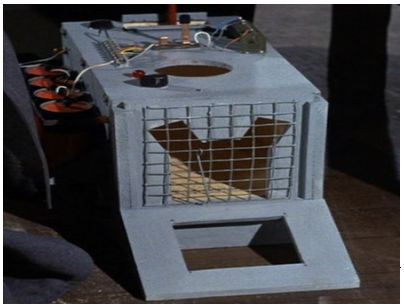


The Car SAAR Gonculator

The Demystification of Forecasting Auto Sales

Eric J. Selle, CFA[AC]
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Jenna Giannelli
(1-212) 270-9455
jenna.l.giannelli@jpmorgan.com

J.P. Morgan Securities LLC

- To enhance our ability to analyze the automotive sector, we have employed regression and other data analyses to project U.S. light vehicle car sales on a monthly and annual basis. The result of our analyses, the "Gonculator", is a hybrid multiple regression and weighted average forecast model that estimates U.S. Light Vehicle SAAR based on variables highly correlated with auto sales.
- We tested 17 independent variables in our analyses, each a measure of:
    - Employment (U6, U3, Initial Jobless Claims)
    - Income (Personal Income, Discretionary Income)
    - Buying Conditions/Consumer Confidence (Indices of consumer sentiment, expectations, and attitudes)
    - Wealth (S&P 500, Case-Shiller Index, FHFA House Price Index).
- Our analyses lead us to a regression model largely based on the state of unemployment, housing, and consumer confidence in the U.S., as measured by the U6 rate, the FHFA House Price Index, and the University of Michigan Consumer Attitude Index, respectively.
- We project a December 2010 U.S. light vehicle SAAR of 12.0mm units and FY11 U.S. light vehicle SAAR of 12.7mm units.
- Over the long term, we look to trend analysis, consumer and demographic trends as well as scrappage rates to arrive at an estimated normalized SAAR. Our analysis focuses on population and household data trends, the impact of vehicle age and quality on scrappage rates and sales, vehicle penetration rates, relative value between new and used vehicles and government intervention.
- Overlaying empirical demographic and scrappage data on statistical analysis, we conclude that replacement demand should support U.S. light vehicle sales in excess of 14mm by 2012.
- As always, we welcome any feedback on this report and we look forward to a productive 2011. Attached is the link to our 2011 outlook.

Contents

See page 24 for analyst certification and important disclosures.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

J.P.Morgan

Confirmed Auto Companies in Attendance:

Accuride Corp.
American Axle & Manufacturing Holdings, Inc.
Cooper Standard
Dana Holding Corp.
Federal-Mogul Corp.
Fitch Ratings
Ford Motor Credit Co.
Ford Motor Company
Moody's Investor Service
Penske Automotive Group, Inc.
Sonic Automotive Group, Inc.
Standard & Poor's Rating Services
Tenneco Inc.
Tower International

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Regression Analysis Process

We identified the primary economic indicators that have strong correlations with U.S. light vehicle SAAR. We then used these variables to estimate future auto sales by employing regression analysis. **Our model calls for a 12.0mm U.S. light vehicle December SAAR and 12.7mm U.S. light vehicle FY2011 SAAR.**

To begin the process, we drafted a list of potential variables and compiled historical data pertaining to each variable (1991-Nov 2010). Our list included multiple measures of employment (U6, U3, Initial Jobless Claims), income (Personal Income, Discretionary Income), buying conditions/consumer confidence (various consumer surveys measuring consumer sentiment, expectations, and attitudes), and wealth (S&P 500, Case-Shiller Index, FHFA House Price Index). A detailed list of first-round independent variables is summarized in Figure 1.

Figure 1: List of Economic Independent Variables

10-year Treasury Rate
1-Year Inflation Expectation
Advance Retail Sales (ex-Auto)
Avg Gas Price/Gallon
Case-Shiller Index
Disposable Income
FHFA House Price Index
Initial Jobless Claims
Personal Income
Real GDP
S&P 500
U3 Unemployment Rate
U6 Unemployment Rate
University of Michigan Buying Conditions for Vehicles
University of Michigan Consumer Attitude Index
University of Michigan Consumer Expectations Index
University of Michigan Consumer Sentiment Index

Source: J.P. Morgan.

Using the CORREL function in excel (calculates the correlation coefficient[1] between any two sets of data) we calculated the correlation coefficient (the degree to which two variables move in tandem with one another) and R^2 (the square of the correlation coefficient) between each of the independent variables and SAAR. We measured the relationship with monthly SAAR to both values and year-over-year percentage changes in each of the independent variables. For example, in the case of U3 unemployment, we compared monthly SAAR to both the unemployment rate itself and the % year-over-year change in the unemployment rate. Results of this exercise are summarized in Figure 2.

[1] A *correlation coefficient* is a measure that determines the degree to which two variables' movements are associated. The correlation coefficient will vary from -1 to +1. A -1 indicates perfect negative correlation and +1 indicates perfect positive correlation.
Sources:Investopedia, investorglossary.com

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 2: Summary of R^2 Results

R Sqaured - Monthly SAAR (Comp Periods)		
	SAAR vs. Value	SAAR vs. % YoY Growth
10-year Treasury Rate	0.0%	3.4%
1-Year Inflation Expectation	0.6%	1.0%
Advance Retail Sales (ex-Auto)	0.3%	30.6%
Avg Gas Price/ Gallon	1.4%	8.8%
Case-Shiller Index	3.9%	50.8%
UofMich Consumer Attitude Index	51.2%	0.0%
UofMich Consumer Expectations Index	33.5%	2.7%
UofMich Consumer Sentiment Index	43.1%	1.3%
Disposable Income	0.0%	24.3%
FHFA House Price Index	1.4%	65.6%
Initial Jobless Claims	44.0%	4.3%
Personal Income	0.0%	26.7%
Real GDP	0.0%	44.0%
S&P 500	25.3%	2.7%
U3 Unemployment	62.3%	25.8%
U6 Unemployment	66.1%	33.0%
UofMich Buying Conditions for Vehicles	25.6%	5.2%

Source: J.P. Morgan

We were encouraged by some of the results (e.g., a 66% R^2 for U6 unemployment and a 66% R^2 for the % y/y change in the FHFA House Price Index), yet no independent variable appeared overwhelmingly correlated with SAAR. We also regressed the two most highly correlated variables (the U6 unemployment and the FHFA House Price Index) against retail and fleet sales independently. **Interestingly, we found that the FHFA House Price Index was more highly correlated with fleet sales and the U6 was more highly correlated with retail sales.** Each, however, had similar correlations with total auto sales. See Figure 3 below.

Figure 3: R^2 Summaries; FHFA Index & U6 Unemployment vs. Retail and Fleet SAAR (1995-2009)

	FHFA Index	U6
Retail	38%	72%
Fleet	70%	45%
Total	**78%**	**75%**

Source: JPMorgan.

To further investigate the relationships, we lagged and led monthly SAAR values by 3 and 6 month periods to determine if variables were more highly correlated looking forward or backward. We found that certain R^2's increased considerably with the shift of the data (Figure 4, pp.5). For example, unemployment proved to be a lagging indicator as its R^2 increased as we lagged the data. Figure 7 shows how unemployment historically peaks before sales trough.

Once extracting the highest correlated periods (i.e. 6 or 3 month lag/lead) and measure (SAAR vs. the value of the data point or the % y/y change) for each variable, we narrowed our list to eliminate a) variables with low correlations to monthly SAAR and b) repeats in the measurement of certain factors (e.g. employment, income, wealth, buying conditions). Figure 5 summarizes the highest R^2 found for each independent variable, the relationship that produced it, and whether we chose to include the variable in our regression model.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 4: R^2 Summaries: 3-Month and 6-Month Lagging and Leading

R Squared - Monthly SAAR 3M Lag		
	SAAR vs. Value	SAAR vs. % YoY Growth
10-year Treasury	0.0%	2.4%
1-Year Inflation Expectation	2.3%	0.6%
Advance Retail Sales	0.0%	28.4%
Avg Gas Price/Gallon	4.3%	5.5%
Case-Shiller	1.7%	60.0%
Consumer Attitude	55.3%	1.4%
Consumer Expectations	38.0%	0.7%
Consumer Sentiment	47.9%	0.0%
Disposable Income	0.5%	17.2%
FHFA House Price Index	0.3%	71.8%
Initial Jobless Claims	41.6%	7.6%
Personal Income	0.1%	21.2%
Real GDP	0.4%	44.6%
S&P 500	20.1%	4.6%
U3 Unemployment	55.1%	29.3%
U6 Unemployment	58.6%	37.9%
UofMich Buying Conditions	28.1%	3.1%

R Squared - Monthly SAAR 6M Lag		
	SAAR vs. Value	SAAR vs. % YoY Growth
10-year Treasury	0.1%	2.6%
1-Year Inflation Expectation	7.6%	0.2%
Advance Retail Sales	0.4%	32.2%
Avg Gas Price/Gallon	9.2%	3.3%
Case-Shiller	0.4%	68.9%
Consumer Attitude	58.4%	6.5%
Consumer Expectations	42.1%	0.1%
Consumer Sentiment	52.0%	0.6%
Disposable Income	1.4%	12.3%
FHFA House Price Index	0.0%	77.0%
Initial Jobless Claims	36.7%	11.8%
Personal Income	0.8%	17.8%
Real GDP	1.4%	39.5%
S&P 500	13.9%	7.2%
U3 Unemployment	46.5%	29.9%
U6 Unemployment	48.9%	38.5%
UofMich Buying Conditions	41.6%	0.7%

