

▷▷▷ RISKS TO THE FORECAST

While the demand for air transportation has proven to be resilient over time in the face of numerous challenges, there is a greater degree of uncertainty around the FAA's current forecast of aviation demand than in the past. This is due in part, because never in the recent past have so many negative factors come together at once. The previous downturn in aviation demand was caused by the recession of 2001 and was exacerbated by the terrorist attacks of 9/11. Economic growth returned by 2002 but air transportation demand rebounded more slowly and didn't recover until 2004. The present recession downturn has been the result of numerous factors beginning with housing downturn that spread to clog credit markets and overall functioning of the global financial infrastructure. The impacts soon spread across the real sector of the economy in the US and the world. The extent and magnitude of these effects and their linkages to air transportation demand are not completely evident yet. While the FAA believes its current outlook for aviation demand and activity is attainable, future aviation activities in the near to mid-term will depend critically on how the broader economy evolves. Although commercial aviation has demonstrated tremendous flexibility by aggressively rationalizing supply and overall resilience of demand for air transportation still persists, risk and uncertainties are abundant. Added to past risks, the economic slowdown and constrained financial markets now sit at the center of the ability of aviation to rebound.

A number of risk factors were highlighted in last year's forecast. The most notable was the risk of a deeper downturn and rising unemployment. The housing downturn in the U.S. deepened along with the financial crisis that has become global in scope. The US economy's output and services, i.e., real GDP, contracted at an annual rate of 0.5 percent in the third quarter of 2008 followed by a steep decline of 3.8 percent in the fourth quarter. For the entire calendar year, US real GDP increased only 1.3 percent. Many forecasters now predict that the economy will not recover until the end of 2009 or not before 2010. The consensus market forecast (Wall Street Journal) in February 2009 indicates that the US economy will contract 1 percent in 2009. Moreover, global economic growth has stalled and the International Monetary Fund (IMF) now predicts world growth to fall to 0.5 percent in 2009, its lowest rate since World War II. As a result, advanced economies including the US, Europe and Japan are expected to register declines in output ranging between 1 and 4 percent. The financial strains remain acute despite numerous policy actions led primarily by the US, Europe, and China. The real economy is not expected to return to some functional normalcy without financial recovery accompanied by free-flowing credit markets. The overall improvement in the economy will depend importantly on the turnaround in real estate market and improvement in balance sheets, financial institutions and households alike.

Not surprisingly, a broad range of uncertainties prevail at the present time. To begin with, uncertainty surrounding the housing market continues to dominate the real sector of the economy. Faced with an almost 25 percent decline in housing prices (S&P Case-Shiller Index), a large inventory of housing stocks persist. According to National Association of Realtors, housing inventory in 2008 had climbed to over 4 million; a 34 percent increase from the peak of the market. The large inventory of homes on the market continues to create downward pressure on housing prices across the country leading to increasing possibilities of additional mortgage defaults. A deteriorating mortgage profile continues to downgrade banks and investors' real estate portfolio alike. Any improvement in banks' balance sheet is intricately linked to improvement in the real estate market. Likewise, a deteriorating real estate market and the decline in the overall asset market have resulted in a severe loss of wealth. Without a floor on prices, the overall trend in the housing market creates a downward spiral that is unsustainable for long run growth prospects in the US and global economies. The overall turnaround in the demand situation thus depends on the turnaround in real estate market and improvement in balance sheets, financial institutions and households alike.

Despite the rapid decline in oil prices during the later half of 2008, there is considerable uncertainty as to the level of oil prices once economic growth resumes. Although the oil price forecast the FAA is using calls for a steady increase after 2009, the increase is relatively modest, with prices remaining well below \$100/barrel throughout the forecast period. Some forecasters are calling for a much sharper increase in the price of oil. In a January 2009 research note, CIBC analysts predicted that oil prices will reach \$100/barrel by 2010 (CIBC, 1/23/09). The U.S. Energy Information Administration (EIA) in its 2009 Annual Energy Outlook is projecting oil prices to exceed \$100/barrel by 2013. While falling oil prices give consumers an impetus for additional spending, including air travel and increases the chances for industry profitability, higher oil prices could lead to further shifts in consumer expenditures away from aviation, dampening a recovery in air transport demand. Furthermore, higher oil prices, especially in the near term, could wipe out any chance of industry profitability, continue to pressure airline costs, delay balance sheet improvement and discourage expansion plans or new orders for aircraft as carriers focus on increasing cash balances.

