INDUSTRY INSIGHTS

Aviation Briefing

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2017 Edition 2

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Quarterly Aviation Briefing

2017 Edition 2

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Why are airlines leasing more aircraft?
Leasing trends from the airlines around the world.

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The Role of Operating Lessors

Globally, airlines operate a fleet of more than 23,000 commercial jet aircraft valued at approximately $560 billion. Airlines rely heavily on third-party debt and equity to finance the capital-intensive aircraft assets. Third-party equity to finance the aircraft has increasingly been provided to the airline industry by aircraft operating lessors which acquire and lease aircraft to airlines as lessees.

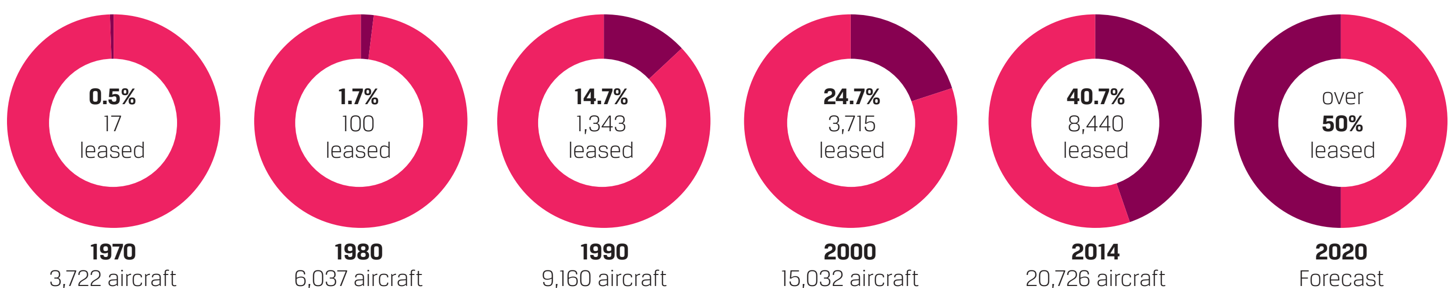
Today, approximately 12,000 commercial jet aircraft, valued at approximately $240 billion, are owned by operating lessors and leased on this basis to the global airlines, representing more than 40% of the fleet by unit and value.

An aircraft operating lease is a contract that permits airlines as lessees to use the aircraft, but does not provide the lessee with ownership rights in the asset. For the lessor, the aircraft subject to lease are accounted for as assets and depreciated as such. For lessees, accounting has historically been off balance sheet, without the recording assets or liabilities, which can improve financial ratios. An operating lease is non-cancelable and must not (i) transfer ownership to the lessee, (ii) provide the lessee with bargain purchase options, (iii) have a term longer than 75% of the aircraft's expected economic life, or (iv) be worth more than 90% of the aircraft's value.

Under an operating lease, the lessor retains the risks and rewards of ownership, with the aircraft returned to the lessor at the end of the lease term such that there is no residual value interest, or exposure, for the lessee. Operating lessors rely on their ability to arrange several consecutive leases, and to eventually sell the aircraft, in order to cover their cost of capital and generate returns. The long-term competitiveness of the largest aircraft lessors is driven to a significant extent by aircraft purchase prices and financing costs.

Boeing Capital forecasts that operating leasing will account for 50% of the in-service fleet by the end of this decade. With over 19,000 commercial jet aircraft needed by 2025, several sources of financing will be required to meet that volume, and lessors are expected to provide a significant portion of the financing required.

EVOLUTION OF OPERATING LEASE PENETRATION BETWEEN 1970 AND FORECAST BY 2020



Note: Active fleet includes narrowbody, widebody, and regional jets in commercial service. Excludes Russian-manufactured aircraft. Source: Boeing Capital Corporation

Operating leases, although more dominant for narrow body jet at 52% leased, have also penetrated the regional jet (37%) and wide body fleet (40%).

According to Sylvain Bourdain, Professor of Corporate Finance and Catherine Muller-Vibes, Professor of Industrial Organization at the Toulouse Business School, in their paper " Leasing and Profitability: Empirical evidence from the airline industry" and based on 73 airlines examined between 1996 and 2011, the ideal mix between leasing and owing aircraft for airlines is at 53.45% of the fleet on lease. This percentage is higher for low cost carriers and younger airlines.

Growth in Number of Lessors

Established over 40 years ago by Tony Ryan (GPA) and Steve Udvar-Hazy (ILFC), and then developed by GECAS in the 1990s, the aircraft operating lease industry has evolved to become a highly sophisticated and major segment of the commercial aviation landscape.

