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## TACA

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### Recommended Citation

Raventos, Pedro and Melgarejo, Mauricio A., "TACA" (2016). *Scholarship and Professional Work - Business*. 279.

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Contents lists available at ScienceDirect

## Journal of Business Research



## TACA

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## ARTICLE INFO

## Article history:

Received 1 July 2015

Received in revised form 1 September 2015

Accepted 1 December 2015

Available online xxx

## Keywords:

Airlines

Deregulation

Central America

Business models

## ABSTRACT

The airline industry is energy intensive, has high fixed costs and its demand is very sensitive to the economic cycle. After the industry worldwide undergoes deregulation, starting with the United States in 1978, two distinct business models develop. Traditional carriers operate hub and spoke networks, offer onboard service and engage in price discrimination, whereas low cost carriers operate point to point, charge for all services and have simple tariffs. TACA begins operations in Central America in 1931 and, by 1943, has a footprint that extends from the United States to Argentina. In 1998–2001 TACA faces increased competition and a significant market downturn. In 2004 TACA CEO Roberto Kriete launches Centroamérica Fácil to stimulate air traffic in the airline's base countries.

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## 1. Introduction

"As Central Americans, we are proud of TACA's effort to reactivate the region's economy and to stimulate better relationships between our communities. 'Centroamérica Fácil' [Central America Easy] responds to the users' needs; we are here to serve them." Mr. Roberto Kriete, CEO of the Grupo TACA airline, says these words in a speech in October 2004 at the launch of 'Centroamérica Fácil'.

As he leaves the presentation, Mr. Kriete ponders on the challenge TACA presents to Central American authorities. If you allow passengers to make it through Immigration faster, and establish reasonable airport fees, and if TACA reduces fares significantly, passenger traffic in Central America can increase substantially. He also reflects on whether TACA has the conditions to become a low cost carrier.

Air transportation is turning one hundred years old. History shows man's desire to fly. In 1903 Orville and Wilbur Wright build a machine that flies 120 ft in 12 s. After much testing and prototyping, in 1914 the first programmed flight takes place in Florida and, in 1915, the precursor of Boeing comes to be. During World War I, aircraft production increases substantially, and receives a further boost in 1925 when the US Post Service launches air mail. 1958 sees the launching of the first jet aircraft, the Boeing 707.

By 2003, global passenger traffic by air concentrates in North America with 40% of the total, and in Europe with 25%. The initial development of the airline industry is intimately linked to the public sector as a large buyer, and in some cases, as an operator. As the industry

deregulates, airlines are forced to reconsider their business models. This process starts in the United States, but later spreads to Europe. By 2004, Latin American markets make substantial progress towards "open skies", but the economics of the industry are poor and airline executives need to think hard about their business models. This requires a careful understanding of the competitive dynamics and the regulatory conditions of the industry.

## 2. Regulation, competition and evolving business models

## 2.1. United States

In 1938 the Civil Aeronautics Board (CAB) begins operations in the United States to promote competition and to ensure that airlines offer quality service. The CAB's role is to regulate fares, prohibit price discrimination, and authorize routes and mergers between airlines in the hope that these policies improve the conditions of the airline industry, unprofitable since 1934. By the end of the 1970s, however, there remains very little competition and industry performance is terrible. Between 1950 and 1974 the CAB rejects all 80 applications from new airlines looking to set up service, and disallows all requests made by existing airlines wanting to enter rivals' routes. Airlines rarely reduce airfares, because doing so requires approval from the CAB, and the process is expensive and rarely successful (Breyer, 2004).

In 1978 the US Congress approves legislation to deregulate the industry, which phases out over four years all restrictions to limit new competitors, establish new routes and change fares. The expectation is that deregulation will force incumbent airlines to become more efficient, and that prices will drop as new airlines enter the market.

In the first decade after deregulation, major airlines focus on developing hub-and-spoke networks. Airlines offer direct flights only

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between cities that have a lot of traffic, while a central hub serves lower density city pairs. This should result in fuller flights from the spokes to the hub, as they carry passengers with several final destinations. The benefit for the airlines is not only operational; as airlines expand activities in hub airports, they use a large part of these airports' capacities, making it more difficult for rival airlines to offer flights to and from those hubs.

As the route structure becomes more complex after deregulation, airlines establish computer reservation systems (CRSs) and by 1992, 92% of all domestic flight reservations in the United States are made through the four largest CRSs. American Airlines' Sabre captures 43% of the reservations market, and United Airlines' Apollo has 27%. These proprietary systems also create a barrier for new competitors as they give the airline that owns them preferential display on reservation screens. CRSs also increase fare transparency to facilitate price coordination. If an airline cuts a fare, its rivals notice it almost instantly on the CRS, which allows them to match the reduction and prevent the price cutting airline from gaining any significant market share. Airlines also implement frequent flyer programs to encourage customer loyalty, and travel agent commission overrides (TACOs) to strengthen travel agency loyalty. A TACO is a nonlinear remuneration scheme in which the agency receives a 15% commission from an airline, instead of the usual 10%, if it books more than 80% of its flights with that airline.