R Squared - Monthly SAAR 3M Lead		
	SAAR vs. Value	SAAR vs. % YoY Growth
10-year Treasury	0.0%	2.4%
1-Year Inflation Expectation	0.6%	4.7%
Advance Retail Sales	1.7%	17.0%
Avg Gas Price/Gallon	0.2%	11.9%
Case-Shiller	6.1%	41.6%
Consumer Attitude	40.3%	1.7%
Consumer Expectations	26.2%	5.0%
Consumer Sentiment	33.8%	4.0%
Disposable Income	0.1%	27.9%
FHFA House Price Index	2.9%	54.9%
Initial Jobless Claims	40.2%	2.4%
Personal Income	0.4%	25.7%
Real GDP	0.1%	38.3%
S&P 500	27.6%	0.7%
U3 Unemployment	66.8%	21.8%
U6 Unemployment	69.6%	29.6%
UofMich Buying Conditions	13.7%	12.0%

R Squared - Monthly SAAR 6M Lead		
	SAAR vs. Value	SAAR vs. % YoY Growth
10-year Treasury	0.2%	0.7%
1-Year Inflation Expectation	0.7%	2.0%
Advance Retail Sales	4.4%	8.8%
Avg Gas Price/Gallon	0.0%	9.7%
Case-Shiller	8.4%	32.0%
Consumer Attitude	33.4%	6.3%
Consumer Expectations	20.4%	7.8%
Consumer Sentiment	27.1%	8.3%
Disposable Income	0.6%	23.9%
FHFA House Price Index	4.9%	42.5%
Initial Jobless Claims	29.7%	0.0%
Personal Income	1.3%	20.9%
Real GDP	0.7%	27.2%
S&P 500	28.4%	0.0%
U3 Unemployment	67.2%	14.0%
U6 Unemployment	68.4%	20.1%
UofMich Buying Conditions	8.9%	15.9%

Source: J.P. Morgan.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 5: Highest R^2 Scenario for each Independent Variable

Economic Variable	Highest R^2	Relationship Test	Period Comparison	Type of Indicator	Used in Regression Analysis?	Rationale
FHFA House Price Index	77.0%	SAAR vs. % YoY Change in FHFA Index	SAAR 6-Month Lag	Leading	Yes	
U6 Unemployment	69.6%	SAAR vs. U6 Unemployment Rate	SAAR 3-Month Lead	Lagging	Yes	
Consumer Attitude	58.4%	SAAR vs. Consumer Index Value	SAAR 6-Month Lag	Leading	Yes	
Real GDP	44.6%	SAAR vs. % YoY Change in Real GDP	SAAR 3-Month Lag	Leading	Yes	
Initial Jobless Claims	44.0%	SAAR vs. Number of Claims	Comparable Period	Coincident	Yes	
UofMich Buying Conditions	41.6%	SAAR vs. Consumer Index Value	SAAR 6-Month Lag	Leading	Yes	
Advance Retail Sales	32.2%	SAAR vs. % YoY Change in Advance Retail Sales	SAAR 6-Month Lag	Leading	Yes	
S&P 500	28.4%	SAAR vs. Value of S&P 500	SAAR 6-Month Lead	Lagging	Yes	
Disposable Income	27.9%	SAAR vs. % YoY Change in Disposable Income	SAAR 3-Month Lead	Lagging	Yes	
Case-Shiller	68.9%	SAAR vs. % YoY Change in Case-Shiller Index	SAAR 6-Month Lag	Leading	No	FHFA House Price Index as proxy
U3 Unemployment	67.2%	SAAR vs. U3 Unemployment Rate	SAAR 6-Month Lead	Lagging	No	U6 used as proxy
Consumer Sentiment	52.0%	SAAR vs. Consumer Index Value	SAAR 6-Month Lag	Leading	No	Consumer Attitude used as proxy
Consumer Expectations	42.1%	SAAR vs. Consumer Index Value	SAAR 6-Month Lag	Leading	No	Consumer Attitude used as proxy
Personal Income	26.7%	SAAR vs. % YoY Change in Personal Income	Comparable Period	Coincident	No	Disposable Income used as proxy
Avg Gas Price/Gallon	11.9%	SAAR vs. % YoY Change in Gas Price	SAAR 3-Month Lead	Lagging	No	R^2 not significant
1-Year Inflation Expectation	7.6%	SAAR vs. Expected Rate of Inflation	SAAR 6-Month Lag	Leading	No	R^2 not significant
10-year Treasury	3.4%	SAAR vs. % YoY Change Treasury Rate	Comparable Period	Coincident	No	R^2 not significant

Source: J.P. Morgan.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Selection Criteria

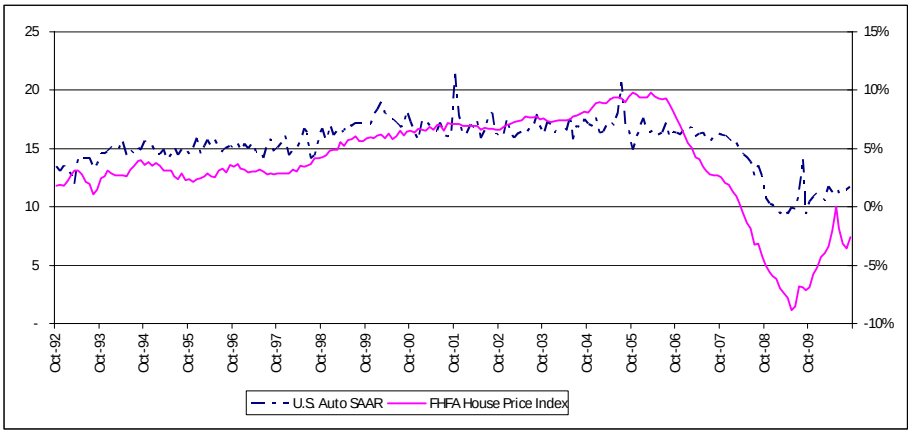
We use the FHFA House Price Index and U6 unemployment rate as measures of the housing and employment markets, respectively. These were chosen given their high correlations with monthly SAAR and our belief in their predictive capability given the nature of their calculations, how often each is tracked and the type of population each covers.

For example, we use the FHFA index vs. the Case-Shiller index as the FHFA is a monthly housing price index vs. Case Shiller's quarterly index. We felt that the FHFA monthly measure of house prices was most appropriate given:

- Our comparison to monthly auto sales
- The FHFA index is calculated based on data from all states, while the Case-Shiller index eliminates 13 states. We felt a national representation was most useful to our analysis.
- The Case-Shiller index value-weights home prices, while the FHFA index weights price trends equally. This difference in index calculations results in the Case-Shiller index placing heavier emphasis on expensive homes.

Interestingly, when we used the Case-Shiller index as an independent variable in our regression, we forecasted higher SAAR values than our current model. In relation to car sales, we have seen similar relative outperformance in the premium/luxury end of the market. Ultimately, we felt that the FHFA index provided us with a cleaner sample of the average American car buyer. Figure 6 graphs the historical relationship between monthly U.S. light vehicle SAAR and the FHFA House Price Index.

Figure 6: Monthly U.S. Light Vehicle SAAR (6-Month Lag) vs. FHFA Index (Leading Indicator)

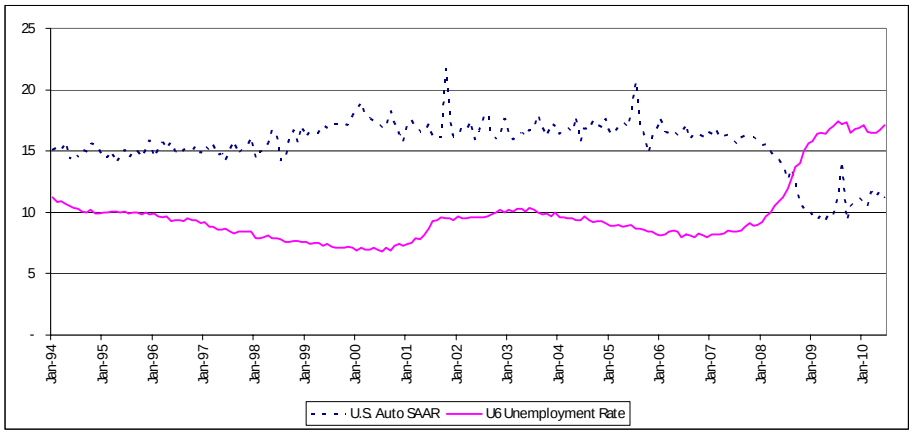


Source: J.P. Morgan.

Regarding unemployment, we feel that the U6 rate provides a more robust picture of the labor market; capturing each discouraged workers (those who have stopped looking for work because they believe none is available to them) and part-time workers who would like to work full time. We felt that underemployment, vs. pure unemployment, would most accurately reflect the impact of income and wealth on the U.S. consumers' willingness to purchase a vehicle.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 7: Monthly U.S. Light Vehicle SAAR (3 Month Lead) vs. U6 Unemployment Rate (Lagging Indicator)



Source: J.P. Morgan.

