APPENDIX B
FAA FORECAST ACCURACY

Forecasts, by their nature, have a degree of uncertainty incorporated in them. They involve not only statistical analyses and various scientific methods, but also judgment and reliance on industry knowledge and the forecaster's experience to incorporate industry trends not yet reflected in recent results. The FAA's annual Aerospace Forecast is no exception. Given the volatile nature of the U.S. airline industry, it is not surprising that each year's forecast would contain a certain degree of forecast variance. Therefore, FAA forecasters have tried to build forecast models that give a consistent and predictable pattern of results. Analysts relying on the forecasts produced by the models would then be able to adjust for the predictable variance from actual results.

The table below presents an analysis of the variance from historical results for five key forecast metrics during the FY 2006-2010 forecast period. Although this brief period has experienced industry upheaval, FAA's forecast methodology remained consistent during this time. For this reason, inclusion of prior periods in an analysis of forecast variance might lead to inconclusive or inaccurate implications about the accuracy of FAA's current forecast methodology.

The table below contains the mean absolute percent errors for the projected values versus the actual results for U.S. carriers' domestic operations. Each metric has five values showing the relative forecast variance by the number of years in advance the preparation of the forecast took place. For example, the "3 Years" column for ASMs shows that the mean absolute percent error was 13.0 percent for ASM forecasts prepared 3 years in advance. For the period under examination, preparation of the forecasts for FY 2006, FY 2007, FY 2008, FY 2009 and FY 2010 occurred in FY 2004, FY 2005, FY 2006, and FY 2007, and FY 2008, respectively.[14]

U.S. AIR CARRIERS
DOMESTIC SCHEDULED PASSENGER ACTIVITY
FORECAST EVALUATION

Forecast Variable	Mean Absolute Percent Error (Combined FY 2006 - FY 2010) (Forecast Variance from Actual) Forecast Performed Years Prior to Actual				
	1 Year	2 Years	3 Years	4 Years	5 Years
ASMs	0.7%	6.5%	13.0%	15.2%	18.8%
RPMs	0.9%	4.0%	8.4%	10.4%	10.6%
Pax Enplanements	0.7%	4.5%	9.3%	10.0%	11.3%
Mainline Pax Yield	3.6%	5.6%	6.7%	6.1%	8.3%
IFR Aircraft Handled*	3.3%	8.7%	13.2%	14.4%	15.5%

*Total - scheduled and nonscheduled commercial plus noncommercial

14 It should be noted that the first forecasted year for each respective fiscal year is that very same year. Therefore, FY 2003's first forecasted year is FY 2003, and the third forecasted year is FY 2005.

Presenting forecast variances from actual data in such a manner simplifies a review of longer-term trends. Typically, one would expect the variances to decrease as the forecast year is closer to the year the forecast is prepared. Presenting forecast variances in this way allows an examination of changes in the relative variances by time horizon, signaling when dramatic shifts in accuracy occur.

Examination of the forecast variances reveals several items. First, all the metrics examined show declining variances as the forecast time horizon decreases, as expected. The largest variances were found in the forecasts of ASMs and passengers, the two variables most directly affected by exogenous events. Second, the relative divergence in forecast variances between RPMs and ASMs suggests errors in forecasting load factor. Third, the ASM forecast variance being larger than the RPM forecast variance indicates a consistent underestimation of load factor, one of the critical elements in converting passenger demand into aviation activity. All other things being equal, large variances in forecasts of load factor will lead to large variances in the long-term forecasts of aviation activity, as can been seen in the variances of the IFR aircraft handled forecasts.