

*Black Book*<sup>®</sup>

**Fitch**Ratings

**VEHICLE DEPRECIATION REPORT  
FEBRUARY 2017**





A wide-angle photograph of a two-lane asphalt road stretching towards a bright sunset on the horizon. The sun is low in the sky, creating a lens flare effect and casting long, warm shadows across the road. The sky is filled with soft, wispy clouds.

## Black Book – Fitch Ratings Vehicle Depreciation Report 2017

### Depreciation Increases; Trends Expected to Worsen in 2017; Auto ABS Losses to Move Higher

New York, February 20, 2017 – New light vehicle sales volume increased slightly in 2016 as it tallied 17.55 million units, above the record of 17.47 million set in 2015. Pickup trucks, SUVs, and crossovers continued to increase in new sales volume. Light trucks constituted 61% of new sales compared to 57% in 2015 and 53% in 2014. Leasing continues to drive new vehicle sales with more units leased in 2016 versus 2015. More new vehicles sales are now being driven through higher discounts. Incentive spending by auto manufacturers continued to rise during 2016, ending the year at an all-time high of about \$3,700 in average incentive amount on new vehicles.

Since the Great Recession of 2008-09, U.S. light-vehicle sales have delivered seven consecutive annual gains, the longest streak in decades. Pent-up consumer demand, attractive lease deals, and easy credit availability have driven new-vehicle sales higher since the downturn. A cresting retail demand, along with a pull-back in credit availability, is expected to usher in lower production this year. We have already started to see a pullback in production for some vehicles. Black Book and Fitch Ratings are forecasting new vehicle sales to drop to 17.0 million in 2017 as manufacturers cut production to match easing consumer demand. Further increases in incentive spending by manufacturers will hurt residual values. An increased supply of used cars, particularly off-lease units, results in lower residual values, which in turn is likely to result in limiting growth in leasing, currently at an all-time high.

Fitch's outlook for prime auto loan asset-backed securities (ABS) remains stable in 2017, despite asset performance peaking in 2016 and the expectation of marginally higher depreciation this year, pushing auto ABS losses higher. Prime losses should pick up pace in the latter half of the year, following typical seasonal patterns and close in on the 1.0% mark. Losses could pick up and move above 1.0% in 2017, were the U.S. economy to stumble and the wholesale vehicle market experience higher than expected vehicle depreciation. Even at that level, transactions should be able to absorb such losses and ratings not be impacted. Subprime ANL rose markedly in 2016, driven by slowing performance of the 2013-2015 vintage ABS transactions with lower credit quality pools, and sector performance should continue to be pressured this year. Subprime ANL jumped to 10.92% through December 2016, rising 19% year-over-year (YOY), and ranged from 6.30%-10.92% in 2016. Subprime losses are expected to be in the 10% to 12% range in 2017.

Fitch continues to have a positive prime rating outlook for 2017 regardless of higher losses predicted. The outlook for ratings is stable for subprime auto ABS. 2017 asset performance will soften, driven by higher 2013-2015 vintage ABS losses, rising losses on loans with terms over 60 months (extended-term loans), and lower recovery rates due to higher depreciation. The performance of extended-term loans is an area of focus for Fitch, as consumers with these loans tend to have lower equity in their vehicles. If they default, severity and losses will be higher. Aside from tepid growth, most economic fundamentals should support stable performance, as energy prices, interest rates, and unemployment are expected to remain within recent levels in the near future.

### Black Book Vehicle Depreciation Rate

	Annual Depreciation**
2011	8.3%
2012	10.4%
2013	13.3%
2014	11.8%
2015	13.2%
2016	17.3%
2017*	17.8%

\* Forecast

\*\* Depreciation of 2-6 year old vehicles

### Auto Depreciation Expected to Rise to 17.8% in 2017

According to Black Book, the annual depreciation rate on two- to six-year-old vehicles increased to 17.3% in 2016. From 2011 through 2016, the depreciation rate had remained at 13% or lower, reflecting the strength of the used vehicle market. Prior to the recession, annual depreciation of 16-18% was normal. As market dynamics change, we expect to see a sustained higher depreciation rate in the next three years.

Black Book projects that the depreciation rate will rise marginally to 17.8% in 2017. We experienced several positive trends in the industry that drove used vehicle market strength over the past few years. Several of these trends reached a plateau and have started to turn. Credit availability has been strong driven by low

delinquency rates. In 2016, we started to see an increase in sub-prime delinquencies and losses. Most sub-prime lenders are now tightening their credit criteria, reflecting a turn in the credit availability cycle. Credit availability in the prime tier continues to be relatively high. Demand for both new and used vehicles has been driven by pent-up demand after the recession, but that pent-up demand has been spent. Economic factors that drive vehicle demand are reaching a crest: the unemployment rate has fallen below 5.0%, and the housing market has regained its pricing strength. There is more uncertainty going forward.

While growth in demand is uncertain, the supply of used vehicles will continue to rise in the short term. Leasing has helped in growing new car sales by keeping monthly payments low. While new car transaction prices increased, lease payments remained stable, reflecting a subvented residual value. High levels of supply, primarily from lease returns, was a major factor in the higher depreciation in 2016. Lease return volume grew by 27% in 2016, and in 2017, will continue to grow by an additional 15% over the levels in 2016. Furthermore, more 5 to 6 year old vehicles will return to the market as trade-ins driven by the consistent increase in new vehicle sales from 2010-2013. In addition, there will be growth in repossessions due to increased defaults in sub-prime portfolios, and prime sector to a much lesser extent. All of these factors will add to the supply of used vehicles in the market, leading to sustained higher depreciation levels in the coming years. Certified pre-owned programs have proven to be great conduits for remarketing the off-lease used supply and has helped keep retention values higher. However, growth in certified pre-owned sales was only 3.5% in 2016, not enough to absorb majority of the additional lease returns.