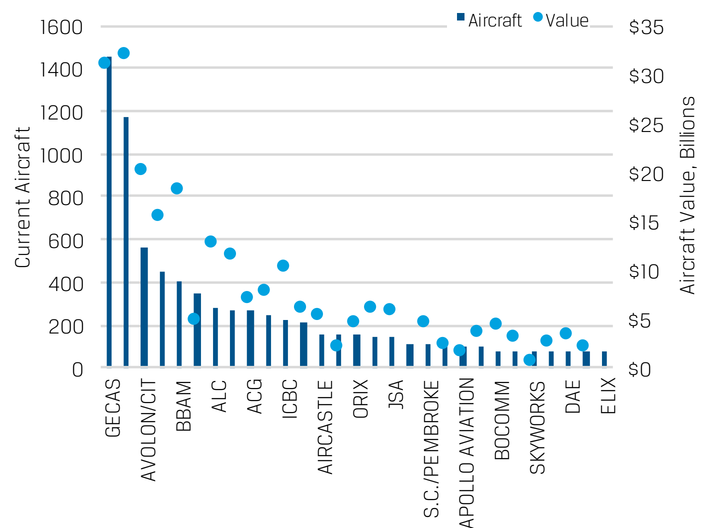
The historic aircraft operating lease penetration rate has grown from 0.5% in 1970 to approximately 41% in 2014, and is now the largest single source for financing new deliveries, at more than 40% of the global fleet by volume. This represents an average annual growth rate for the leasing sector of approximately 14%, compared to overall fleet growth of 3.7% over the same period.

The operating leasing industry has almost doubled in size in the past 10 years. With only about 6,500 aircraft on operating lease in 2006, the industry has grown to about 12,000 in 2016. Furthermore, the number of lessors has also grown to become double than that of 10 years ago.

Led currently by GECAS and Aercap, a large number of lessors are involved in the aircraft leasing sector. Despite a recent increase in merger and acquisition activity and consolidation in the sector, the aircraft leasing sector, while large and growing, remains relatively fragmented. It seems likely to attract additional participants looking for competitive risk-adjusted returns, as evidenced by a growing number of new leasing companies entering the aircraft leasing industry and amassing significant portfolios relatively quickly. Nonetheless, achieving scale in the sector is more challenging and while there has been a significant level of consolidation, the emergence of many new Chinese lessors is a key operating lease trend.

While there are more than 60 aircraft lessors with more than 25 aircraft in their portfolio, the 10 largest lessors, as measured by value of the current fleet, have portfolios of current aircraft valued at approximately $114 billion, equal to nearly 50% of the total leased aircraft fleet, based on ICF current market value (CMV) estimates, while the top 20 leasing companies own 80% of the leased fleet.

TOP 20 OPERATING LESSORS



Source: AirFinance Journal

Growth in Number of Aircraft

The demand for aircraft and aircraft operating leasing is ultimately driven by growth in air traffic demand. Air traffic demand in turn drives revenues and ultimately cash flows for the industry, which are utilized in part to pay capital costs for the aircraft which generate the revenue, whether such aircraft are owned or leased.

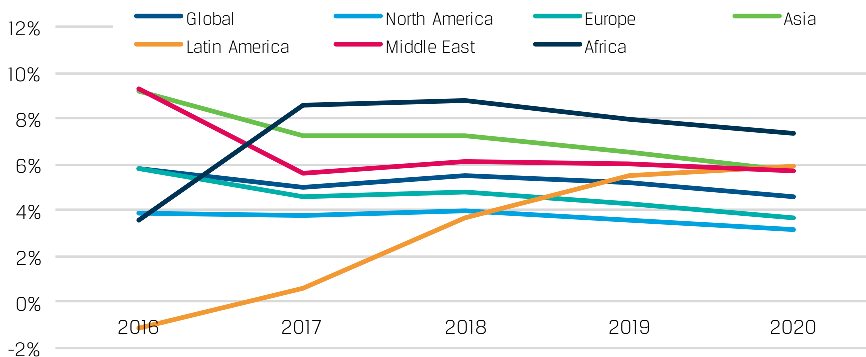
Demand for new aircraft is driven by two primary factors, the need to replace older, less efficient aircraft and to accommodate increases in demand for air travel. Since 2011 airline traffic, as measured by growth in revenue passenger miles ("RPMs") has exhibited healthy gains and as a result airlines have ordered substantial numbers of new aircraft to meet this demand.

The current trend in traffic growth is expected to continue for the near term, strong traffic growth, which shows acceleration between 2017-2018 and slowing down in 2019-2020 with levels between 3.5% and 7.8% traffic growth in 2020 depending on the region, with Africa, Asia, the Middle East, and Latin America showing the strongest growth. Air travel has grown in emerging markets and the overall world trend is forecasted around the 4.8% average in the near term.

Aircraft orders have created an all-time high backlog for aircraft manufacturers. Both Boeing and Airbus have backlogs of more than 14,000 aircraft including regional jets and a wait of up to six years for the most popular types. Both the narrow body and wide body fleets have experienced accelerated deliveries since 2011. Boeing is forecasting a 3% increase by value of aircraft deliveries in 2017 compared to 2016. Of the total deliveries, lessors have increased their portion to about 45% with 20% of direct orders and 25% through Sale-Leaseback financing.

Boeing forecasts some 39,600 jet aircraft deliveries (including regional jets) between 2016 and 2035 while Airbus forecasts 33,000 deliveries (excluding regional jets). With the increase of aircraft demand, aircraft financing volumes will also increased and will be provided by cash, commercial bank debt, capital markets, export credit financing, and leasing. According to Boeing, airline capital investment has doubled between 2010 and 2016 with aircraft capital spending accounting for the majority of the spending. Levels at $120 billion in 2016 are expected to reach $185 billion in 2021.