One of the major lessons of the present recession is the renewed acknowledgement that the global economies are inherently coupled with the US economy. The linkages of the global economies to the US economy proved to be far stronger than was thought previously during the time of steady expansion. The sustained decline of personal consumption expenditures that beset the present US recession also brought down economies that depend critically on exporting to the US, the largest being the economies of Europe, China, Korea, Japan, Singapore, and Canada. Faced with declining US imports, the trade links between these other countries are proving not to be substantial enough to pull the world economy out of recession. As US trade volumes (both import and export) declined with the onset of the recession, so did the economic growth in the rest of the world. This has been further accelerated by the financial contagion now spreading across the globe. If there are defaults on debt payments by some of the emerging economies, this may further complicate balance sheets of those banks which are exposed to emerging markets.

Although FAA uses the latest administration economic projections to derive the forecasts of aviation demand, an important part of the FAA forecast process is to compare the administration forecasts with other economic forecasts. FAA typically compares administration economic forecasts to those of Global Insight, Inc., a leading economic consulting firm. Unlike prior forecasts, Global Insight's current U.S. GDP forecast is much lower than the latest administration projections. While the administration is projecting U.S. GDP growth to average 3.8 percent a year between 2009 and 2013, Global Insight is forecasting U.S. GDP growth to average 2.4 percent a year during the same period. In addition, Global Insight regularly provides alternative forecasts and assigns a likelihood of their occurrence along with the likelihood of the baseline forecast occurring. In January 2009, Global Insight assigned the likelihood of their baseline forecast at 60 percent. An "optimistic scenario"—faster economic growth in the rest of the world, impacts of the stimulus package occurring sooner, and a continuation of the high worker productivity rates—that results in lower unemployment and a faster recovery in the U.S. was assigned a 20 percent likelihood by Global Insight. A faster recovery with higher economic growth would lead to increased demand for aviation services and boosts the industry's profitability further

Global Insight also constructed a pessimistic scenario which was assigned a 20 percent likelihood. In this pessimistic scenario, the financial crisis worsens resulting in lower consumer spending, weaker business investment, slower world economic growth and weak productivity growth. The current recession becomes the worst downturn since the Great Depression and the recovery coming out of recession is slower than their baseline forecast. We used the pessimistic scenario as inputs to our domestic traffic industry model to quantify the impact of a deeper recession on US airline industry traffic and capacity growth. In 2009, domestic passengers in the pessimistic scenario are only 0.7 percent lower than in our base forecast with RPMs 1.0 percent lower. However, the difference between the base forecast and the pessimistic scenario

widens dramatically over the next 4 years so that by 2013, domestic passenger enplanements would be 14.0 percent lower than in the base forecast and RPMs would be 15.4 percent lower. Domestic load factor was 5.3 points lower while yield was higher, driven by higher oil prices and slower low-cost carrier growth. Industry passenger revenue was 8.2 percent lower, hampering the industry's drive for sustained profitability and balance sheet improvement.

One positive outcome from all the turmoil in 2008 was that U.S. airlines had already taken significant steps to rationalize domestic capacity before the downturn in demand. As noted earlier in this document, we anticipate a large decline in capacity (roughly 10 percent) in FY2009 as the industry took the lead in adjusting supply that is often necessary in the middle of a recession. The rationalized supply has given the industry fare flexibility and positioned itself to recover ahead of other sectors in the economy when economic growth returns. Furthermore, the reduction in capacity provides a rare look at the core network structure of air transportation in the US. With the cuts in capacity that are in place, airlines appear to be focusing their services in markets that are profitable. The resulting network structure should be more robust, even under such severe market pressure, and provide the foundation around which any long term investments can be made.

At present, the outlook for further consolidation via mergers and acquisition (M&A) appears to be rather limited. With the recent mergers of US Airways and America West and Delta's consolidation with Northwest, there appears to be little scope for further mergers in the US airline industry. The tightening of the credit markets that may continue over the near term has reduced the ability of the industry to finance additional mergers. However, US airlines are exploring other options including global alliances. Many of the major carriers in the US are members of global alliances that operate with some measure of anti-trust immunity from the US DOT. While anti-trust immunity may provide flexibility to airline operators across borders, it may create an anti-competitive environment in the marketplace. These market consolidating vehicles, particularly the anti-trust immunity provisions, may invite increased regulatory scrutiny. If such oversights are launched in the future, this will complicate the evolving structure of the airline industry and may impact demand via new regulations.