Using the chosen independent variables noted in Figure 5, we ran a multiple regression that produced the output seen in Figure 8. The regression analysis resulted in an 82.3% adjusted R^2, indicating that a fairly high portion of monthly auto sales could be explained by the model. The output of the Original Regression Model is included in Figure 8.

Figure 8: Original Regression Model (Summary Output)

Regression Statistics	
Multiple R	91.1%
R Square	83.0%
Adjusted R Square	82.3%
Standard Error	85.5%
Observations	197

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95%*	*Upper 95%*
Intercept	16.17	2.8	5.7	0.0	10.6	21.8	10.6	21.8
U6	(0.46)	0.1	-4.2	0.0	-0.7	-0.2	-0.7	-0.2
Consumer Attitude	(0.02)	0.0	-1.3	0.2	-0.1	0.0	-0.1	0.0
Initial Jobless Claims	0.00	0.0	1.8	0.1	0.0	0.0	0.0	0.0
U of Michigan	0.02	0.0	3.5	0.0	0.0	0.0	0.0	0.0
S&P 500	0.00	0.0	0.8	0.4	0.0	0.0	0.0	0.0
FHFA Housing Index	23.05	3.0	7.6	0.0	17.1	29.0	17.1	29.0
Disposable Income	5.66	5.3	1.1	0.3	-4.8	16.1	-4.8	16.1
Advance Retail Sales	(0.44)	3.1	-0.1	0.9	-6.5	5.7	-6.5	5.7

Source: J.P. Morgan.

We back tested the regression equation over the past year to identify the potential variability of future results. Figure 9 summarizes the monthly results from November 2009-November 2010. Our regression equation forecasted SAAR on average within negative 0.6% of actual SAAR, yet had higher standard error than we anticipated. Model outputs fluctuated between negative 5.4% and 6.0% of actual SAAR, an 11.4% range.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 9: Original Regression Model Inputs and Outputs - Back Tested

Inputs	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	AVERAGE	Relationship
U6 Unemployment	16.8	16.9	17.1	16.6	16.5	16.5	16.7	17.1	17.0	17.0	16.9	16.7	16.5		3-Month Lag
Consumer Attitude	67.7	73.2	70.5	66.6	73.4	73.7	68.8	78.0	81.1	81.8	82.4	81.0	81.0		6-Month Lead
Initial Jobless Claims	475	454	490	466	442	446	459	475	482	478	456	459	407		Coincident
UofMich Buying Conditions	139	131.0	139.0	126.0	124.0	126	127	126	126	131	142	139	139		6-Month Lead
S&P 500	1,090	1,090	1,100	1,100	1,140	1,160	1,180	1,200	1,180	1,150	1,230	1,240	1,250		6-Month Lag
FHFA House Price Index	-5.9%	-5.3%	-4.4%	-4.1%	-3.4%	-2.0%	0.1%	-1.9%	-3.2%	-3.7%	-2.7%	-1.3%	-1.3%		6-Month Lead
Disposable Income	3.2%	3.50%	2.90%	1.30%	2.40%	2.90%	3.20%	3.00%	2.00%	2.00%	1.50%	3.0%	5.0%		3-Month Lag
Advance Retail Sales	-10.2%	-9.1%	-8.7%	-5.9%	-6.7%	-2.0%	2.4%	5.5%	4.0%	4.7%	8.5%	8.7%	6.9%		6-Month Lead
Regression Output	**11.1**	**10.8**	**11.3**	**11.1**	**11.2**	**11.6**	**12.1**	**11.3**	**10.9**	**10.9**	**11.3**	**11.8**	**11.8**	**11.3**	
Actual	**10.9**	**11.1**	**10.8**	**10.5**	**11.7**	**11.3**	**11.7**	**11.2**	**11.6**	**11.5**	**11.7**	**12.3**	**12.3**	**11.4**	
Variance	2.2%	-2.7%	4.6%	6.0%	-4.8%	2.6%	3.9%	1.0%	-5.4%	-4.8%	-3.4%	-3.8%	-3.6%	-0.6%	
Range = 6.0% - (-5.4%) = 11.4%															

Source: J.P. Morgan.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Modified Regression Model

We found relationships in our Original Regression Model that were counterintuitive. For example, when we decreased the consumer attitude index or increased the number of jobless claims, our SAAR forecast increased. Also, we found that the coefficients produced in the multiple regression for the S&P 500 and Advance Retail sales were nearly 0, resulting in nearly no change of the SAAR forecast for even large movements in the independent variable. We found that all of these issues (high standard error, unusual relationships and insignificant coefficients) were all symptoms of a regression problem known as multicollinearity.[2] After performing a tolerance test[3], we found that three of our most highly correlated independent variables had extreme evidence of multicollinearity, and two other independent variables were close to demonstrating the trait. Consequently, we dropped independent variables until there was no demonstration of either multicollinearity or inexplicable relationships. The output of this modified regression and updated SAAR forecast are included in Figures 10 and 11. We note that the $R^2$of the resulting regression was nearly unchanged vs. the original model**. Our modified regression included two independent variables: the U6 unemployment rate and the FHFA House Price Index.** Versus the Original Regression Model, the Modified Regression Model produced results that had a lower average variance (+0.2% vs. negative 0.6%) and a narrower range of variance (9.6% vs. 11.4%).

[2] *Multicollinearity* is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated. In this situation the coefficient estimates may change erratically in response to small changes in the model or the data. Multicollinearity does not reduce the predictive power or reliability of the model as a whole; it only affects calculations regarding individual predictors. That is, a multiple regression model with correlated predictors can indicate how well the entire bundle of predictors predicts the outcome variable, but it may not give valid results about any individual predictor, or about which predictors are redundant with others. A principal issue of such data redundancy is that of overfitting in regression analysis models. The best regression models are those in which the predictor variables each correlate highly with the dependent (outcome) variable but correlate at most only minimally with each other. Such a model is often called "low noise" and will be statistically robust (that is, it will predict reliably across numerous samples of variable sets drawn from the same statistical population). Multicollinearity does not actually bias results; it just produces large standard errors in the related independent variables.
Sources: Wikipedia, Webster's Online Dictionary

[3] A *tolerance test* is one in which an independent variable is regressed against all other independent variables to determine the degree of correlation among independent variables. The *tolerance* is defined as 1 - R^2 of this regression. A tolerance of less than 10%-20% indicates the presence of multicollinearity in the original regression caused by the tested variable.
Sources: Wikipedia, Investopedia

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

J.P.Morgan

Figure 10: Modified Regression Model (Summary Output)

Regression Statistics	
Multiple R	90.7%
R Square	82.3%
Adjusted R Square	82.2%
Standard Error	88.0%
Observations	200

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95%*	*Upper 95%*
Intercept	17.29	0.48	36.38	0.00	16.35	18.23	16.35	18.23
U6 Unemployment	-0.30	0.04	-7.48	0.00	-0.38	-0.22	-0.38	-0.22
FHFA Housing Index	28.73	2.41	11.91	0.00	23.97	33.49	23.97	33.49

Figure 11: Modified Regression Model Inputs and Outputs - Back Tested

	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	AVERAGE	Dec-10	FY11
U6 Unemployment	16.8	16.9	17.1	16.6	16.5	16.5	16.7	17.1	17.0	17.0	16.9	16.7	16.5		16.2	16.0
FHFA House Price Index	-5.9%	-5.3%	-4.4%	-4.1%	-3.4%	-2.0%	0.1%	-1.9%	-3.2%	-3.7%	-2.7%	-1.3%	-1.3%		-2.5%	0.5%
Regression Output	**10.6**	**10.7**	**10.9**	**11.2**	**11.4**	**11.8**	**12.3**	**11.6**	**11.3**	**11.2**	**11.5**	**11.9**	**12.0**	**11.4**	**11.8**	**12.7**
Actual	**10.9**	**11.1**	**10.8**	**10.5**	**11.7**	**11.3**	**11.7**	**11.2**	**11.6**	**11.5**	**11.7**	**12.3**	**12.3**	**11.4**	**TBD**	**TBD**
Variance	-2.4%	-3.4%	1.5%	6.2%	-2.7%	4.8%	5.8%	4.3%	-2.2%	-2.5%	-2.1%	-2.6%	-2.1%	**0.2%**		
Range = 6.2% - (-3.4%) = 9.6%																

Source: BLS, J.P. Morgan estimates.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

J.P.Morgan

Weighted Average Model

Despite improved results, we were skeptical of a model dependent on only two inputs. We wanted to somehow incorporate the variables that we dropped from the original regression but knew had meaningful correlation with auto sales. To do this, we regressed SAAR against each variable separately (using the FORECAST function in excel) and applied a weight (albeit discretionary on our part) to each result. We thereby incorporated each data point while mitigating the "noise" of cross-currents among variables. We applied the heaviest weights to the FHFA House Price Index and the U6 unemployment rate given they have the highest correlations with auto sales. We chose to allocate 20% to the Consumer Attitude variable given the consistency of correlation metrics across sentiment indices we saw in the first round of testing. A 10% weight was allocated toward all of the remaining variables, as their small influence gave us confidence that we were capturing a full vs. isolated economic climate. Figure 12 summarizes the inputs and results of our weighted average model for FY11 and December 2010 SAAR.