GLOBAL AIRLINE PASSENGERS FORECASTED ANNUAL PASSENGER GROWTH RATE (IATA)



Operating Leasing Benefits to Airlines

Airlines find multiple advantages in operating leasing as one of their aircraft financing tools. Operating leases are generally offered for durations between 6-14 years, with shorter terms for older aircraft. At the end of the lease, the airline can renew its lease or return the aircraft. Most lease contracts include deposits, maintenance reserves, and return conditions.

The financial benefits of operating leases include:

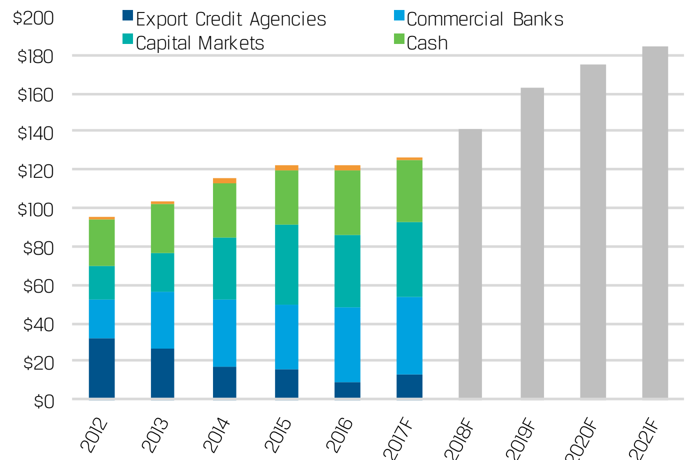
- No capital outlay is required
- In particular, leases are often preferred for start-up carriers because they lower the capital requirements for entering the market, which are especially important for many emerging markets
- No residual value risk
- No ownership risk
- Off balance sheet as lease rental payments are recorded as expenses (although pending changes under US GAAP may remove this benefit)
- Raise liquidity with Sale Leaseback on new aircraft or unencumbered used aircraft
- Cash preservation
- Diversification of funding
- Capital is invested to finance growth and business
- Avoid pre-delivery payments

The operational benefits include:

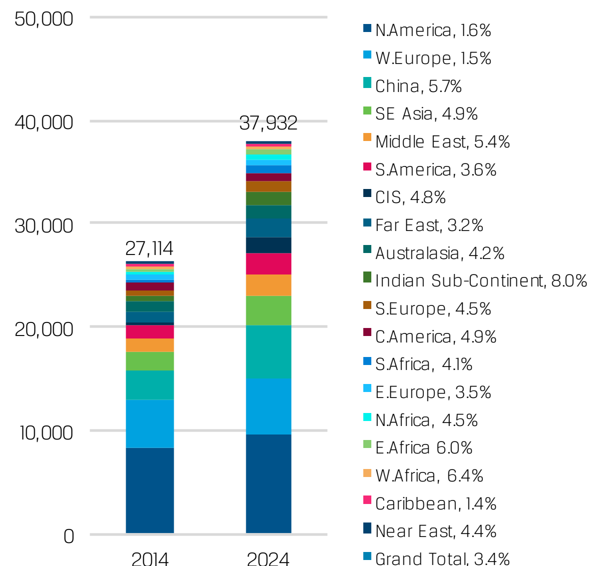
- Fleet planning flexibility: Airlines can meet short-term demand or variations.
- Ability to manage changing capacity and seasonality and have a more dynamic capacity management where airlines manage their lease terms and returns every year.
- Leasing allows airlines to meet interim capacity or unanticipated demand.
- Leasing also allows access to key slot deliveries from lessors' order book and flexibility in deliveries. Lessors often secure early deliveries for new types of aircraft as they have more leverage than small or medium airlines to adjust slots positions and obtain better purchase pricing.
- Access to new technology aircraft with more fuel-efficient engines

Between 2014 and 2024, each region will have a different need for new aircraft. Lead by the Indian sub-continent at an average CAGR over the decade of 8%, the overall world new aircraft needs will average an increase of 3.4% over the decade studied.

BOEING INDUSTRY AIRCRAFT DELIVERY FINANCE OUTLOOK, USD BILLIONS



TOTAL AIRCRAFT NEEDED BY REGION



Source: ICF Analysis

Operating Leasing Benefits to Investors

While operating leases have grown in popularity to airlines, investors have equally found the business to be attractive, supporting the lessors with significant volumes of equity and debt.

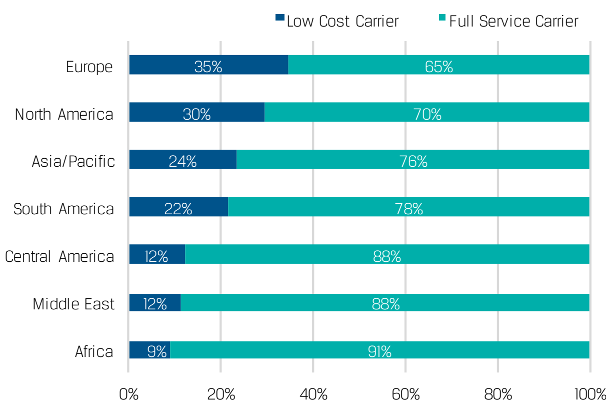
The aircraft leasing industry, at its core related to but separate from other forms of finance, represents an attractive investment opportunity, attracting investment in the order of $50 billion per year. It is a global business with attractive growth dynamics, driven particularly by the traffic demands of the Asia Pacific market and emerging economies.

