6%	0.1%	1.0%	-1.0%	-2.8%	-3.9%	-5.0%	-6.3%	-8.5%	-11.4%	-12.5%	-13.2%												
Large Pickup	-0.6%	0.0%	1.0%	0.4%	0.5%	0.7%	0.7%	0.9%	-0.1%	-2.4%	6.6%	5.8%												
Large Utility	-1.5%	-1.4%	-1.3%	-1.8%	-2.0%	-2.2%	-2.9%	-3.3%	-3.9%	-6.7%	1.4%	-1.2%												
Luxury Large Utility	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%												
Luxury Mid-Size Car	-1.8%	-2.9%	-2.4%	-3.6%	-4.9%	-5.9%	-7.6%	-9.6%	-12.4%	-16.2%	-17.7%	-18.5%												
Luxury Mid-Size Utility	-1.4%	-1.9%	-1.9%	-3.2%	-4.8%	-5.6%	-7.0%	-8.2%	-10.1%	-12.5%	-13.3%	-15.4%												
Mid-Size Car	-0.4%	0.7%	2.0%	-0.1%	-3.1%	-5.2%	-6.4%	-7.6%	-10.5%	-13.9%	-14.6%	-15.5%												
Mid-Size Utility	-0.6%	-0.3%	-0.1%	-1.5%	-3.4%	-4.0%	-4.5%	-5.3%	-7.5%	-10.9%	-8.8%	-9.8%												
Mid-size Van	-0.3%	1.4%	2.7%	1.7%	0.3%	-0.9%	-2.5%	-4.2%	-7.0%	-11.7%	-8.1%	-9.0%												

2014 MoM Wholesale Used Car Price Change													YTD Change											
Vehicle Type	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14												
AVERAGE	0.1%	2.3%	6.0%	4.9%	2.7%	0.3%	-3.2%	-6.3%	-9.9%	-13.6%	-14.9%	-14.6%												
Compact Car	0.4%	3.6%	8.4%	7.6%	4.6%	6.6%	3.0%	-0.3%	-4.2%	-8.5%	-9.7%	-9.7%												
Compact Utility	-0.3%	1.9%	5.8%	4.6%	2.5%	0.1%	-2.8%	-5.2%	-8.2%	-11.5%	-12.3%	-12.1%												
Large Pickup	0.3%	2.0%	4.7%	3.4%	2.4%	1.3%	-0.3%	-1.7%	-3.9%	-6.0%	-6.8%	-6.9%												
Large Utility	-0.3%	0.7%	2.0%	1.6%	-0.7%	-1.9%	-4.8%	-7.1%	-10.7%	-14.3%	-14.7%	-16.0%												
Luxury Compact Car	0.0%	0.0%	0.0%	0.0%	-2.4%	-4.7%	-8.1%	-10.7%	-12.8%	-15.1%	-15.8%	-16.1%												
Luxury Compact Utility	0.0%	0.0%	0.0%	0.0%	-1.8%	-3.4%	-5.8%	-8.8%	-10.2%	-11.4%	-12.6%	-11.3%												
Luxury Large Car	0.0%	0.0%	0.0%	0.0%	-1.7%	-4.9%	-8.5%	-12.2%	-15.3%	-15.8%	-17.0%	-18.2%												
Luxury Mid-Size Car	0.0%	3.2%	4.5%	3.5%	1.6%	-1.9%	-5.8%	-8.8%	-10.6%	-13.0%	-13.7%	-14.5%												
Luxury Mid-Size Utility	-1.1%	-1.2%	0.0%	-0.6%	-2.4%	-4.7%	-8.2%	-10.2%	-11.9%	-13.7%	-14.7%	-15.1%												
Mid-Size Car	-0.9%	-0.6%	3.7%	2.3%	-0.5%	-3.5%	-7.1%	-10.5%	-14.2%	-17.8%	-18.9%	-18.5%												
Mid-Size Utility	0.4%	2.1%	5.1%	3.9%	2.1%	0.0%	-2.4%	-4.8%	-8.0%	-10.9%	-11.8%	-11.6%												
Mid-size Van	-0.2%	1.8%	6.0%	4.6%	2.4%	0.3%	-2.3%	-4.7%	-8.1%	-13.2%	-15.8%	-16.3%												