Figure 12: Weighted Average Model

FY11 SAAR Forecast

Economic Indicator	R^2	Independent Variable Inputs	SAAR Forecast by Variable	Weight	Weighted Average
FHFA House Price Index	77.0%	0.5%	13.9	35.0%	4.9
U6 Unemployment	69.6%	16.0%	11.4	35.0%	4.0
Consumer Attitude	58.4%	82.1	12.9	20.0%	2.6
Real GDP	44.6%	3.1%	14.2	1.7%	0.2
Initial Jobless Claims	44.0%	380	14.9	1.7%	0.2
UofMich Buying Conditions	41.6%	142	15.7	1.7%	0.3
Advance Retail Sales	32.2%	5.0%	15.6	1.7%	0.3
S&P 500	28.4%	1360	16.5	1.7%	0.3
Disposable Income	27.9%	3.0%	14.0	1.7%	0.2
FY11 SAAR Forecast				**100%**	**12.9**

December-10

Economic Indicator	R^2	Independent Variable Inputs	SAAR Forecast by Variable	Weight	Weighted Average
FHFA House Price Index	77.0%	-2.5%	12.6	35.0%	4.4
U6 Unemployment	69.6%	16.2%	11.2	35.0%	3.9
Consumer Attitude	58.4%	86.0	13.4	20.0%	2.7
Real GDP	44.6%	2.5%	13.8	1.7%	0.2
Initial Jobless Claims	44.0%	421	14.1	1.7%	0.2
UofMich Buying Conditions	41.6%	139	15.4	1.7%	0.3
Advance Retail Sales	32.2%	4.6%	15.5	1.7%	0.3
S&P 500	28.4%	1310	16.3	1.7%	0.3
Disposable Income	27.9%	3.0%	14.0	1.7%	0.2
December 2010 SAAR Forecast				**100.0%**	**12.5**

Source: J.P. Morgan.

The Gonculator (Hybrid of Modified Regression and Weighted Average Models)

Applying a 75% weight to the Modified Regression Model and a 25% weight to our Weighted Average Model, we arrived at SAAR estimates that varied by an average

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

of 1.6% from actual SAAR over the past year (see figure 14). We placed heavier emphasis on the regression model given our systematic approach in its development and its statistical support. Despite the higher average variance than our original model, we reduced the range of the variance to 8.8% from 11.4% and increased the number of instances of estimates within (+/-) 2% of actual SAAR to 7 out of 12 from 1 out of 12 (see Figures 14 and 15). Satisfied with the results of the model, we further tested it back to January 1991 to find that the average variance from actual results (ex-cash for clunkers in August 2009 and 9/11 aftermath in October 2001) was 0.2%. The percent of estimates within 5% of actual SAAR was 74% (or 145 out of 197 observations) and the percent of estimates within 10% of actual SAAR was 95% (or 187 out of 197 observations).

Our model calls for a December 2010 SAAR of 12.0mm and a FY11 SAAR of 12.7mm. We found that for every 1% increase in the U6 unemployment rate or FHFA House price index, our model would forecast a sales decrease of 284k units and an increase of 256k units, respectively (Figure 13 details the model sensitivity to these key variables).

Figure 13: Model Sensitivity to Key Inputs

	U6 Rate	FHFA Index
Modified Regression Model +/-1%	(-/+) 300k units	(+/-) 290k units
Total Variable Weighted Model +/- 1%	(-/+) 235k units	(+/-) 155k units
Combined Model (75%/ 25%) +/- 1%	**(-/+) 284k units**	**(+/-) 256k units**

Source: J.P. Morgan.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 14: Summary of Model Outputs vs. Actual Results

	Max % Above Actual SAAR	Max % Below Actual SAAR	Range of % Variance	Average Variance	# of Observations	Instances of Variance Within+/-2%
Original Regression Model	6.0%	-5.4%	11.4%	-0.6%	12	1
Modified Regression Model	6.2%	-3.4%	9.6%	0.2%	12	1
Weighted Average Model	9.3%	1.3%	8.0%	4.7%	12	2
Hybrid Regression/Weighted Model	**7.0%**	**-1.8%**	**8.8%**	**1.6%**	**12**	**7**

Source: J.P. Morgan.

Figure 15: Hybrid Regression/Weighted Model – Back Tested

	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	FY11
Modified Regression Model	10.6	10.7	10.9	11.2	11.4	11.8	12.3	11.6	11.3	11.2	11.5	11.9	12.0	11.8	12.7
Weighted Average Model	11.3	11.5	11.5	11.5	11.9	12.1	12.3	12.2	12.0	12.0	12.2	12.4	12.5	12.5	12.9
Hybrid Regression/Weighted Model	**10.8**	**10.9**	**11.1**	**11.3**	**11.5**	**11.9**	**12.3**	**11.8**	**11.5**	**11.4**	**11.7**	**12.1**	**12.1**	**12.0**	**12.7**
Actual	**10.9**	**11.1**	**10.8**	**10.5**	**11.7**	**11.3**	**11.7**	**11.2**	**11.6**	**11.5**	**11.7**	**12.3**	**12.3**		
JPMe vs. Actual (Variance)		-1.8%	2.9%	7.0%	-1.6%	5.5%	5.8%	5.5%	-0.7%	-0.7%	-0.5%	-1.6%	-1.1%		
Range = 7.0% - (-1.8%) = 8.8%															
Consensus Estimate		**11.1**	**10.9**	**10.4**	**12.1**	**11.4**	**11.4**	**11.4**	**11.6**	**11.6**	**11.5**	**11.9**	**12.1**		
Consensus vs. Actual		-0.3%	0.8%	-1.0%	2.9%	1.5%	-2.4%	1.8%	0.4%	1.0%	-1.7%	-3.3%	-1.3%		

Source: J.P. Morgan.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Scrappage Analysis

Over the long term, we look to consumer demographic trends and scrappage rates to support our attempt to estimate normalized SAAR. Our analysis focuses on the impact of vehicle age and quality on scrappage rates and sales, vehicle penetration rates, relative value between new and used vehicles and government intervention. Overlaying empirical demographic and scrappage data on statistical analysis, we conclude that replacement demand should support U.S. light vehicle sales in excess of 14mm by 2012.

Scrapped vehicles are those that were registered in the prior year and are now unregistered. Scrappage rates are most notably impacted by:

- Vehicle age and quality (measured by years on the road, miles driven, and product quality)
- Vehicle penetration (number of vehicles per household)
- Relative value between new and used vehicles
- Government Intervention

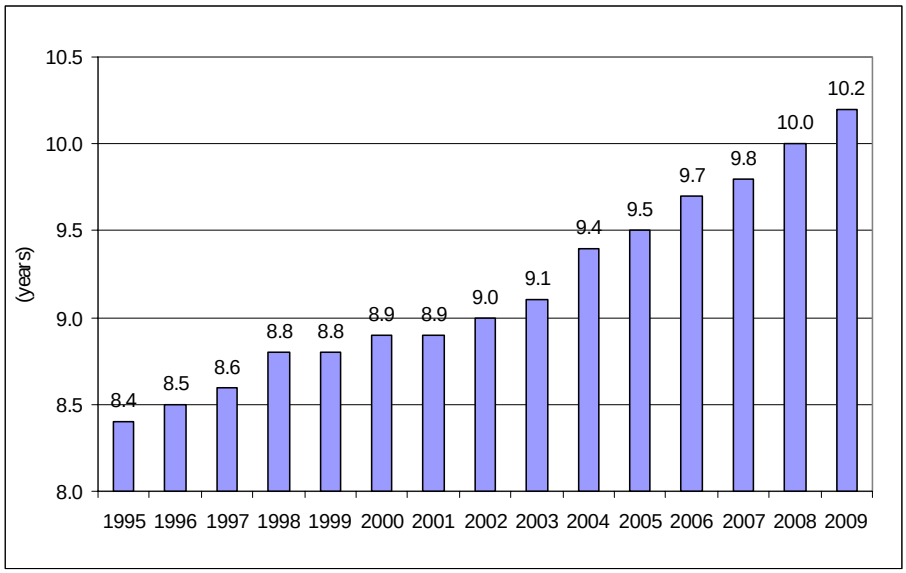
Generally, as the fleet of US light vehicles ages, the number of scrapped vehicles should increase over time. However, changes in vehicle penetration rates per household, miles driven per vehicle and improving vehicle quality can delay the rise in scrapped vehicles. Due to these factors and the used vehicle option, scrappage is a decent yet imperfect proxy for new vehicle demand.

Vehicle Age and Quality
One of the most significant influences on vehicle scrappage rates is the age of the vehicle. According to R.L. Polk & Co., from 1995-2009, the average age of the U.S. light vehicle fleet has risen over 20% to 10.2 years (see Figure 16). R.L. Polk & Co. also found the average age has risen by over one year during 2003-2009.