Predictable cash flows of aircraft subject to lease throughout industry cycles have supported stable risk-adjusted returns for the industry. Long-term debt and equity investors are attracted to the stable risk-adjusted returns presented by larger, well-managed lessors, and the retention of asset value over time from their fleets, which are typically dominated by young narrowbody aircraft in high demand from a broad and diversified global airline operator base. Preferred lessors frequently have aircraft portfolios with long, evenly spread lease maturities, with assured growth from strong, near-term order books for new technology aircraft, and dynamic trading strategies and active asset management to maximize economic returns.

The growth of LCCs—a large consumer of operating leases

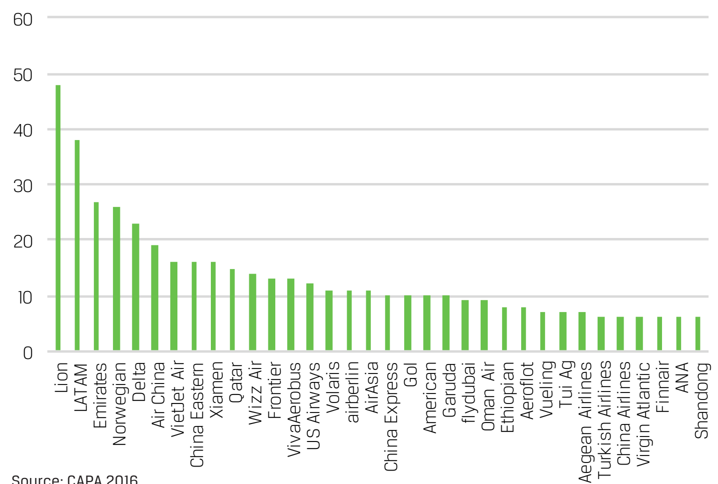
Depending on the regions, Low Cost Carriers penetration vary but have reached about third of the airlines in Europe and in North America.

OPERATING LEASING PENETRATION, FULL SERVICE CARRIERS VERSUS LCCS, BY REGION



Low Cost Carriers (LCC) are often new startup airlines with little capital available and/or no credit history to benefit from lending opportunities or capital markets. With the reduced use of Export Credit, many LCCs have turned to Sale Leasebacks to finance new deliveries of aircraft. While still placing volume orders to benefit from scale and reduced pricing, Sale Leasebacks have allowed some airlines to raise funding and make trading gains as they sell the aircraft upon delivery to lessors with speculative gains. In trying to avoid pre-delivery payments that may be difficult to finance, airlines sell their positions earlier in the delivery process. Without the demand of the Sale Leaseback market, many LCCs would not have been able to cope with fast growth and benefit from new and efficient modern aircraft. New LCCs such as Lion Air, VietJet, Wizz Air, VivaAerobus, Volaris, and Air Asia are among the top airlines leasing aircraft.

NUMBER OF SALE-LEASEBACKS, 2015-2016 (15 OR MORE)



Source: CAPA 2016

REGIONAL DIFFERENCES: LATIN AMERICA HAS THE LARGEST PROPORTION OF LEASED AIRCRAFT

Region	Owned Fleet	Leased Fleet
Latin America	39%	61%
Europe	43%	57%
Middle East	56%	44%
Asia Pacific	55%	45%
Africa	69%	31%
North America	68%	32%

Source: ICF analysis, CAPA Fleets May 2017

Latin American airlines have the largest proportion of leased aircraft with a 62% percentage of the overall fleet. GECAS, Aercap, and Avolon hold the majority of the leased aircraft but many other lessors play an important role including Avolon, SMBC, NAC and ACG.

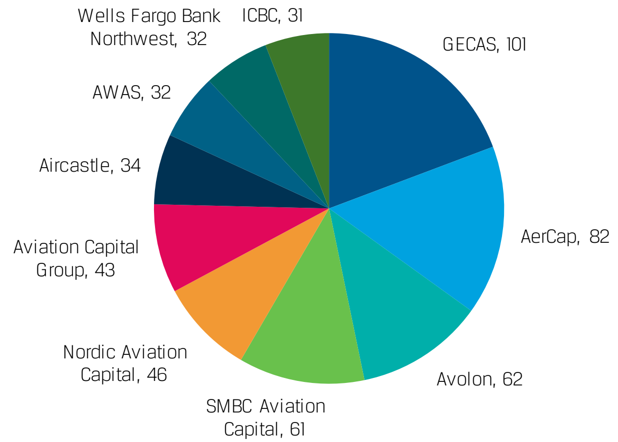
Future Growth of Aircraft Operating Leasing Industry

While all sources of funding will remain available for airlines, including capital markets and commercial loans, operating lessors could become the largest source of aircraft financing within a few years. The lessors themselves fund their acquisitions through capital markets (for about 53%), cash (about 25%) and commercial debt (about 20%). The large availability of capital, coming from private equity firms, institutional investors or Japanese investors, and the parallel emergence of new lessors, particularly from China, plays in favor of the airlines as they are getting competitive offers and low lease rentals, encouraging them for more Sale Leasebacks.