2015 MoM Wholesale Used Car Price Change													YTD Change											
Vehicle Type	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15												
AVERAGE	0.5%	1.3%	3.6%	2.2%	-1.0%	-3.5%	-5.7%	-7.6%	-11.0%	-13.8%	-15.7%	-17.6%												
Compact Car	0.3%	1.0%	3.5%	2.1%	-1.4%	-4.3%	-7.6%	-10.1%	-14.1%	-17.9%	-20.6%	-22.7%												
Compact Utility	0.6%	1.3%	3.8%	3.2%	-0.2%	-2.3%	-3.9%	-5.6%	-8.4%	-11.0%	-12.4%	-14.2%												
Large Car	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.9%	-5.1%	-8.5%	-10.8%	-11.9%												
Large Pickup	-0.1%	0.6%	2.5%	1.9%	0.8%	0.3%	0.3%	-0.6%	-3.3%	-5.3%	-6.9%	-8.5%												
Large Utility	0.6%	1.1%	3.4%	2.9%	2.2%	1.2%	1.4%	1.5%	-0.8%	-2.7%	-3.5%	-5.0%												
Luxury Compact Car	-1.4%	-2.4%	-1.7%	-2.7%	-5.2%	-7.0%	-9.4%	-11.2%	-13.9%	-16.2%	-18.2%	-19.9%												
Luxury Compact Utility	-0.8%	-1.3%	-1.0%	-1.6%	-3.8%	-5.5%	-7.3%	-9.0%	-11.4%	-13.7%	-15.7%	-17.0%												
Luxury Large Car	-2.5%	-2.9%	-2.0%	-3.7%	-7.0%	-8.5%	-11.2%	-13.3%	-16.9%	-17.5%	-18.6%	-19.0%												
Luxury Mid-Size Car	-0.8%	-1.4%	-0.6%	-2.2%	-5.2%	-7.4%	-10.8%	-12.2%	-14.7%	-16.4%	-18.5%	-20.8%												
Luxury Mid-Size Utility	-1.1%	-1.5%	-0.6%	-1.1%	-3.0%	-4.8%	-6.3%	-8.2%	-10.1%	-12.5%	-14.2%	-15.2%												
Mid-Size Car	0.5%	1.9%	4.4%	2.6%	-1.2%	-4.1%	-7.3%	-9.5%	-13.3%	-16.2%	-17.6%	-19.2%												
Mid-Size Pickup	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.2%	-3.5%	-4.8%	-5.9%	-7.2%												
Mid-Size Utility	0.8%	1.5%	4.2%	3.4%	0.9%	-1.3%	-2.8%	-3.7%	-7.1%	-9.4%	-11.0%	-11.9%												
Mid-size Van	2.0%	2.9%	5.4%	3.8%	1.4%	-0.4%	-1.3%	-2.5%	-6.5%	-9.9%	-11.8%	-13.6%												
Subcompact Car	0.7%	1.7%	3.3%	1.6%	-2.1%	-5.6%	-9.9%	-13.3%	-19.0%	-21.3%	-23.4%	-25.2%												

Source: J.D. Power Valuation Services Guidelines December 2015 [August 2017](#), Height Securities.