As US light vehicle SAAR fell from its peak of 17.4mm in 1999 to a trough of 10.4mm in 2009, replacement volume declined and the average fleet's age rose. The average age doesn't tell the whole story as the distribution of mid aged vehicles should support scrappage driven new vehicle sales for the next several years. For example, the sales surge from 1999-2007 (155mm new vehicle sales) has resulted in a bulk of 3-11 year old vehicles. This "rat in the snake" should cause a treble effect of growth in replacement demand that began in 2009 and should continue through 2017.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 16: Average Age of U.S. Light Vehicle Fleet

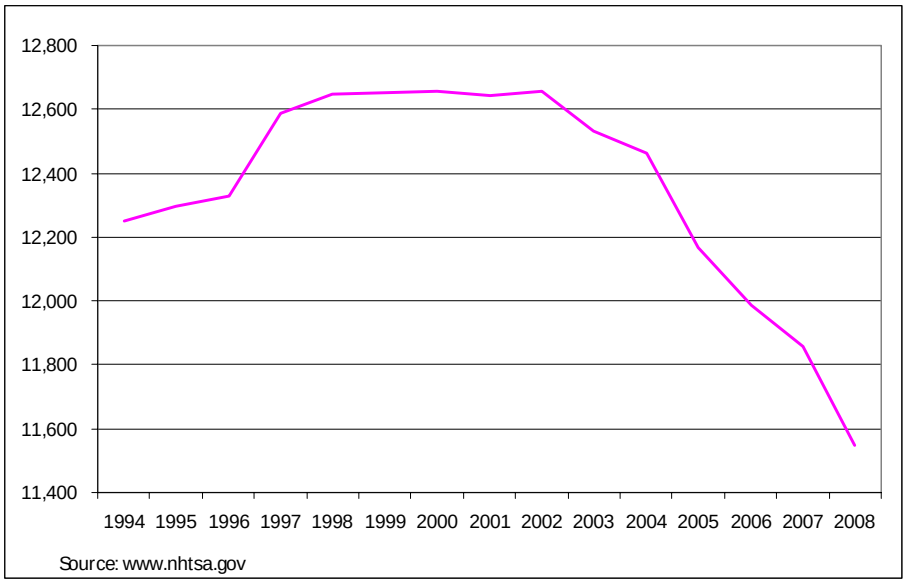


Source: R.L. Polk & Co. and Ward's Automotive

However, we note that while the recent rise in the average age of the U.S. light vehicle has been partially due to a decline in sales in recent years (which would call for a near-term increase in replacement demand) we believe it has also been heavily influenced by both a) improved product quality and b) less wear and tear to the existing U.S. fleet. Despite population growth, total miles drove troughed in 2008 after the start of their steady decline in 2001 (see Figure 17). While partially attributable to the hike in gasoline prices during 2008, this phenomenon is also due to the juxtaposition of both a rising number of vehicles per household and a declining number people per household (thereby decreasing the mileage needs per vehicle). When cars are driven less, their useable life extends due to less wear and tear. We expect total miles driven per vehicle to continue to contract due to the continued "oversupply" of vehicles per household, consumer caution, and the shift toward 'greener' and more economical means of transportation. This trend could further extend the life of vehicles and delay the anticipated uptick in replacement demand.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

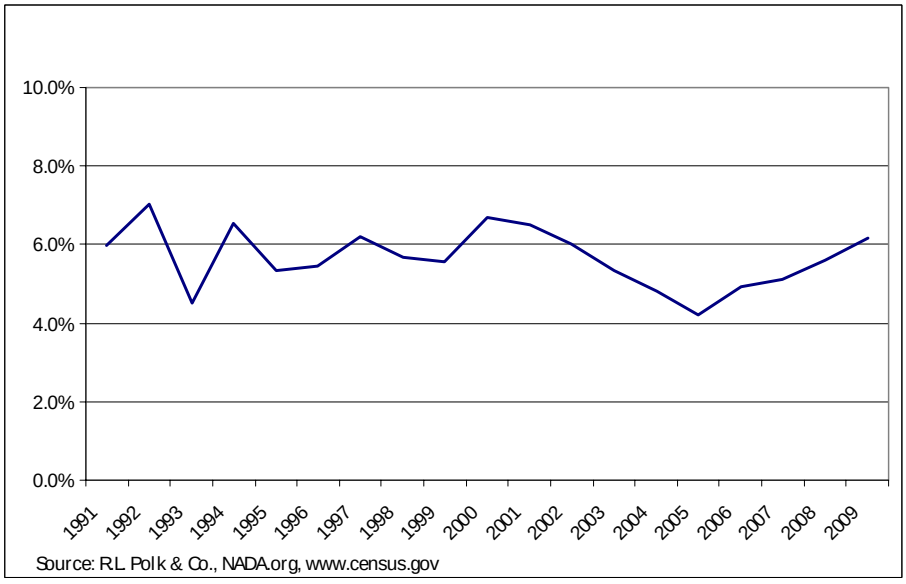
Figure 17: Miles Driven per Year per Registered Vehicle



Source: www.nhtsa.gov.

Further, the ratio of scrapped vehicles to the number of vehicles in use has remained within a fairly tight band over the past two decades. From 1991-2009, the ratio of scrapped vehicles to total vehicles in use has averaged 5.7% with a range of 4.2% to 7.0%. Over the past 30 years, the ratio has averaged 6.3%. Given that the current ratio stands at 6.2% (in-line with 30-year average and above the more recent average) it is arguable that the currently low sales environment could sustain itself longer than expected.

Figure 18: Ratio of Scrapped Vehicles to Total Vehicles in Use

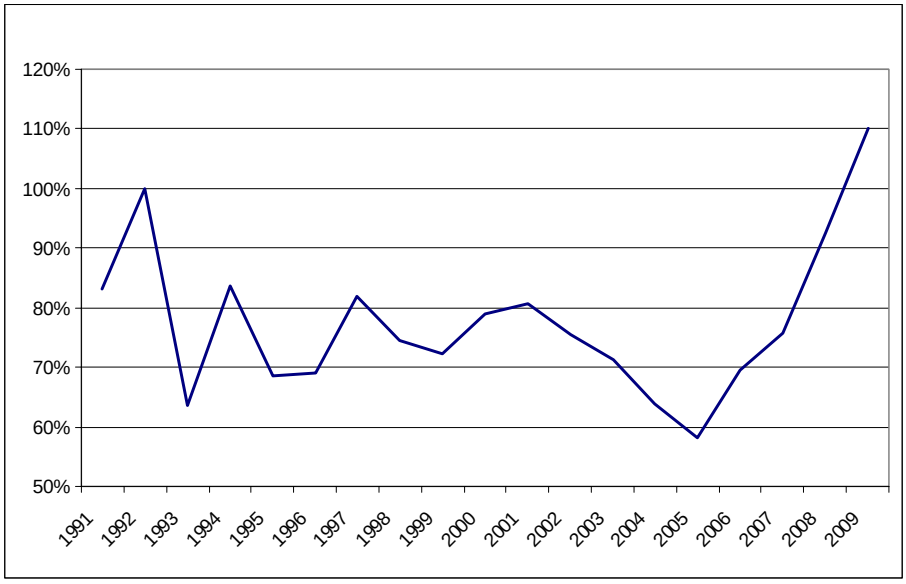


Source: R.L. Polk & Co., NADA.org, www.census.gov

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

On a similar note, from 2001-2009, the number of scrapped vehicles to new vehicle registrations has averaged 78% with a range of 58% to 110% (Figure 19). The Cash for Clunkers program spawned a boost in scrappage rates in 2009. The pull forward of scrapped vehicles combined with and depressed new vehicle sales caused scrappage volumes to actually exceed new vehicle sales. As a result the total number of vehicles in use declined despite population growth.

Figure 19: Ratio of Scrapped Vehicles to New Vehicle Registrations



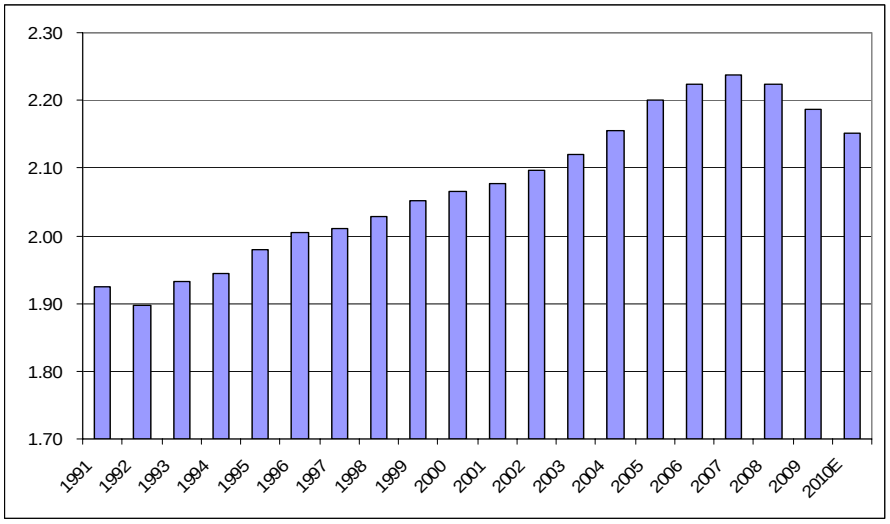
Source: R.L. Polk & Co., NADA.org, www.census.gov.