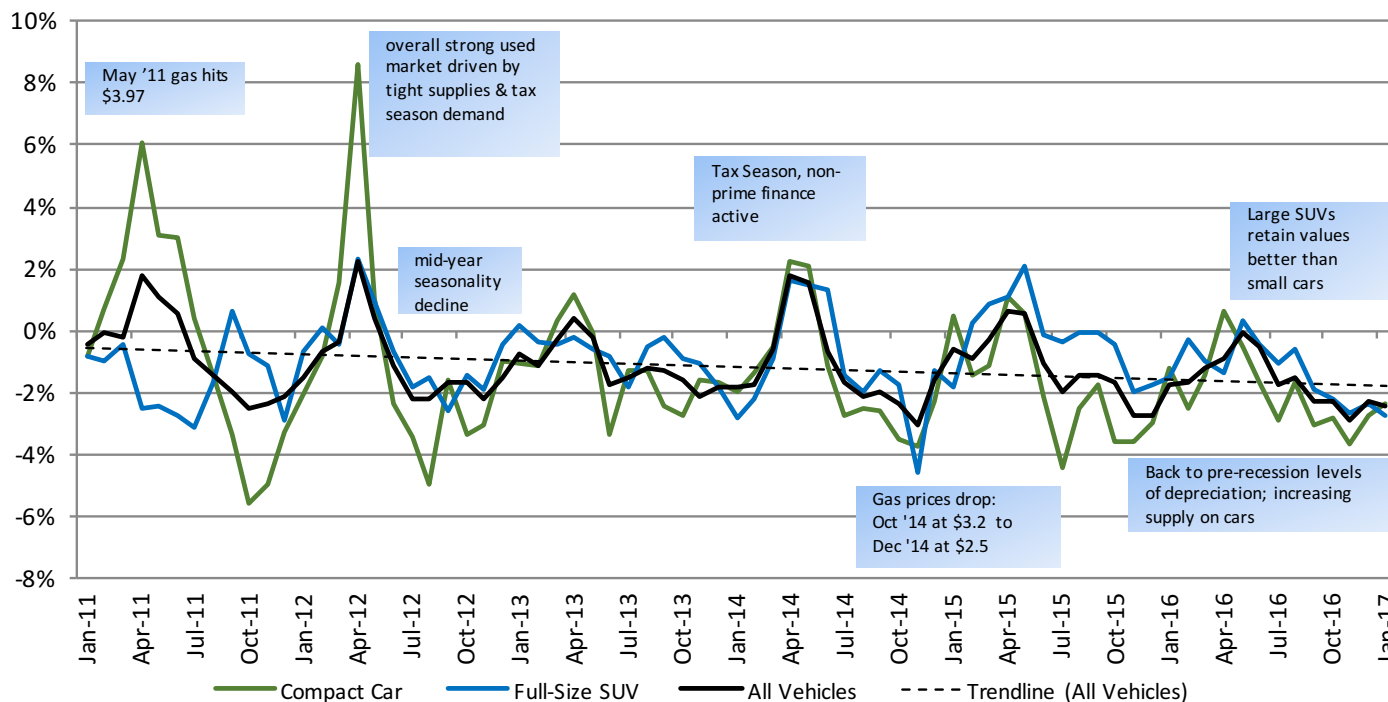
Gasoline prices have remained relatively stable, with some volatility in late 2016 due to OPEC cuts. Gasoline prices are expected to remain low; according to US Energy Information Administration forecasts, the average gas price per gallon in the US is projected to remain below \$2.50 in 2017. This will continue to drive better retention values for larger SUVs and pickup trucks. On the other hand, values of smaller cars will remain soft, but are not expected to drop much further as the values for compact cars have already taken a big hit over the last two years.

The Black Book Used Car Monthly Depreciation Rate tracks the monthly change in Black Book's published Wholesale Average Value on volume-weighted two- to six-year-old vehicles, based on normal usage. The Compact Car segment showed a much higher depreciation rate in comparison to the Full-Size SUV segment in 2016. The strong seasonal trends seen in the past during the spring were also muted in 2016 due to higher supply and high credit availability.

The strength of the market between cars and light trucks continues to be substantially different. The light truck segments include crossovers, SUVs, and vans. Light trucks as a whole experienced about a five percentage point lower depreciation rate compared to cars, with annual depreciation of trucks at 15.5% and cars at 20.0% for two- to six-year-old vehicles. However, the strength of truck segments in 2016 was lower as compared to 2015, when the gap between car and truck depreciation rates were over 12 percentage points. Truck segments are expected to continue to perform better in 2017 as well. The demand of SUVs and trucks is stronger due to changing consumer preferences and low gas prices. However, the number of models and competition has been heating up among manufacturers to shift production to SUVs, which will reduce the valuation strength that light trucks have seen recently.