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Figure 5. JDP Used Vehicle Annual Price Changes 2013 - 2016 & YTD 2017 (continued)

2016 MoM Wholesale Used Car Price Change		YTD Change											
Vehicle Type	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	
AVERAGE	-0.1%	-1.0%	0.1%	-1.6%	-3.6%	-6.0%	-8.3%	-10.9%	-14.5%	-18.1%	-21.4%	-23.1%	
Compact Car	-0.2%	-1.8%	-0.1%	-2.4%	-5.4%	-8.4%	-11.2%	-13.1%	-17.1%	-21.0%	-23.9%	-26.0%	
Compact Utility	-0.4%	-1.1%	0.1%	-1.1%	-3.6%	-5.8%	-7.5%	-9.6%	-12.8%	-16.0%	-18.4%	-19.7%	
Large Car	-0.2%	-0.8%	0.5%	-1.2%	-4.0%	-7.2%	-9.7%	-12.4%	-16.1%	-20.1%	-22.4%	-25.2%	
Large Pickup	-0.6%	-1.5%	-0.4%	-1.0%	-1.3%	-1.6%	-2.1%	-3.3%	-4.6%	-6.9%	-8.6%	-9.5%	
Large Utility	0.0%	-1.1%	-1.0%	-1.1%	-2.4%	-3.4%	-3.7%	-6.7%	-9.7%	-13.1%	-14.9%	-18.5%	
Luxury Compact Car	-1.6%	-3.8%	-2.8%	-3.7%	-5.0%	-6.4%	-9.1%	-12.6%	-15.7%	-20.1%	-25.2%	-26.6%	
Luxury Compact Utility	-1.5%	-2.6%	-2.4%	-3.7%	-5.8%	-8.4%	-11.5%	-13.8%	-17.6%	-20.7%	-24.9%	-28.4%	
Luxury Large Car	-3.2%	-4.5%	-4.9%	-7.0%	-7.4%	-12.1%	-13.9%	-17.1%	-20.6%	-24.0%	-27.0%	-28.8%	
Luxury Large Utility	0.0%	-2.1%	-2.8%	-4.2%	-4.9%	-7.9%	-9.9%	-11.7%	-15.2%	-18.7%	-21.2%	-24.1%	
Luxury Mid-Size Car	-1.7%	-3.4%	-3.1%	-4.6%	-6.6%	-8.9%	-11.0%	-14.4%	-17.7%	-21.8%	-25.7%	-29.0%	
Luxury Mid-Size Utility	-1.6%	-3.5%	-3.6%	-4.0%	-5.7%	-7.5%	-9.5%	-13.0%	-16.9%	-19.7%	-24.0%	-24.9%	
Mid-Size Car	-0.2%	-1.0%	0.6%	-1.7%	-4.3%	-7.5%	-10.5%	-13.2%	-16.7%	-20.1%	-22.7%	-24.0%	
Mid-Size Pickup	0.6%	0.1%	0.7%	0.0%	-0.5%	-1.3%	-2.7%	-5.0%	-8.4%	-9.9%	-11.8%	-13.5%	
Mid-Size Utility	-0.3%	-1.1%	0.0%	-0.7%	-2.8%	-4.3%	-6.1%	-8.4%	-10.0%	-13.7%	-16.7%	-18.6%	
Mid-size Van	-0.2%	-0.7%	1.7%	0.7%	-0.1%	-1.8%	-4.5%	-5.7%	-8.5%	-12.9%	-16.5%	-18.6%	
Subcompact Car	-0.8%	-1.7%	-0.4%	-4.7%	-7.1%	-11.6%	-15.5%	-18.4%	-22.4%	-27.1%	-29.7%	-31.4%	