Vehicle Penetration

There are some factors that can delay the relationship between scrappage rates, vehicles in use and car sales. As briefly discussed above, any change in the penetration rate of vehicles per household can alter the relationship between scrappage rates and new car sales. From 1992 to 2007, the number of vehicles per household rose by 18% to average 2.24 vehicles per household while the average population per household declined. Figures 20 and 21 depict this phenomenon.

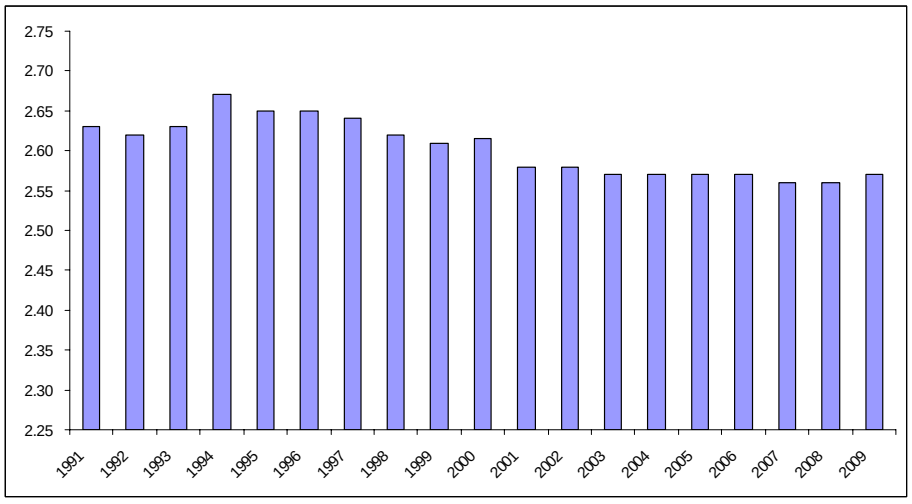
Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 20: Average Number of Vehicles per Household



Source: R.L. Polk & Co., NADA.org, www.census.gov

Figure 21: Average Population per Household



Source: U.S. Census Bureau

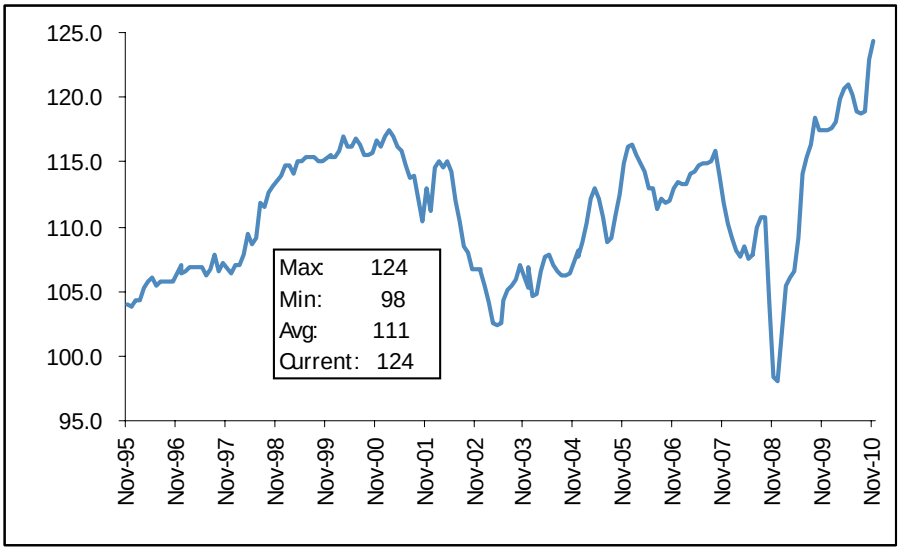
We expect the number of vehicles per household to continue to decline due to changes in household demographics. For example, the growth engine of new vehicle sales has transitioned from "Baby Boomers with Teenagers" to the "Generation Y", a group that is currently experiencing unemployment rates around 30%. However, over the next 5 years, we expect this influence will neutralize as the Generation Y becomes reemployed, enters their family forming years, and secular trend of desire vs. necessity influencing purchase decisions reemerge as the economy improves.

Relative Value between New and Used Vehicles

The current relationship between new and used vehicle prices suggests that the consumer is soon to be faced with the question (or already has been): Is the used car worth it? We find that the data increasingly supports the rationale for purchasing a new car, as used car prices have reached their all-time peak in 2010. The Manheim Index, a measure of wholesale used vehicle prices, rose to an all-time high of 124 in

November 2010. Figure 22 graphs the Manheim Index over the past fifteen years and summarizes its highs and lows.

Figure 22: Manheim Used Vehicle Value Index



Source: Manheim Consulting.

The index stabilized, however, in 2Q10, indicating that the new to used vehicle value proposition is nearing a plateau and that consumers should be near ready to abandon old and migrate toward new vehicles (thereby sending used prices down and scrappage rates/and new vehicle replacement demand up).

Government Intervention

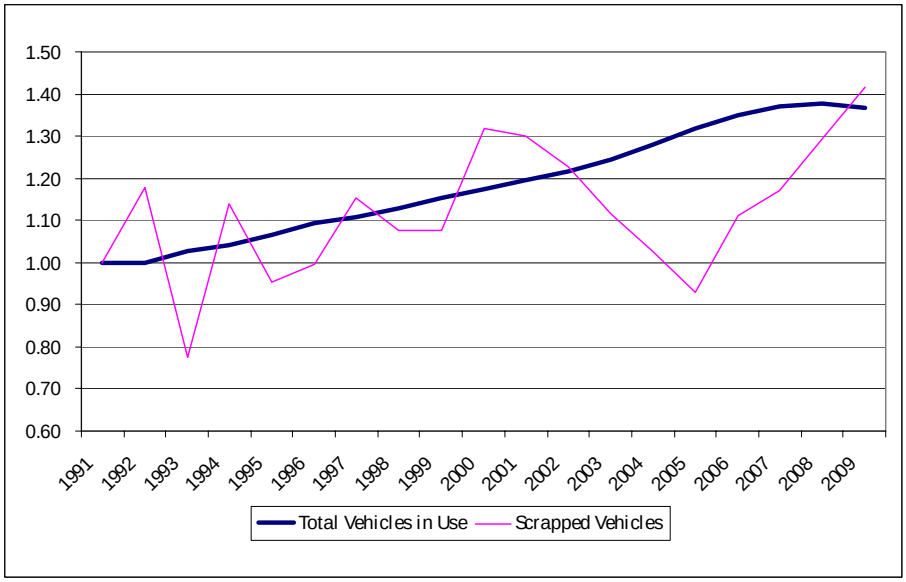
The final major impact on scrappage rates are artificial influences such as the US government's Car Allowance Rebate System (CARS), also known as the cash for clunker stimulus program. In mid 2009, the US government purchased used vehicles in exchange for up to $4,500 in vouchers that could be applied to the purchase of a new vehicle. The purpose of CARS was to encourage the purchase of fuel efficient vehicles and to boost a weak economy. In total, the program spent $2.9bn purchasing/ scrapping 677,842 vehicles. The program temporarily boosted new vehicle sales (August 2009 SAAR soared to 14.2mm, 48% above the 9.6mm average over the prior 6 months period), supported record high used vehicle values and pulled forward some scrappage activity. In our opinion, the CARS program may have reduced scrappage rates for the next 2 years. However, the 0.7mm vehicles scrapped under the CARS program shouldn't have long-term impact on the roughly 13-15mm vehicles scrapped annually.

Outlook

Over longer periods of time, the number of vehicles in use and the scrappage rate are correlated. The following chart shows that despite short term deviations, the long term relationship holds. From 1991-08, the number of vehicles in use grew by 37% and the number of scrapped vehicles grew by 42%. Over shorter periods of time, however, the relationship can deviate. For example, as sales surged from 1999-2007, scrappage rates lagged as the overall fleet age was refreshed. Now that the fleet has aged, scrappage rates have increased. For example, the 1991-2009 CAGR of the

number of scrapped vehicles was 2%. However, as scrappage rates have risen in response to an aged fleet and the CARS program, the 2005-2009 CAGR of the number of scrapped vehicles soared to 11% (see Figure 23).

Figure 23: Total Vehicles in Use vs. Scrapped Vehicles (1991=1.00)



Source: .L. Polk & Co., NADA.org, www.census.gov.