### Black Book Used Car Monthly Depreciation Rate



#### 2016 Depreciation Rates by Segment

	2016Q1 3M Chg	2016Q2 3M Chg	2016Q3 3M Chg	2016Q4 3M Chg	2016 Full Year 12M Chg	
All Vehicles	-2.9%	-2.2%	-6.0%	-7.4%	-17.3%	
C A R S	Compact Car	-2.2%	-4.4%	-7.2%	-8.3%	-20.5%
	Full-Size Car	-0.6%	-0.3%	-7.5%	-7.9%	-15.5%
	Luxury Car	-4.1%	-4.8%	-8.5%	-7.7%	-22.9%
	Mid-Size Car	-1.2%	-3.4%	-6.9%	-7.7%	-18.0%
	Near Luxury Car	-3.8%	-2.6%	-8.1%	-8.7%	-21.5%
	Premium Sporty Car	-4.3%	-3.5%	-5.6%	-6.9%	-18.9%
	Prestige Luxury Car	-5.8%	-5.4%	-7.7%	-8.5%	-24.7%
	Sporty Car	-1.4%	-0.7%	-7.8%	-9.5%	-18.4%
	Sub-Compact Car	-4.5%	-5.4%	-7.3%	-9.2%	-23.9%
T R U C K S	Compact Crossover/SUV	-2.5%	-1.3%	-5.7%	-7.3%	-15.9%
	Compact Luxury CUV/SUV	-3.8%	-3.9%	-5.9%	-6.5%	-18.7%
	Compact Van	-5.6%	-4.3%	-7.1%	-11.0%	-25.3%
	Full-Size Crossover/SUV	-2.0%	-1.7%	-4.6%	-7.6%	-15.1%
	Full-Size Luxury CUV/SUV	-4.1%	-3.4%	-5.9%	-6.0%	-18.1%
	Full-Size Pickup	-5.2%	-0.3%	-3.3%	-5.0%	-13.1%
	Full-Size Van	-3.5%	-2.2%	-4.4%	-7.3%	-16.4%
	Mid-Size Crossover/SUV	-1.2%	-1.6%	-5.8%	-8.5%	-16.2%
	Mid-Size Luxury CUV/SUV	-2.8%	-3.1%	-5.6%	-8.0%	-18.2%
	Minivan	-3.8%	-0.9%	-5.4%	-8.4%	-17.4%
	Small Pickup	-1.7%	0.2%	-3.9%	-3.3%	-8.5%
	Sub-Compact Crossover	-2.4%	-1.4%	-8.9%	-8.5%	-19.7%
	Sub-Compact Luxury CUV	-4.9%	-6.1%	-5.6%	-6.8%	-21.4%

#### Depreciation Trends in 2016: Car Segments Depreciation Higher Than Normal

Overall, used vehicle values' depreciation displayed interesting trends among the various segments. During the first four months of 2016, small car segments and large SUV segments experienced similar depreciation movements. The demand of small cars is typically high in the spring season, due to an influx of cash from tax refunds as these are among the lowest priced vehicles. The seasonality lift was, however, milder in 2016 than typically seen in prior years. Small car values declined sharply as the summer season arrived and continued to drop further in fall and winter months. On the other hand, full-size pickups retained their value well throughout the year as the supply of used pickups remained tight.

The values held up well with low levels of depreciation in the first two quarters. Depreciation rates in the third quarter were relatively high at 6.0%. The fourth quarter experienced a steep decline of 7.4% with broad decreases across all segments. Smaller cars

source: Black Book Analytics

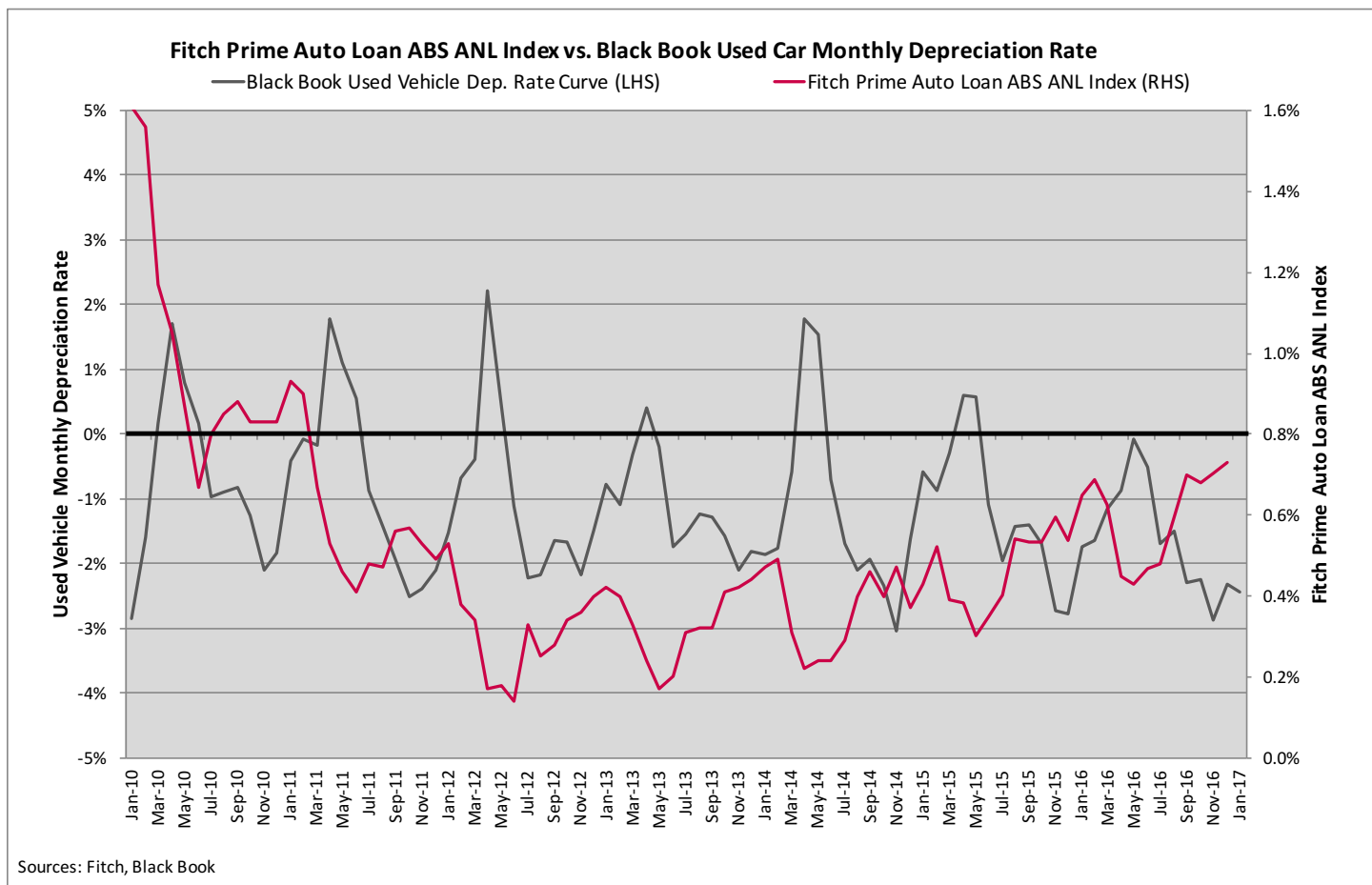
(Sub-Compact and Compact) saw their depreciation rates rise above 20%. The Full-Size Car segment showed the lowest depreciation among car segments at 15.5%.