With demand for travel still growing at a strong pace, relatively low fuel prices, relatively low inflation, and manufacturer's huge backlog, the role of operating leases in the airlines financing strategy will only accelerate. Over the next five years, ICF expects the value of jet aircraft deliveries to average more than $135 billion per annum, split approximately evenly between narrowbody and widebody jets, with regional jets taking a small share.

ICF expects the emerging economies of China, India, and Africa to drive the greatest passenger growth with CAGR of approximately 7% in each region. In 2034, ICF believes that the Asia Pacific region will account for more than 40% of total passenger traffic, largely fueled by the easing of trade barriers, the expansion of LCCs, economic growth, and an emerging middle class. Strong forecast traffic growth and the corresponding need for lift in the Asia Pacific region will form the foundation for operating lease growth in this area.

TOP LESSORS ACTIVE IN LATIN AMERICA



Source: CAPA Fleets May 2017

Viva la Low Cost Carrier Revolución? Not quite yet...

by **Carlos Ozores** | Principal, ICF
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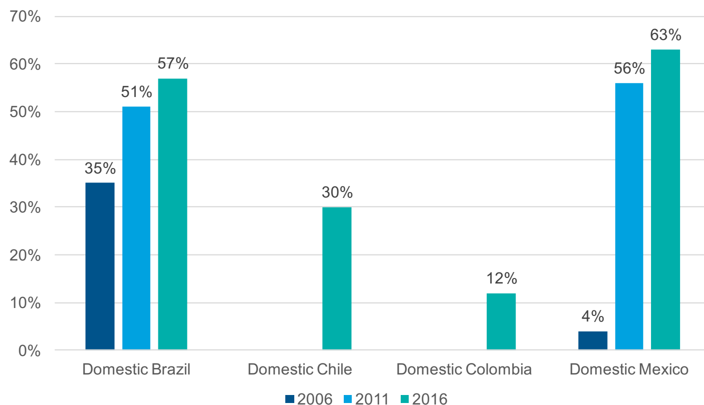
Nearly two decades have passed since the emergence of Low Cost Carriers (LCCs), but their presence across Latin America lags behind most other world regions. This is in part due to market characteristics that present an obstacle to LCC growth, although there are many untapped opportunities that will eventually be exploited. Existing carriers that fail to adapt quickly will fall prey to LCCs.

The LCC boom began in the late 1990s in developed markets in North America, Europe and Australia, and spread quickly to emerging markets, including to Latin America. Today, LCCs operate the majority of seats in the Brazilian and Mexican domestic markets and have a growing presence in Chile and Colombia.

However, on international routes within Latin America, LCC penetration remains very low, representing only 8% of scheduled international seats – significantly less than in the domestic U.S. or intra-European markets. More surprising is the fact that this share has only risen about 1 percentage point in the last five years.

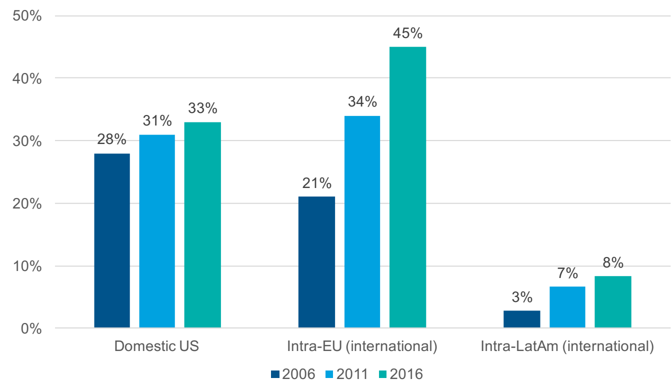
LLC SHARE OF DEPARTING SEATS



Source: Innovata schedules

LCC penetration on international routes within Latin America is concentrated on routes between Argentina, Brazil, Chile and Uruguay. Elsewhere, LCC coverage is limited. The one international market where Latin American LCCs have made significant inroads is between Mexico and the U.S.

LLC SHARE OF DEPARTING SEATS



Source: Innovata schedules

The Latin American aviation market has very strong fundamentals. So, given this, what is constraining LCC growth across Latin America?

