

governmental or regulatory actions taken by the United Kingdom or the EU in connection with or subsequent to Brexit, cannot be predicted, including whether or not regulators will continue to approve or impose material conditions on our business activities. Any of these effects, and others we cannot anticipate, could materially adversely affect our business, results of operations and financial condition.

We are subject to many forms of environmental and noise regulation and may incur substantial costs as a result.

We are subject to increasingly stringent federal, state, local and foreign laws, regulations and ordinances relating to the protection of the environment and noise reduction, including those relating to emissions to the air, discharges to surface and subsurface waters, safe drinking water, and the management of hazardous substances, oils and waste materials. Compliance with environmental laws and regulations can require significant expenditures, and violations can lead to significant fines and penalties.

We are also subject to other environmental laws and regulations, including those that require us to investigate and remediate soil or groundwater to meet certain remediation standards. Under federal law, generators of waste materials, and current and former owners or operators of facilities, can be subject to liability for investigation and remediation costs at locations that have been identified as requiring response actions. Liability under these laws may be strict, joint and several, meaning that we could be liable for the costs of cleaning up environmental contamination regardless of fault or the amount of waste directly attributable to us. We have liability for investigation and remediation costs at various sites, although such costs currently are not expected to have a material adverse effect on our business.

We have various leases and agreements with respect to real property, tanks and pipelines with airports and other operators. Under these leases and agreements, we have agreed to indemnify the lessor or operator against environmental liabilities associated with the real property or operations described under the agreement, in some cases even if we are not the party responsible for the initial event that caused the environmental damage. We also participate in leases with other airlines in fuel consortiums and fuel committees at airports, where such indemnities are generally joint and several among the participating airlines.

Governmental authorities in several U.S. and foreign cities are also considering, or have already implemented, aircraft noise reduction programs, including the imposition of nighttime curfews and limitations on daytime take offs and landings. We have been able to accommodate local noise restrictions imposed to date, but our operations could be adversely affected if locally-imposed regulations become more restrictive or widespread.

Our intellectual property rights, particularly our branding rights, are valuable, and any inability to protect them may adversely affect our business and financial results.

We consider our intellectual property rights, particularly our branding rights such as our trademarks applicable to our airline and AAdvantage loyalty program, to be a significant and valuable aspect of our business. We protect our intellectual property rights through a combination of trademark, copyright and other forms of legal protection, contractual agreements and policing of third-party misuses of our intellectual property. Our failure to obtain or adequately protect our intellectual property or any change in law that lessens or removes the current legal protections of our intellectual property may diminish our competitiveness and adversely affect our business and financial results. Any litigation or disputes regarding intellectual property may be costly and time-consuming and may divert the attention of our management and key personnel from our business operations, either of which may adversely affect our business and financial results.

We are subject to risks associated with climate change, including increased regulation to reduce emissions of greenhouse gases.

There is increasing global regulatory focus on climate change and GHG emissions. Efforts by the EU in 2009 to regulate flights arriving from or departing for airports outside of the EU have been postponed as members of ICAO are negotiating a global agreement on GHG emissions from the aviation sector. In 2016, ICAO passed a resolution adopting CORSIA, which is a global, market-based emissions offset program intended to encourage carbon-neutral growth beyond 2020. CORSIA was supported by the board of Airlines for America (the principal U.S. airline trade association) and IATA (the principal international airline trade association), and by American and many other U.S. and foreign airlines. In March 2017, ICAO also adopted new aircraft certification standards to reduce carbon dioxide emissions from aircraft, which will apply to new aircraft type designs in 2020, and to aircraft type designs already in production as of 2023. On June 27, 2018, ICAO adopted standards pertaining to the collection and sharing of information on international aviation emissions beginning in 2019. Airline operators must prepare GHG monitoring plans by February 2019. CORSIA will increase operating costs for American and most other airlines, including other U.S. airlines that operate internationally, but the implementation of a global program, as compared to regional emission reduction schemes, should ensure that these costs will be more evenly applied to American and its