Small Pickup, Full-Size Pickup, and Full-Size Crossover/SUV segments had the lowest depreciation of the year at under 16%. Among the commercial vans, Compact Vans did poorly in value retention (25.3% depreciation) versus Full-Size Vans (16.4% depreciation). Among the Crossover/ SUVs, the luxury segments depreciated faster than the non-luxury segments.

Given the spread and volatility across various segments, it becomes important for a lender to have a diversified portfolio. Portfolios concentrated in small vehicle segments experienced the steepest decline in equity. With longer terms and softening used vehicle values, portfolio equity will experience higher risk as it would take longer for a loan to enter into a positive equity position.

### Prime Auto ABS Performance to be Consistent with 2004-2006; No Major Concerns

The major drivers of prime ABS performance in 2017 will be the loss rates of the weaker 2013-2015 vintage transactions, and lower used vehicle values which will drive loss severity higher. Rising used vehicle supplies will pressure ABS recovery rates in the case of a default and repossession of a vehicle. Having said that, auto manufacturers will have to be disciplined in 2017 if sales slow, in order to manage production and inventory levels and not place even more pressure on vehicle values. Further, manufacturers should look to carefully use incentives in 2017, which can drive vehicle values down and contribute to higher severity. The performance of extended term loans securitized in auto ABS pools will be an area of focus in 2017 for Fitch. The 2013-2015 vintage pools have larger percentages of these riskier loans, and were the pace of defaults in these extended term loan buckets to pick up, severity and losses will rise, driven by higher levels of negative equity in these vehicles.