2017 MoM Wholesale Used Car Price Change		YTD Change						
Vehicle Type	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	
AVERAGE	-0.4%	-2.0%	-0.4%	-1.9%	-3.8%	-6.0%	-8.0%	
Compact Car	0.1%	-1.3%	1.3%	-1.2%	-2.9%	-6.2%	-9.6%	
Compact Utility	-0.5%	-2.0%	-1.3%	-2.7%	-4.7%	-6.9%	-8.0%	
Large Car	-0.4%	-1.0%	0.5%	-0.6%	-1.3%	-4.7%	-7.5%	
Large Pickup	-0.8%	-1.3%	-0.7%	-0.8%	-1.8%	-1.7%	-1.6%	
Large Utility	-0.8%	-2.7%	-2.7%	-5.0%	-4.9%	-6.9%	-8.4%	
Luxury Compact Car	-1.2%	-2.3%	-3.0%	-3.2%	-3.1%	-4.8%	-7.6%	
Luxury Compact Utility	0.4%	-1.1%	-0.9%	-1.6%	-2.9%	-4.6%	-6.4%	
Luxury Large Car	-0.6%	-3.7%	-5.1%	-9.5%	-9.9%	-11.1%	-12.6%	
Luxury Large Utility	-1.0%	-2.8%	-4.3%	-4.1%	-6.2%	-7.5%	-9.3%	
Luxury Mid-Size Car	-0.1%	-1.8%	-2.6%	-2.6%	-5.2%	-7.0%	-9.7%	
Luxury Mid-Size Utility	-1.8%	-2.7%	-2.4%	-3.2%	-4.2%	-6.3%	-7.4%	
Mid-Size Car	-0.2%	-1.8%	0.8%	-1.4%	-4.0%	-7.3%	-10.4%	
Mid-Size Pickup	-0.4%	-1.0%	0.2%	0.9%	1.0%	1.2%	0.1%	
Mid-Size Utility	-0.4%	-2.1%	-0.7%	-1.9%	-3.8%	-5.3%	-6.3%	
Mid-size Van	-0.4%	-1.6%	0.0%	-0.8%	-2.8%	-3.7%	-5.9%	
Subcompact Car	-0.9%	-3.0%	0.4%	-2.0%	-3.1%	-6.3%	-8.5%	

Source: J.D. Power Valuation Services Guidelines December 2015 - August 2017, Height Securities.

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Figure 6. J.D. Power Valuation Services Used Vehicle YTD Price Changes 2015 - 2017

NADA YTD Wholesale Used Car Price Change				Price Change in bps		Inc (Dec)
Vehicle Type	Jul-15	Jul-16	Jul-17	Jul '15-16	Jul '16-17	In Price Chg
AVERAGE	-5.7%	-8.3%	-8.0%	-260	30	-290
Compact Car	-7.6%	-11.2%	-9.6%	-360	160	-520
Compact Utility	-3.9%	-7.5%	-8.0%	-360	-50	-310
Large Car	n.a.	-9.7%	-7.5%	n.a.	220	n.a.
Large Pickup	0.3%	-2.1%	-1.6%	-240	50	-290
Large Utility	1.4%	-3.7%	-8.4%	-510	-470	-40
Luxury Compact Car	-9.4%	-9.1%	-7.6%	30	150	-120
Luxury Compact Utility	-7.3%	-11.5%	-6.4%	-420	510	-930
Luxury Large Car	-11.2%	-13.9%	-12.6%	-270	130	-400
Luxury Large Utility	n.a.	-9.9%	-9.3%	n.a.	60	n.a.
Luxury Mid-Size Car	-10.8%	-11.0%	-9.7%	-20	130	-150
Luxury Mid-Size Utility	-6.3%	-9.5%	-7.4%	-320	210	-530
Mid-Size Car	-7.3%	-10.5%	-10.4%	-320	10	-330
Mid-Size Pickup	n.a.	-2.7%	0.1%	n.a.	280	n.a.
Mid-Size Utility	-2.8%	-6.1%	-6.3%	-330	-20	-310
Mid-size Van	-1.3%	-4.5%	-5.9%	-320	-140	-180
Subcompact Car	-9.9%	-15.5%	-8.5%	-560	700	-1260

Source: J.D. Power Valuation Services Guidelines December 2015 - [August 2017](#), Height Securities.