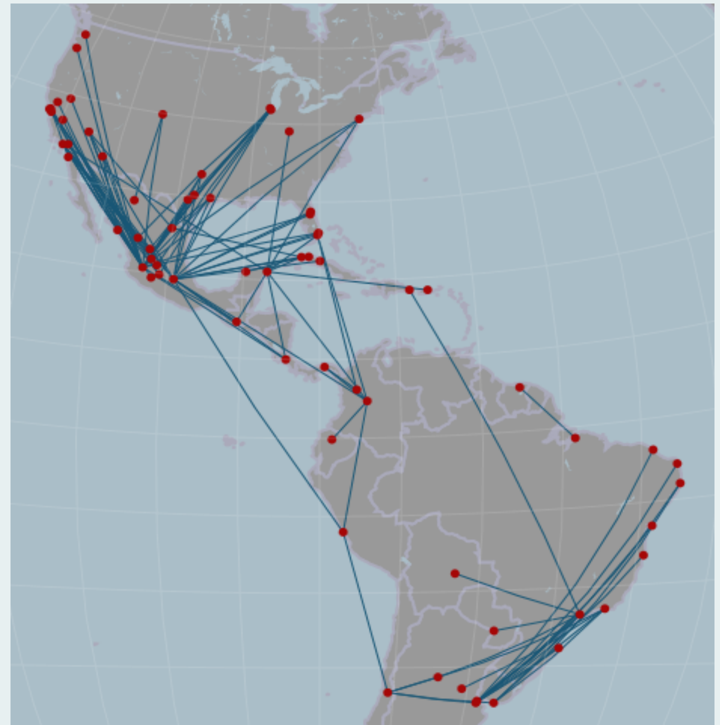
There's a lot of media noise about new LCC start-up plans, many involving Irelandia Aviation, which owns VivaAerobus and VivaColombia. There has been talk of Viva airlines in Costa Rica, Peru and Argentina. Volaris has also been mentioned in connection with a start-up in Costa Rica. Yet there has been little progress in new LCC start-ups in the region.

Despite all the noise, there are several obstacles to increased LCC penetration on international routes, such as:

- Long distances in most large markets: the weighted average distance on the largest O&D markets (those with over 100 daily passengers each way) is 2,200km or about a 3 ½ hour flight – equivalent to London-Kiev, New York-Dallas, or Miami-Caracas. However, the LCC model is best suited to short-haul flights, which is why successful LCCs like easyJet, Ryanair and Southwest have average stage lengths of about 1,200km, or 2 hours. Why is this? Because while operating costs are directly linked to distance traveled (i.e., a 2-hour flight will cost about 50-60% more than a 1-hour flight), airlines cannot pass on a proportional increase to airfares. An ICF Aviation analysis of domestic fares across the top 1,000 domestic U.S. markets proves this: whereas the average one-way fare on a 1,000km trip is about $160, the fare on a 2,000km trip is only about $200 – only 25% more. As a result, it is more productive for an LCC to operate six 1.5-hour sectors per day than three 3-hour sectors per day, all else being equal.

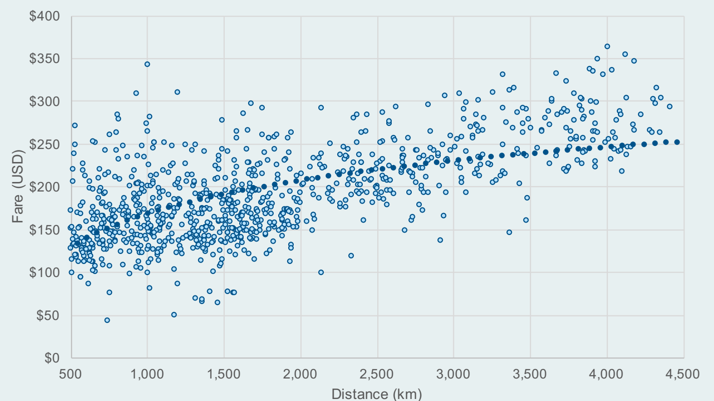
- High ticket taxes on international travel: Airport and government surcharges applied to international travel in Latin America can easily exceed $100 per round-trip ticket when origin and destination country charges are summed, significantly more than add-ons to domestic tickets. Consequently, LCC efforts to reduce airfares are limited by governments that penalize international travel, although there are noteworthy exceptions such as Brazil and Chile, which have the region's lowest ticket taxes. Note that the blame lies entirely on governments, which impose taxes and regulate the amount that airports – public or private – can charge. With few exceptions, government policy vis-a-vis international ticket taxes is incompatible with their trade and tourism development goals.