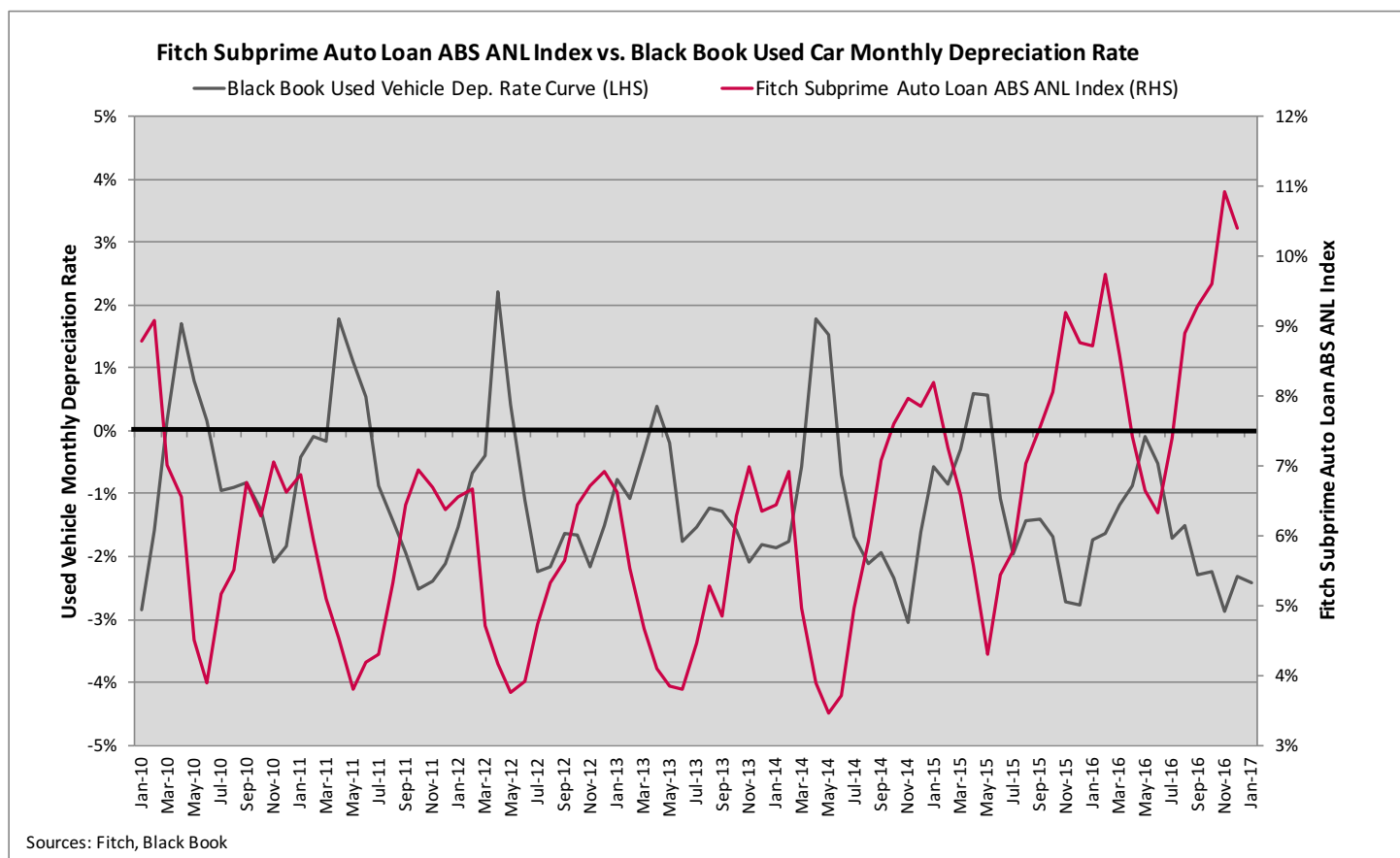


Prime auto loan ABS losses hit a six-year peak in late 2016, reaching 0.73% in December. However, this figure is still well below the historical average of 0.91% going back to 1998. This means that the loss index has room to move higher to 1.0% and there is still no concern since this rate will be within historical norms and similar to the ANL rates recorded in 2004-2006. Fitch expects ratings performance to be solid this year regardless of higher losses. ABS transactions amortize quickly and build credit enhancement, and these structural features will continue to support ratings in 2017.

### Subprime ABS Performance Pressured in 2017; Ratings Stable

Fitch predicts ANL will rise into the 10%-12% range in 2017 as used vehicle values dip and recent securitized vintage ABS pools produce higher losses. Despite this, Fitch expects losses on the AmeriCredit Automobile Receivables Trust and Santander Drive Automobile Receivables Trust ABS shelves, the only two Fitch-rated subprime ABS platforms, to rise marginally but remain within initial expectations, and, therefore, ratings should remain stable in 2017. 2015 vintage cumulative net losses (CNL) are currently extrapolating to 14%-15%, up from 11%-13% for 2012-2014. This trend will continue for the 2015-2016 vintages in 2017.

Fitch expects many of the smaller non-rated subprime issuers to experience higher losses in 2017, particularly relative to the two large Fitch-rated platforms. If auto sales decline, lenders may loosen underwriting standards to chase market share, which will create more pressure on overall loss rates. This will then potentially translate into lower margins and lenders could be faced with declining profits and weaker financials. Many of the smaller non-Fitch rated platforms are new entrants with limited track records. With higher losses in 2017, their ability to adequately service their portfolios and contain losses will be tested. The subprime auto market has exhibited many characteristics favoring consolidation in 2017. Mergers and acquisitions may increase, particularly if the lending market shrinks.