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Figure 7. Black Book Weekly Data Trends – Week of 9/1/2017

Weekly Wholesale Used Car Price Change Vehicle Type	WoW Change	Price Change YTD 2017	YTD Price Chg Annualized	Price Change YOY
Sub-Compact Car	0.42%	-10.2%	-15.2%	-20.9%
Compact Car	-0.19%	-8.2%	-12.2%	-17.2%
Mid-Size Car	0.66%	-11.5%	-17.1%	-18.9%
Full-Size Car	-0.21%	-8.5%	-12.6%	-18.3%
Near Luxury Car	0.35%	-9.5%	-14.1%	-19.8%
Luxury Car	0.38%	-11.0%	-16.3%	-20.4%
Prestige Luxury Car	0.40%	-16.3%	-24.3%	-27.3%
Sporty Car	-0.21%	-5.6%	-8.3%	-19.4%
Premium Sporty Car	0.11%	-9.2%	-13.6%	-18.4%
CARS-Overall	0.21%	-9.8%	-14.5%	-19.3%
Sub-Compact Crossover	-0.55%	-8.4%	-12.5%	-17.1%
Compact Crossover/SUV	-0.04%	-9.0%	-13.3%	-17.1%
Mid-Size Crossover/SUV	0.16%	-8.9%	-13.2%	-18.3%
Full-Size Crossover/SUV	0.35%	-7.8%	-11.7%	-16.1%
Sub-Compact Luxury Crossover	-0.35%	-10.7%	-15.9%	-13.0%
Compact Luxury Crossover/SUV	-0.25%	-11.0%	-16.3%	-18.8%
Mid-Size Luxury Crossover/SUV	0.01%	-10.1%	-15.0%	-18.8%
Full-Size Luxury Crossover/SUV	-0.08%	-11.0%	-16.3%	-18.9%
Minivan	-0.45%	-7.8%	-11.6%	-17.7%
Compact Van	0.13%	-1.5%	-2.2%	-14.7%
Full-Size Van	0.09%	-6.2%	-9.2%	-14.8%
Small Pickup	0.46%	-6.3%	-9.4%	-12.5%
Full-Size Pickup	0.00%	-3.8%	-5.7%	-10.9%
TRUCKS-Overall	0.03%	-7.9%	-11.7%	-16.0%

Source: [Black Book](#), Height Securities.

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Figure 8. Estimated 2017 Price Change Using Black Book Weekly Data as of 9/1/2017

Weekly Wholesale Used Car Price Change Vehicle Type	Price Change YTD 2017	Price Change 9/2 -12/30/16	Est 2017 Price Chg
Sub-Compact Car	-10.2%	-12.6%	-22.8%
Compact Car	-8.2%	-10.3%	-18.5%
Mid-Size Car	-11.5%	-8.7%	-20.2%
Full-Size Car	-8.5%	-11.3%	-19.8%
Near Luxury Car	-9.5%	-12.1%	-21.6%
Luxury Car	-11.0%	-11.2%	-22.2%
Prestige Luxury Car	-16.3%	-13.9%	-30.3%
Sporty Car	-5.6%	-15.8%	-21.4%
Premium Sporty Car	-9.2%	-10.7%	-19.9%
CARS-Overall	-9.8%	-11.1%	-20.9%
Sub-Compact Crossover	-8.4%	-9.9%	-18.3%
Compact Crossover/SUV	-9.0%	-9.3%	-18.3%
Mid-Size Crossover/SUV	-8.9%	-10.8%	-19.7%
Full-Size Crossover/SUV	-7.8%	-9.4%	-17.2%
Sub-Compact Luxury Crossover	-10.7%	-2.6%	-13.3%
Compact Luxury Crossover/SUV	-11.0%	-9.1%	-20.1%
Mid-Size Luxury Crossover/SUV	-10.1%	-10.2%	-20.3%
Full-Size Luxury Crossover/SUV	-11.0%	-9.3%	-20.3%
Minivan	-7.8%	-11.3%	-19.1%
Compact Van	-1.5%	-14.3%	-15.8%
Full-Size Van	-6.2%	-9.6%	-15.7%
Small Pickup	-6.3%	-6.7%	-13.1%
Full-Size Pickup	-3.8%	-7.7%	-11.5%
TRUCKS-Overall	-7.9%	-9.2%	-17.1%

Source: [Black Book](#), Height Securities.