Also, the forecast assumes the addition of sizable numbers of regional jets into the fleet of regional carriers. However, the regional carriers' future is closely linked to those of the larger network carriers. Should one or more of these large carriers cease to exist (because of financial difficulties or merger), certain regional carriers could find themselves either saddled with excess capacity or lack of sufficient capacity, or lack of feed traffic. The recent experience of the Delta and Northwest bankruptcies saw opportunities for regional flying substantially reduced.

Despite a 16 percent increase in business jet shipments in 2008, events during that last quarter of 2008 have dampened the prospects in this sector for the next few years. First, the decision by Eclipse to enter into bankruptcy protection in November has tempered expectations about further growth in the VLJ market. The decision by Eclipse to enter into bankruptcy was driven primarily by a lack of additional credit due in part to the global credit crisis as well as the decision by DayJet, a leading operator of VLJs, to cease operations in November. These two events accelerated Eclipse's decision to enter into bankruptcy protection. Given the developments in the last year, our forecast for this segment is significantly lower than last year's forecast. How long the industry slowdown continues depends, in large part, on the recovery of the market for business jets. The market for business jets is largely dependent upon the growth in the economy and corporate profits and it is unknown how well this market will fare as corporate profits fall in the current environment. The current forecast assumes that 200-300 VLJs will enter the fleet a year, with the U.S. market growing to 4,875 by 2025. A key driver of the VLJ market is the on-demand air taxi

industry. With the demise of the DayJet, the sector is much smaller now. The segment is now served by much smaller providers, such as Linear Air and North American Jet. Those who believe that the business model underlying DayJet was ill-suited for the time but that the VLJ is a sound aircraft (both operationally and economically) still tend to have relatively higher fleet forecasts. Those who are less sanguine about the prospects for the mass on-demand air taxi industry tend to have more conservative fleet forecasts. Given the uncertainty around the economic environment, the FAA leans on the conservative side of the forecast.

The mix of aircraft operating at most large hubs is also expected to become increasingly complex over the forecast period. The expected increases in the numbers of regional jets and VLJs will increase the complexities of the national airspace system and make the FAA's job more challenging. The increased complexity of the mix of aircraft serves to compound the increases in workload strictly due to the increasing demand for aviation services projected over the forecast period.

High levels of delays occurred at many U.S. airports in 2008 and could become a critical limit to growth over the forecast period. FAA's forecasts of both demand and workload are unconstrained in that they assume that there will be sufficient infrastructure to handle the projected levels of activity. Should the infrastructure be inadequate and result in even more congestion and delays, it is likely that the forecasts of both demand and workload would not be achieved. The Department of Transportation and the FAA are examining a number of options to manage congestion, but the specific measures to be implemented and therefore their impact are unknown at this time.

Environmental and related energy concerns also pose a risk to the forecast. Concerns about aviation's impact on the environment, which have accompanied its growth, could potentially restrict the ability of the aviation sector to grow to meet national economic and mobility needs. Airport expansion or new construction is often a contentious issue because of noise, air quality, and water quality concerns. Concerns about the climate impacts of aviation emissions are also growing. Although aviation currently accounts for 2 to 3 percent of climate change impacts, greenhouse emissions from the sector are expected to grow unless aggressively mitigated with new technology, renewable fuels, operational improvements and market measures. Market measures intended to control emissions, e.g., various emissions trading systems and charges being discussed, would add significant costs to the aviation sector that could both reduce demand and available funds for needed investments in new technology. Energy concerns are also rising, driven by spikes in fuel prices, supply and security issues, and the concerns about fossil fuel contributions to global climate change. All of these concerns could have a negative impact on the ability of the aviation system to meet the mobility needs of the traveling public in the future unless the technology, operational, and alternative fuel initiatives in the Next Generation Air Transportation System Plan are funded and implemented. Lack of progress on improving the environmental and energy outlook for the future fleet through breakthroughs in quieter, cleaner aircraft technologies and renewable fuels can drive more restrictions via standards or operating limitations on the fleet in service, which in turn may depress growth over the forecast period.