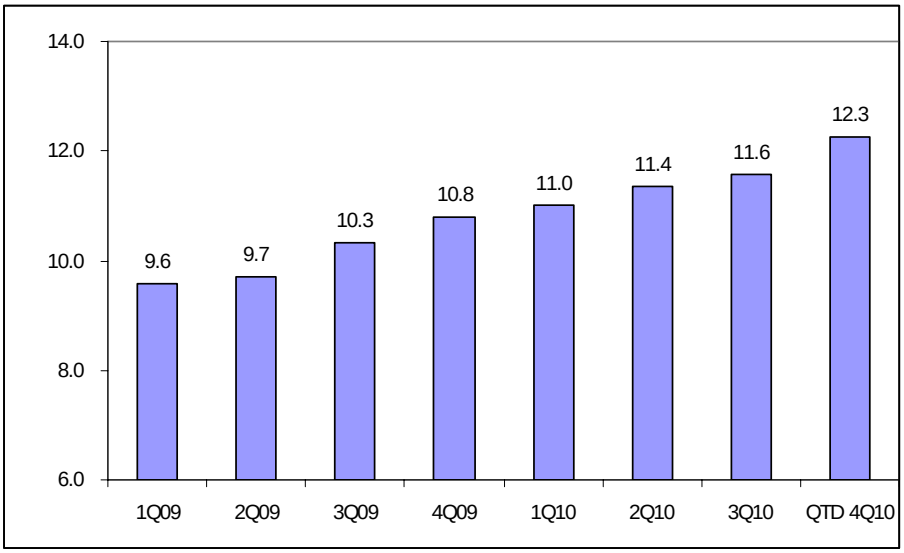
Therefore, over time, we expect the scrappage rate to catch up to the growth in the vehicle fleet. In conclusion, we believe the scrappage rate will grow due to replacement demand. The growing number of vehicles in their peak scrappage timeframe indicates that a catch up period is coming. Multiplying 40-year average of scrapped vehicles per total registered vehicles of 6.3% times the 248mm registered vehicles yields a 15.7mm scrappage run rate. All of the scrappage data leads us to believe that US light vehicle sales will have natural replacement support above the 14mm level by 2012.

Other Forecasting Factors

Along with our hybrid model (The Gonculator), demographic trends and scrappage data, we supplement our view with factors such as the availability of consumer financing, weather patterns, bottoms up information received from dealers and trend analysis.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 24: U.S. Quarterly SAAR; 1Q09 – QTD Nov. 2010



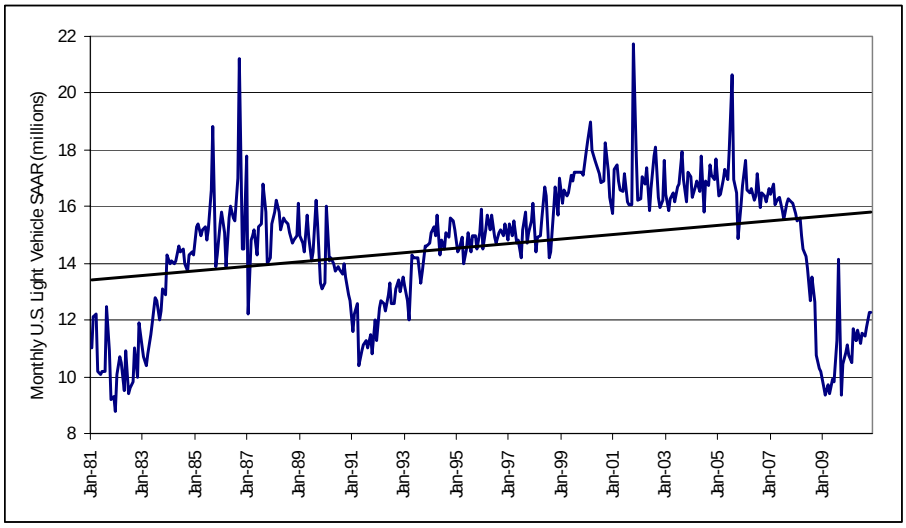
Source: JPMorgan, Bloomberg (Note: 3Q09 excludes the impact of Cash-for-Clunkers in August 2009)

U.S. quarterly SAAR has steadily increased since 1Q09 (excluding the impact of the cash for clunkers program in 3Q09). Over this time period, sales have increased by 333k units/quarter on average, or 3.2% sequentially over the last seven quarters (see Figure 24). Although this recent trend does not necessarily forecast future patterns, we believe it can be used as a tool to test the logic of the output of our regression model.

For example, we could experience a month where our inputs buck a recent trend; e.g. a spike in the U6 rate or a dip in the FHFA House Price Index. If this were to happen, it would lower our monthly SAAR estimate to a level uncharacteristic with the recent upward movement in sales. We recognize that this movement could either be a) indicative of another dip in the economy or b) a one-time event otherwise known as "economic noise." In a case such as this, we may place heavier emphasis on our bottoms-up analysis and knowledge of recent trends when determining our final estimate. Conversely, if the recent trend was a downward decline, we would be skeptical of and further test any sudden upward jumps in our regression model. In turn, our December 2010 estimate is over 2% below consensus estimates due to expected softer fleet sales and the impact of late December snowstorms on dealer traffic.

Eric J. Selle, CFA
(1-212) 270-9624
eric.j.selle@jpmorgan.com

Figure 25: 3-Monthly U.S. Light Vehicle SAAR and Trendline; 1981 -Nov 2010

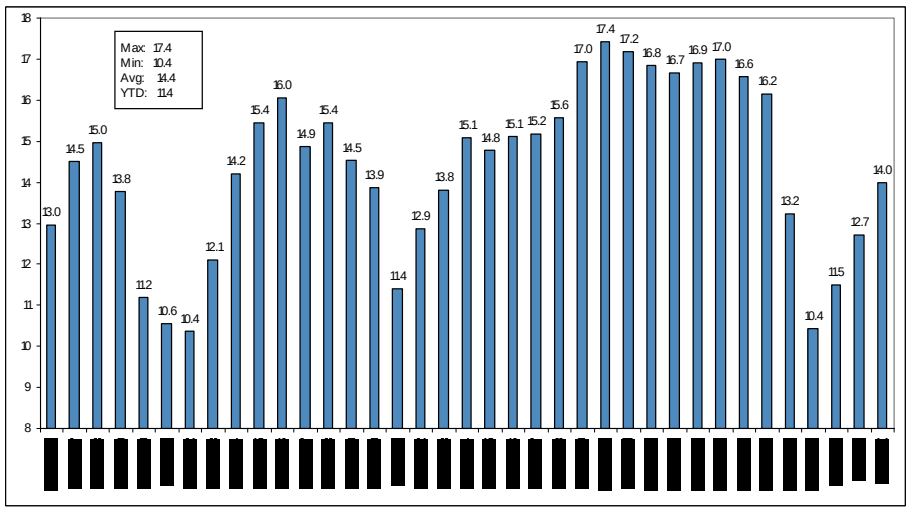


Source: Bloomberg.

Overall, our analyses have lead us to a regression model largely based on the state of unemployment, housing, and consumer confidence in the U.S., as measured by the U6 rate, the FHFA House Price Index, and the University of Michigan Consumer Attitude Index, respectively. We project a January 2011 U.S. light vehicle SAAR of 12.0mm units and a FY11 U.S. light vehicle SAAR of 12.7mm units.

Over the long term, we look to trend analysis, consumer demographic trends and scrappage rates to arrive at an estimated long-term normalized SAAR. Our analysis focuses on data trends, the impact of vehicle age and quality on scrappage rates and sales, vehicle penetration rates, relative value between new and used vehicles and government intervention. Overlaying empirical demographic and scrappage data on statistical analysis, we conclude that replacement demand should support U.S. light vehicle sales in excess of 14mm by 2012.

Figure 26: U.S. Light Vehicle SAAR History; 1976-FY12E



Source: Bloomberg, J.P. Morgan estimates

Analyst Certification:
The research analyst(s) denoted by an "AC" on the cover of this report certifies (or, where multiple research analysts are primarily responsible for this report, the research analyst denoted by an "AC" on the cover or within the document individually certifies, with respect to each security or issuer that the research analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect his or her personal views about any and all of the subject securities or issuers; and (2) no part of any of the research analyst's compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the research analyst(s) in this report.

Conflict of Interest:

This research contains the views, opinions and recommendations of J.P. Morgan credit research analysts. Research analysts routinely consult with J.P. Morgan trading desk personnel in formulating views, opinions and recommendations in preparing research. Trading desks may trade, or have traded, as principal on the basis of the research analyst(s) views and report(s). Therefore, this research may not be independent from the proprietary interests of J.P. Morgan trading desks which may conflict with your interests. In addition, research analysts receive compensation based, in part, on the quality and accuracy of their analysis, client feedback, trading desk and firm revenues and competitive factors. As a general matter, J.P. Morgan and/or its affiliates normally make a market and trade as principal in fixed income securities discussed in research reports.

Important Disclosures

Explanation of Credit Research Ratings:
Ratings System: J.P. Morgan uses the following sector/issuer portfolio weightings: Overweight (over the next three months, the recommended risk position is expected to outperform the relevant index, sector, or benchmark), Neutral (over the next three months, the recommended risk position is expected to perform in line with the relevant index, sector, or benchmark), and Underweight (over the next three months, the recommended risk position is expected to underperform the relevant index, sector, or benchmark). J.P. Morgan's Emerging Market research uses a rating of Marketweight, which is equivalent to a Neutral rating.

Valuation & Methodology: In J.P. Morgan's credit research, we assign a rating to each issuer (Overweight, Underweight or Neutral) based on our credit view of the issuer and the relative value of its securities, taking into account the ratings assigned to the issuer by credit rating agencies and the market prices for the issuer's securities. Our credit view of an issuer is based upon our opinion as to whether the issuer will be able service its debt obligations when they become due and payable. We assess this by analyzing, among other things, the issuer's credit position using standard credit ratios such as cash flow to debt and fixed charge coverage (including and excluding capital investment). We also analyze the issuer's ability to generate cash flow by reviewing standard operational measures for comparable companies in the sector, such as revenue and earnings growth rates, margins, and the composition of the issuer's balance sheet relative to the operational leverage in its business.