INTERNATIONAL ROUTES OPERATED BY LATIN AMERICAN LCCS, AS OF OCTOBER 2016



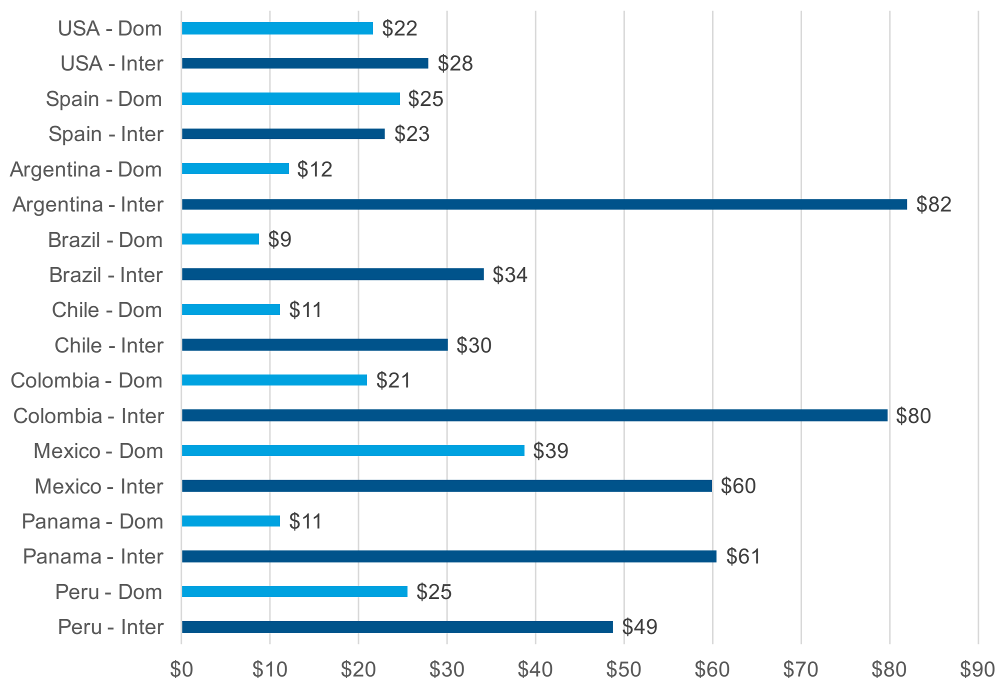
Source: Innovata schedules

DISTANCE VS. ONE-WAY FARE IN TOP 1,000 DOMESTIC U.S. O&D MARKETS



Source: US DOT O&D Survey, CY2015

AIRPORT AND GOVERNMENT TICKET TAXES FOR DOMESTIC AND INTERNATIONAL ITINERARIES ONE-WAY TICKETS, IN USD



Source: airfare searches on ITA Matrix (as of October 2, 2016)

- **Other factors such as infrastructure and regulation:** While their impact is not limited to LCCs, the lack of infrastructure at large hubs and at secondary airports, and regulations limiting foreign ownership, bilateral route rights, etc., add additional obstacles to LCC growth.

Despite these challenges, several markets present opportunities for increased LCC penetration to reach the levels of developed markets:

- Large domestic markets:
- Peru and Argentina have large populations and territories, significant long-distance ground travel and high domestic fares – key ingredients for an LCC.
- In Chile, Sky Airline has smartly decided to transition to an LCC model to pre-empt a new LCC start-up, although it remains to be seen whether it can achieve true low cost operations. Otherwise, the country's high income per capita and low travel propensity will attract new entrants.
- Brazil's high LCC share is misleading, as there are no pure-play ultra-LCCs along the lines of Ryanair, Spirit or VivaColombia.

Significant portions of the population still do not travel by air, so there is plenty of up-side, although there are many structural barriers to entry.

- **Southern South America:** There are natural economic and tourism links between the region's countries, but international travel remains a luxury good. Lower fares can stimulate demand by making air travel accessible to the emerging middle class. Helping matters is the fact that most South Americans do not require passports to travel internationally within the region.

- **Central America:** Economic and migrant ties within Central America and between Central America and the U.S. are very strong, but air connectivity is often poor and expensive. The fundamentals are there to support a regional LCC; however, the small scale of any one country means that to grow, an LCC needs "flag" status from various countries to set up multiple bases.

It is unlikely that Latin America as a whole will see the levels of LCC penetration observed in other large markets like the U.S., Europe, and beyond. However, given the region's low travel propensity and high airfares, there are distinct pockets of opportunity for increased LCC penetration in the region that have yet to be exploited.

What happens once LCCs do establish themselves? Perhaps Mexico provides a good indicator. Prior to the surge of LCCs in the mid-2000s, Mexico had two loss-making full service carriers (FSC) and a handful of poorly-run regional airlines. Fifteen years later, domestic traffic is up over 50%, the market has a single profitable FSC in Aeroméxico, and three well-managed LCCs (Interjet, Volaris and VivaAerobus). The poorly-run regional carriers went bankrupt.

Similarly, we can expect LCCs elsewhere in Latin America to stimulate demand while driving further market consolidation, squeezing out those carriers that cannot create differentiation by offering a superior product or achievingtrue low cost operations.

Can Caribbean Carriers Stop Losing Ground?

by **Brian McGoldrick** | Manager, ICF
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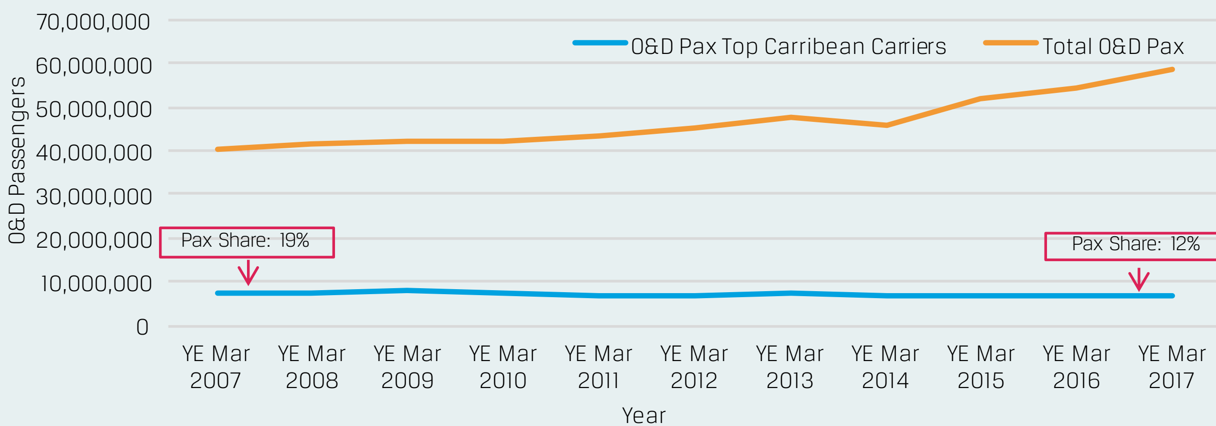
The Caribbean airline industry is fragmented amongst a few local carriers which must carry passengers between many island nations dispersed over a vast region. Due to increasing foreign competition carrying inbound tourist traffic, Caribbean carriers have remained relatively niche players serving either their home customers or a limited number of intra-Caribbean passengers. Though the Caribbean air travel market has increased by approximately 50% over the last decade, Caribbean carriers' growth has remained stagnant, and the top 7 Caribbean carriers combined currently carry only 12% of total Caribbean O&D passengers.