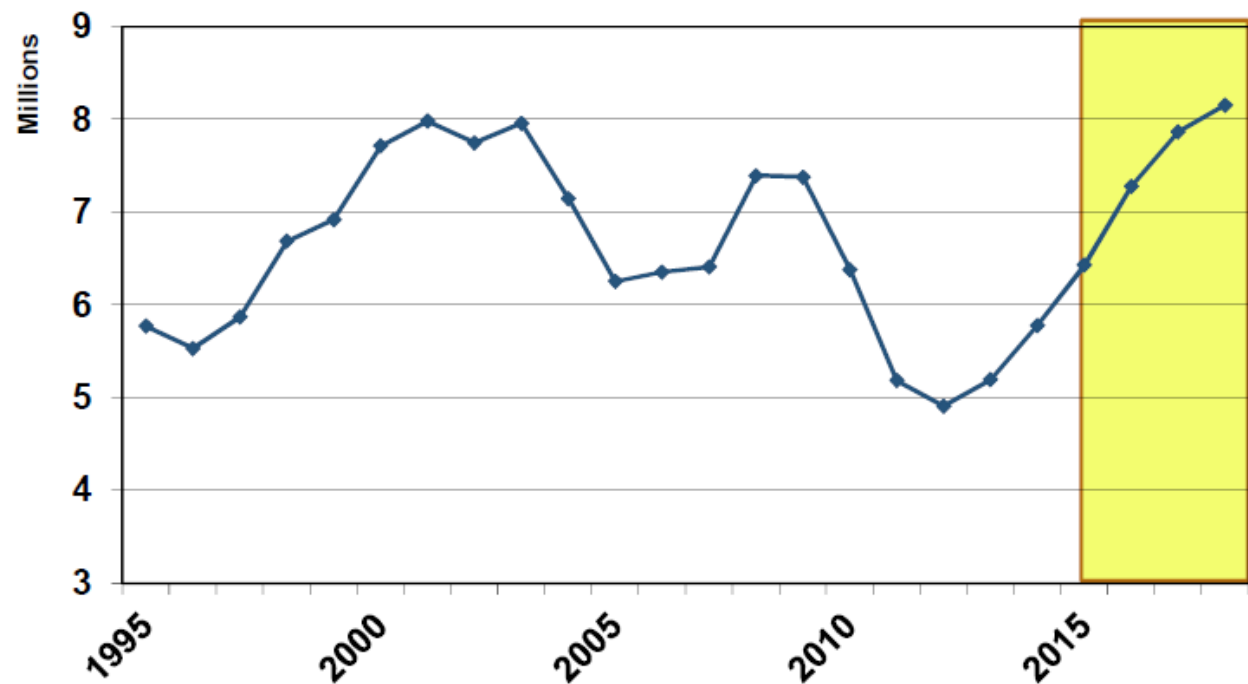
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Figure 9. Off-Lease Volumes Will Continue to Increase Through 2018

Leasing Activity units in millions	2010	2011	2012	2013	2014	2015	2016	2017	2018
New Leases	1.8	2.2	2.6	3.2	3.6	3.9			
Wholesale Off-lease Volumes				0.8	1.0	1.3	1.6	1.8	2.2
Percent Change -YoY	2010	2011	2012	2013	2014	2015	2016	2017	2018
New Leases		23%	19%	24%	14%	7%			
Wholesale Off-lease Volumes					33%	25%	28%	13%	22%
Off-lease Volume Inc 2015 to 2018									76%

Source: [Manheim Consulting](#), Height Securities.

Figure 10. Wholesale Used Car Volumes Are Expected to Increase Materially by 2018



Source: [Manheim Consulting](#).

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