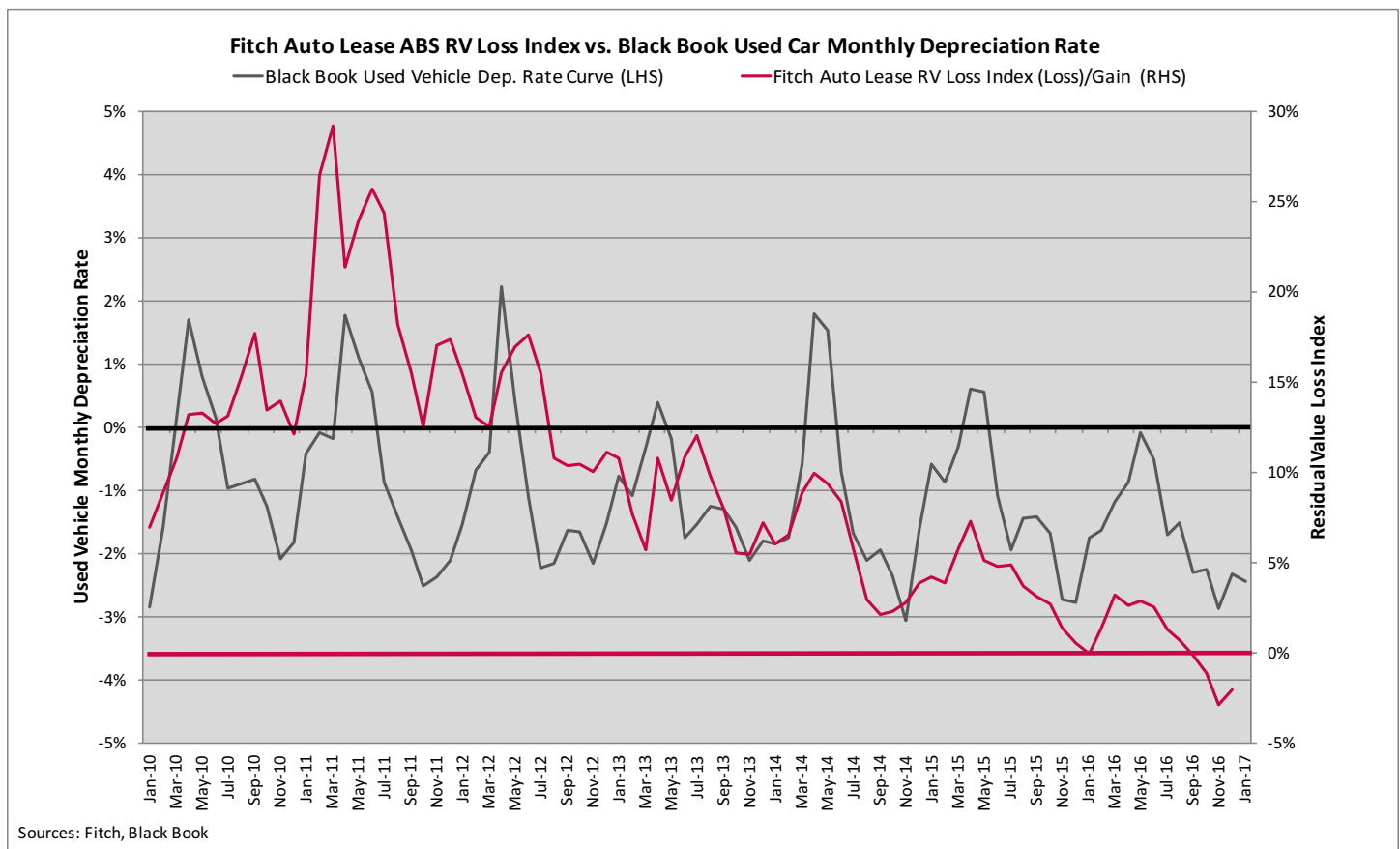


## Auto Lease ABS RV Losses Rising in 2017; Rating Outlook Still Positive

Lease return volumes increased further in 2016 resulting in lower residual value gains throughout the year. Fitch predicts residual value (RV) performance to slow further in 2017 as lease return volumes continue to climb, resulting in lower RVs in securitized auto lease ABS pools. The lease market continues to be a driver of sales, and penetration has climbed to record highs over the past year to about 30% of total retail sales. Auto lease ABS ratings have not been impacted by slowing RV performance and rising losses, and Fitch continued to upgrade subordinate tranches of notes in 2016. The outlook remains positive for ratings performance in 2017.

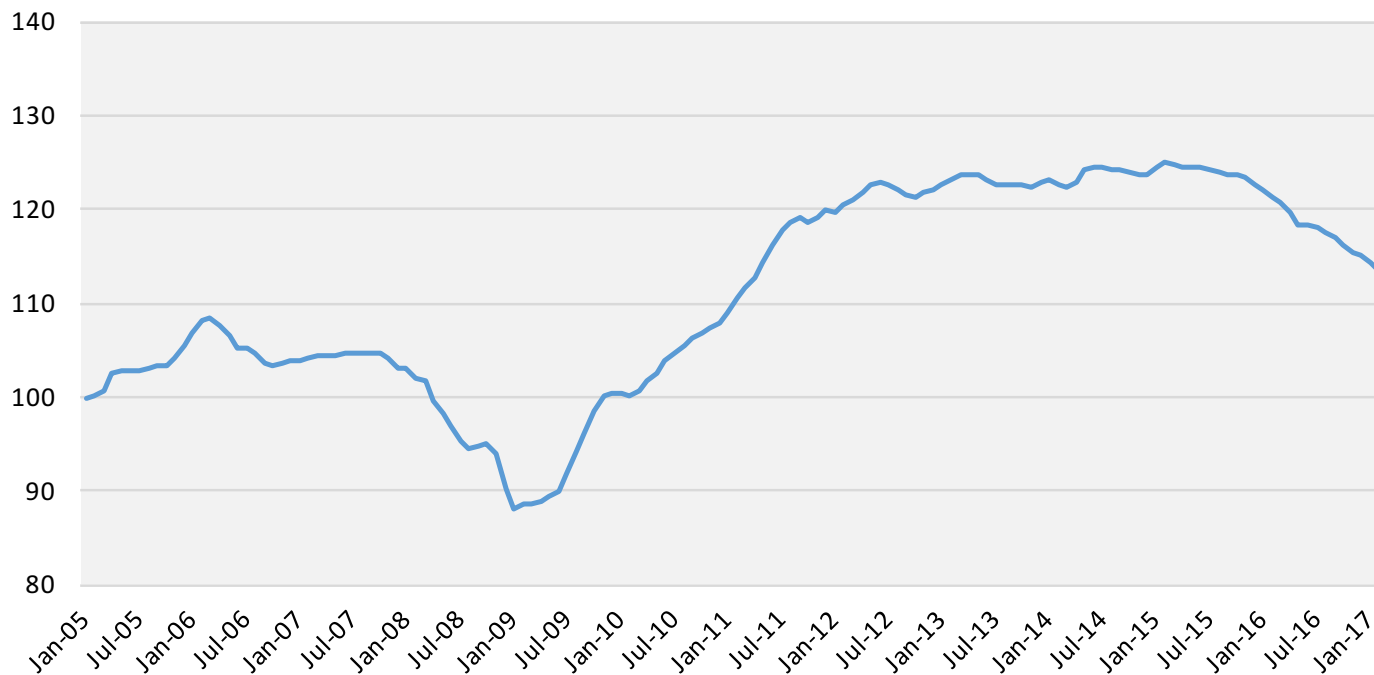
Fitch's RV index ranged from a peak gain of 3.21% to a loss of (2.84%) in 2016, with this rate remaining well below the highest RV loss recorded during the weak late 2008-early 2009 recessionary period. Expect to see the index record losses more frequently on a monthly basis this year, and loss rates to climb higher but not impact overall transaction performance or ratings. Fitch's derivation of transaction base case RV proxies takes into account only the most stressed 2008-2009 period, where RV performance was at peak loss levels, and then haircut further from there to even higher levels. Therefore, current RV levels would have to materially deteriorate to impact ratings which Fitch does not expect to occur in 2017.

Auto lease ABS return volumes totaled \$7.4 billion in 2016, up from \$6.98 billion in 2015 rising 5.5%. This figure is expected to climb to \$8.1 billion in 2017, 16% higher. Total lease scheduled maturities were \$12.6 billion in 2016, and this figure should total \$11.7 billion in 2017, or 7% down. Overall, higher return volume in 2017 will be the main driver of auto lease ABS RV performance this year, as higher supply dampens vehicle values and will thus move depreciation up as well.