CARIBBEAN O&D PASSENGERS BY YEAR | YE MARCH 2007 - YE MARCH 2017



Note: The top Caribbean Carriers are Caribbean Airlines, Air Caribes, Cubana, Bahamas Air, Insel Air, LIAT, and Cayman Airways

Beyond deteriorating market share, these Caribbean carriers have largely been unprofitable. While most North American carriers have enjoyed years of strong profitability, Caribbean Airlines, the largest carrier in the region, lost an estimated $60 million in 2014. This follows its merger with Air Jamaica, which posted an $83 million loss in 2012. In 2016, Curaco's Insel Air required a cash injection of over $16 million to stay afloat, and the struggling Bahamasair is reportedly bankrupt and requiring further government assistance.

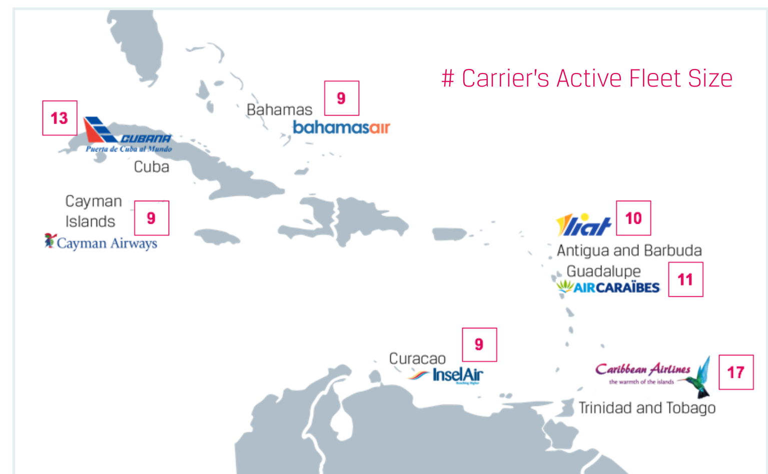
There are a variety of factors causing the perennial struggle of Caribbean carriers:

1. Foreign competition has greatly increased while the Caribbean carriers have remained stagnant. Foreign carriers, which carry a large amount of foreign-originating vacation and VFR traffic from their home countries, have been able to gain a significant amount of market share at the expense of the Caribbean carriers. This competition has also included the expansion of LCCs and ULCCs, which were almost non-existent in the region twenty years ago. Caribbean carriers with relatively high cost structures (partially due to their small size) are forced to compete in a very low pricing environment.
2. U.S. consolidation has left its key players much larger, and with greater economies of scale the efficiency gap versus Caribbean carriers increases even further.
3. Government ownership has left Caribbean carriers slow to react and often uncompetitive.
4. Foreign carriers, including LCCs such as JetBlue, have vastly superior onboard products, global route networks, and codeshare partnerships, which the Caribbean carriers cannot easily replicate.
5. The relatively small and spread out inter-Caribbean market, combined with low overall business traffic, depresses both load-factors and yields.
6. Management of Caribbean carriers often consists of foreign professionals who tend to have short tenures. This lack of stable leadership makes it challenging to successfully implement effective, long-term strategies. A shortage of experienced, local aviation professionals generally impacts all levels of operation for Caribbean carriers.

One solution to increase both scale and profitability of these Caribbean carriers would to merge many of these key players into a private pan-Caribbean airline. This integration could allow the airline to gain regional pricing power, cost efficiencies, and a significantly larger Network to seamlessly transfer passengers. Privatization would allow market forces to more efficiently allocate capacity and enable savings for taxpayers in the region. This concept has been successfully tested in South America with both LATAM and Avianca, which were able to offer much greater scale and service when combining the markets of South and Central American countries, which are more fragmented than their North American counterparts.

This solution would also need to overcome certain challenges. First, there would be major governmental rivalries and political fighting associated with the potential of certain countries losing control of air service. Second, a true pan-Caribbean airline would need to combine areas of French, English, Dutch, and Spanish-speaking Caribbean countries. These countries and travel markets often have remained culturally isolated from one other, which could be a further impediment to a unified airline. These challenges notwithstanding, a radical restructuring of the Caribbean market may be the only way to bring profitability and stability to the region's carriers.

CARIBBEAN CARRIERS MAP AND JUNE 2017 ACTIVE FLEET COUNT



Fleet Count Source: CAPA Fleets

ICF International Aviation Expertise

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