Other Disclosures

J.P. Morgan ("JPM") is the global brand name for J.P. Morgan Securities LLC ("JPMS") and its affiliates worldwide. J.P. Morgan Cazenove is a marketing name for the U.K. investment banking businesses and EMEA cash equities and equity research businesses of JPMorgan Chase & Co. and its subsidiaries.

Options related research: If the information contained herein regards options related research, such information is available only to persons who have received the proper option risk disclosure documents. For a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options, please contact your J.P. Morgan Representative or visit the OCC's website at http://www.optionsclearing.com/publications/risks/riskstoc.pdf.

Legal Entities Disclosures
U.S.: JPMS is a member of NYSE, FINRA and SIPC. J.P. Morgan Futures Inc. is a member of the NFA. JPMorgan Chase Bank, N.A. is a member of FDIC and is authorized and regulated in the UK by the Financial Services Authority. **U.K.:** J.P. Morgan Securities Ltd. (JPMSL) is a member of the London Stock Exchange and is authorised and regulated by the Financial Services Authority. Registered in England & Wales No. 2711006. Registered Office 125 London Wall, London EC2Y 5AJ. **South Africa:** J.P. Morgan Equities Limited is a member of the Johannesburg Securities Exchange and is regulated by the FSB. **Hong Kong:** J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong. **Korea:** J.P. Morgan Securities (Far East) Ltd, Seoul Branch, is regulated by the Korea Financial Supervisory Service. **Australia:** J.P. Morgan Australia Limited (ABN 52 002 888 011/AFS Licence No: 238188) is regulated by ASIC and J.P. Morgan Securities Australia Limited (ABN 61 003 245 234/AFS Licence No: 238066) is a Market Participant with the ASX and regulated by ASIC. **Taiwan:** J.P.Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. **India:** J.P. Morgan India Private Limited, having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz East, Mumbai - 400098, is a member of the National Stock Exchange of India Limited (SEBI Registration Number - INB 230675231/INF 230675231/INE 230675231) and Bombay Stock Exchange Limited (SEBI Registration Number - INB010675237/INB010675237) and is regulated by Securities and Exchange Board of India. **Thailand:** JPMorgan Securities (Thailand) Limited is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and

Exchange Commission. **Indonesia:** PT J.P. Morgan Securities Indonesia is a member of the Indonesia Stock Exchange and is regulated by the BAPEPAM LK. **Philippines:** J.P. Morgan Securities Philippines Inc. is a member of the Philippine Stock Exchange and is regulated by the Securities and Exchange Commission. **Brazil:** Banco J.P. Morgan S.A. is regulated by the Comissao de Valores Mobiliarios (CVM) and by the Central Bank of Brazil. **Mexico:** J.P. Morgan Casa de Bolsa, S.A. de C.V., J.P. Morgan Grupo Financiero is a member of the Mexican Stock Exchange and authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. **Singapore:** This material is issued and distributed in Singapore by J.P. Morgan Securities Singapore Private Limited (JPMSS) [MICA (P) 020/01/2010 and Co. Reg. No.: 199405335R] which is a member of the Singapore Exchange Securities Trading Limited and is regulated by the Monetary Authority of Singapore (MAS) and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore) which is regulated by the MAS. **Malaysia:** This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X) which is a Participating Organization of Bursa Malaysia Berhad and a holder of Capital Markets Services License issued by the Securities Commission in Malaysia. **Pakistan:** J. P. Morgan Pakistan Broking (Pvt.) Ltd is a member of the Karachi Stock Exchange and regulated by the Securities and Exchange Commission of Pakistan. **Saudi Arabia:** J.P. Morgan Saudi Arabia Ltd. is authorised by the Capital Market Authority of the Kingdom of Saudi Arabia (CMA) to carry out dealing as an agent, arranging, advising and custody, with respect to securities business under licence number 35-07079 and its registered address is at 8th Floor, Al-Faisaliyah Tower, King Fahad Road, P.O. Box 51907, Riyadh 11553, Kingdom of Saudi Arabia. **Dubai:** JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - Building 3, Level 7, PO Box 506551, Dubai, UAE.

Country and Region Specific Disclosures

U.K. and European Economic Area (EEA): Unless specified to the contrary, issued and approved for distribution in the U.K. and the EEA by JPMSL. Investment research issued by JPMSL has been prepared in accordance with JPMSL's policies for managing conflicts of interest arising as a result of publication and distribution of investment research. Many European regulators require a firm to establish, implement and maintain such a policy. This report has been issued in the U.K. only to persons of a kind described in Article 19 (5), 38, 47 and 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (all such persons being referred to as "relevant persons"). This document must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this document relates is only available to relevant persons and will be engaged in only with relevant persons. In other EEA countries, the report has been issued to persons regarded as professional investors (or equivalent) in their home jurisdiction. **Australia:** This material is issued and distributed by JPMSAL in Australia to “wholesale clients” only. JPMSAL does not issue or distribute this material to “retail clients.” The recipient of this material must not distribute it to any third party or outside Australia without the prior written consent of JPMSAL. For the purposes of this paragraph the terms “wholesale client” and “retail client” have the meanings given to them in section 761G of the Corporations Act 2001. **Germany:** This material is distributed in Germany by J.P. Morgan Securities Ltd., Frankfurt Branch and J.P.Morgan Chase Bank, N.A., Frankfurt Branch which are regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht. **Hong Kong:** The 1% ownership disclosure as of the previous month end satisfies the requirements under Paragraph 16.5(a) of the Hong Kong Code of Conduct for Persons Licensed by or Registered with the Securities and Futures Commission. (For research published within the first ten days of the month, the disclosure may be based on the month end data from two months’ prior.) J.P. Morgan Broking (Hong Kong) Limited is the liquidity provider/market maker for derivative warrants, callable bull bear contracts and stock options listed on the Stock Exchange of Hong Kong Limited. An updated list can be found on HKEx website: http://www.hkex.com.hk. **Japan:** There is a risk that a loss may occur due to a change in the price of the shares in the case of share trading, and that a loss may occur due to the exchange rate in the case of foreign share trading. In the case of share trading, JPMorgan Securities Japan Co., Ltd., will be receiving a brokerage fee and consumption tax (shouhizei) calculated by multiplying the executed price by the commission rate which was individually agreed between JPMorgan Securities Japan Co., Ltd., and the customer in advance. Financial Instruments Firms: JPMorgan Securities Japan Co., Ltd., Kanto Local Finance Bureau (kinsho) No. 82 Participating Association / Japan Securities Dealers Association, The Financial Futures Association of Japan. **Korea:** This report may have been edited or contributed to from time to time by affiliates of J.P. Morgan Securities (Far East) Ltd, Seoul Branch. **Singapore:** JPMSS and/or its affiliates may have a holding in any of the securities discussed in this report; for securities where the holding is 1% or greater, the specific holding is disclosed in the Important Disclosures section above. **India:** For private circulation only, not for sale. **Pakistan:** For private circulation only, not for sale. **New Zealand:** This material is issued and distributed by JPMSAL in New Zealand only to persons whose principal business is the investment of money or who, in the course of and for the purposes of their business, habitually invest money. JPMSAL does not issue or distribute this material to members of "the public" as determined in accordance with section 3 of the Securities Act 1978. The recipient of this material must not distribute it to any third party or outside New Zealand without the prior written consent of JPMSAL. **Canada:** The information contained herein is not, and under no circumstances is to be construed as, a prospectus, an advertisement, a public offering, an offer to sell securities described herein, or solicitation of an offer to buy securities described herein, in Canada or any province or territory thereof. Any offer or sale of the securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators and only by a dealer properly registered under applicable securities laws or, alternatively, pursuant to an exemption from the dealer registration requirement in the relevant province or territory of Canada in which such offer or sale is made. The information contained herein is under no circumstances to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. To the extent that the information contained herein references securities of an issuer incorporated, formed or created under the laws of Canada or a province or territory of Canada, any trades in such securities must be conducted through a dealer registered in Canada. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed judgment upon these materials, the information contained herein or the merits of the securities described herein, and any representation to the contrary is an offence. **Dubai:** This report has been issued to persons regarded as professional clients as defined under the DFSA rules.

General: Additional information is available upon request. Information has been obtained from sources believed to be reliable but JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) do not warrant its completeness or accuracy except with respect to any disclosures relative to JPMS and/or its affiliates and the analyst’s involvement with the issuer that is the subject of the research. All pricing is as of the close of market for the securities discussed, unless otherwise stated. Opinions and estimates constitute our judgment as of the date of this

material and are subject to change without notice. Past performance is not indicative of future results. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. The recipient of this report must make its own independent decisions regarding any securities or financial instruments mentioned herein. JPMS distributes in the U.S. research published by non-U.S. affiliates and accepts responsibility for its contents. Periodic updates may be provided on companies/industries based on company specific developments or announcements, market conditions or any other publicly available information. Clients should contact analysts and execute transactions through a J.P. Morgan subsidiary or affiliate in their home jurisdiction unless governing law permits otherwise.

"Other Disclosures" last revised January 1, 2011.