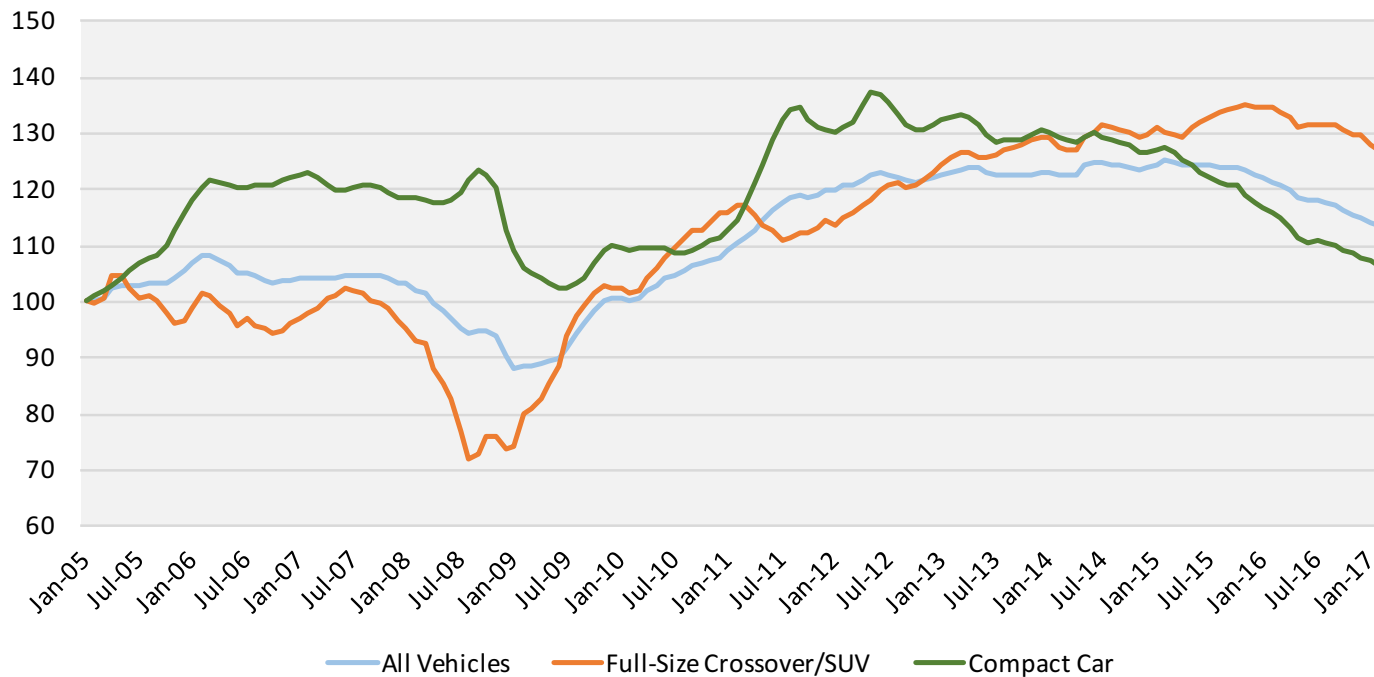


### Black Book Used Vehicle Retention Index



Age-, Mileage-, Condition-, Mix-, Seasonally- and Inflation (MSRP)-adjusted.  
 Volume-weighted Black Book Wholesale Average values on two- to six-year-old vehicles

### Black Book Used Vehicle Retention Index Comparing Vehicle Segments



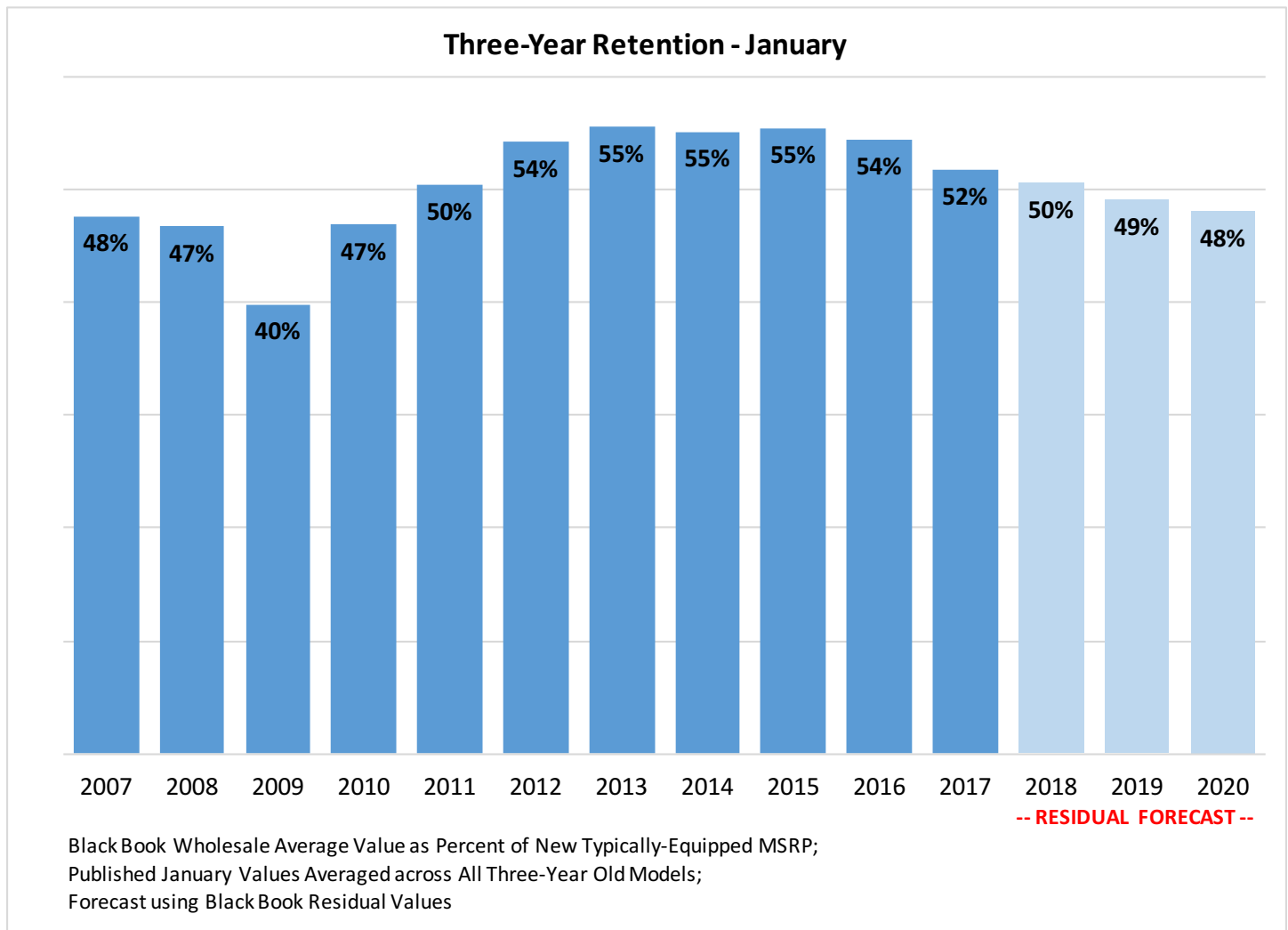
Age-, Mileage-, Condition-, Mix-, Seasonally- and Inflation (MSRP)-adjusted.  
 Volume-weighted Black Book Wholesale Average values on two- to six-year-old vehicles

## Black Book Used Vehicle Retention Index

The Black Book Wholesale Value Index is designed to provide an accurate view of the strength of used vehicle wholesale market values. The index is calculated using Black Book’s published Wholesale Average value on 2- to 6- year old used vehicles, as percent of original typically-equipped MSRP. Black Book’s Wholesale Average is a benchmark value for used vehicles selling in the wholesale auctions with the vehicle quality in Average condition. The index is weighted based on registration volume and adjusted for seasonality, vehicle age, mileage, condition, segment mix, and inflation (MSRP).

As more two- to six-year vehicles return to the market in the coming years, this index provides an overall measurement of strength/weakness in wholesale used vehicle value retention. During the recessionary period, the index experienced a sharp drop of about 15% from Jan. 2008 to Jan. 2009. In 2010, the index recovered nicely and gained back 9% during the year. After the recession, the index continued to rise persistently until 2013 and remained high till 2015. The index lost 6% in 2016. The index is expected to continue its slow decline in 2017 as the used vehicle market loses strength.

When broken down by segments, the index shows some interesting trends, especially comparing two contrasting vehicle segments. Compact cars sustained much better retention value during recession, while full-size crossover/SUVs took a much larger and quicker hit to values. Moreover, the gas price volatility during 2008-2009 shows opposite effects in the values of these two segments. When gas prices rise sharply, compact cars tend to increase in value while full size crossover/SUVs tend to lose value. It is interesting to note that the index values of both segments reached the same point in mid- 2014, but diverged significantly thereafter. Compact car values continued to decline sharply during the last two years. In the compact car segment, mainstream brand electric vehicles are experiencing even heavier valuation drops due to the lack of consumer demand for these vehicles. On the other hand, full-size crossover/SUVs index values have continued to remain high in the last two years.



## Residual Forecasts Lower

In January 2017, a 2014 model year vehicle's wholesale value on average was 52% of its typically equipped original MSRP. Black Book residual forecasts for 2017 model year vehicles in January of 2020 are 4 percentage points lower than the current retention trends averaged across all vehicle models. In three years, the residual values are forecast to drop to 48% of typically-equipped MSRP.

Despite some headlines to the contrary, we don't see that our industry is in a bubble, although the risks are increasing. We expect the market to reach a gradual normalization over the next three years. The biggest concerns include continuously increasing lease penetration leading to residual losses on the returns due to excess supply, higher levels of incentives on new vehicles pushing down used values, and longer loan terms leading to sustained negative equity. Using timely and accurate collateral data, as well as the right analytics to help interpret this data, is key to making better decisions in this changing environment.

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## The Black Book-Fitch Vehicle Depreciation Report and Black Book Used Vehicle Data

This report is another in a series of joint-ventures by Black Book and Fitch. Black Book tracks used vehicle market depreciation rates, providing an understanding of how vehicle prices impact automobile lenders and lessors, auto ABS transactions, consumers and other auto market constituents. Black Book collects and analyzes extensive wholesale data from auctions and other data partners and providers throughout the country. Black Book publishes future residual value forecasts and current daily updated used market vehicle values. The report is issued on an annual basis.

### Data Available to Users

Certain data contained in this report is available to all users, including the charts and tables. Please contact Black Book or Fitch at the telephone numbers listed below.

### Black Book Auto Remarketing Report

This report is available and exhibits monthly vehicle segment values including month over-month and year-over-year data. Both the actual data and graphs are available by accessing the following Black Book link or going to each company's respective website: [blackbook.com/insights/fitch-reports](http://blackbook.com/insights/fitch-reports)

**For further information contact:**

**Anil Goyal**, Senior Vice President  
Automotive Valuation and Analytics  
P: 1-800-955-9266  
E: Agoyal@BlackBook.com

**Jared Kalfus**, Senior Vice President  
Sales  
P: 1-800-955-9266  
E: Jkalfus@BlackBook.com

**Hylton Heard**, Senior Director  
Fitch Ratings, Inc.  
33 Whitehall Street, New York NY 10014  
P: 212-908-0214  
E: hylton.heard@fitchratings.com

**Fitch Media Relations:**

**Sandro Scenga**, New York  
P: 212-908-0278  
E: sandro.scenga@fitchratings.com

**Black Book Media Relations:**

**John Sternal**, Public Relations  
P: 954-592-1201  
E: jsternal@meritmile.com

**Applicable Fitch Criteria and Related Research:**

- ‘Rating Criteria for U.S. Auto Loan ABS’, March 2016;
- ‘Rating Criteria for U.S. Auto Lease ABS’, March 2016;
- ‘Global Structured Finance Rating Criteria’, June 2016;

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