Free from price regulation, airlines move to different forms of value pricing (American Airlines, 1987). Passengers on the same flight have varying reasons to fly which makes them respond differently to the price of tickets and to service levels. Large airlines, following the lead of American Airlines, develop sophisticated yield management systems, which allow them to "sell the right seat to the right client at the right price." (Belobaba, 1987). To segment demand airlines introduce fare classes with different levels of restrictions, such as minimum purchase and minimum stays.

Executives at American Airlines observe that 15% of their seats travel empty because passengers cancel at the last moment or do not show up at all. AA is able to increase its revenue substantially by overbooking, which means selling more seats than are available on a flight. The third element of yield management is to set limits on the number of seats available at each fare. When an airline sells a seat at a low fare, it loses the opportunity to sell that same seat for a higher fare. To maximize the expected revenue, the airline should only sell an additional low fare seat when the low fare is greater than the expected revenue of selling that seat for a higher fare (Belobaba, 1987).

All these measures lead to improvements in performance, but deregulation cannot repair a structural weakness in the industry. Aircraft represents important capital commitments which are made several years in advance, while industry demand is very sensitive to cyclical downturns. Starting in 1989, an economic recession and the Persian Gulf War lead to dramatic drops in leisure demand, and even business travelers cut back and become much more sensitive to prices. Between 1989 and 1992 airlines lose close to US \$10 billion. As a result, TWA and Continental seek Chapter 11 protection, and Pan American ceases operations altogether. Eastern, an important player in Central and South America is forced to sell its routes to American Airlines in 1990, and American becomes TACA's main rival in flights to the United States.

Low cost carriers (LCCs) are able to weather this crisis much better than the major airlines and start growing very rapidly thereafter. LCCs, like Southwest, have significantly lower costs and they are able to capture market share through low and transparent fares. They concentrate on city pairs that have at least 100 passengers per day each way. As the LCC group expands, it starts operating longer flights. The number of miles per flight increases from 540 in 2000 to 643 in 2003 (Hansman, 2004).

Beginning in 2001, the airline industry experiences a brutal shock from the confluence of the September 11 attacks, the SARS scare, the war in Iraq and high fuel prices. Again, the LCCs are able to remain

profitable and continue gaining market share at the expense of traditional airlines. Between 1999 and 2003 American Airlines loses more than 1.5% of its market share, while United and Delta lose 3.5% and 2.5%. Meanwhile, Southwest and JetBlue gain more than 2% in market share each (Belobaba, 2005). With less than 10% of the market in 2004, Southwest represents more than 50% of the United States airline industry's stock market capitalization.

Fig. 1 shows financial and operating indicators for the entire airline industry in the United States. Yield is the average price per mile flown. ASM is the number of times the airline moves one seat for a distance of 1 mile. When an Airbus 321, which has 169 seats, flies 300 miles, the airline counts  $169 \times 300 = 50,700$  ASMs. Similarly, RPM is the number of times the airline moves one passenger 1 mile. If the Airbus 321 travels 300 miles with 135 passengers it counts  $135 \times 300 = 40,500$  RPMs. For the above 300 mile flight the capacity utilization or load is simply  $135/169 = 80\%$ .

To find capacity utilization or load for the entire company or for a set of routes, airlines take the ratio of RPM to ASM. In 2003 there are 40 airlines serving 4100 airports. The average number of passengers on each plane for domestic flights is down to 90 in 2003 from 130 in 1990 (Hansman, 2004). This is due, in part, to regional airline development feeding the main airlines' hubs.

## 2.2. Europe

The first European countries to connect by air are France, Germany and Holland. KLM, the oldest airline that retains its original name, makes its maiden flight in 1920 from Amsterdam to London. As in the US, the airline industry is, at first, tightly regulated, but with a twist. Several national governments in Europe promote their airlines in order to protect them from competition and, in some cases, stimulate traffic to colonial territories.

Deregulation of the European airline industry starts in 1987, almost ten years after the United States. Reform makes it easier for airlines to introduce new fares and share capacity. In 1990, third and fourth freedoms (Fig. 2) are granted to the entire European Union (EU), and in 1997 they add the ninth freedom. Thereafter, any airline which establishes itself in one country can receive a license to operate in the rest of the EU.

Low cost carriers start operating later than in the United States. The first one, Ryanair, begins in 1987, 16 years after Southwest. Europe's conditions favor the rapid ramp up of LCCs. As 20% of the population (and 24% of the gross domestic product) is packed into 7% of the territory, there are many high density city pairs. Train and auto travel are an effective alternative to air travel, but they are relatively expensive, especially rail.

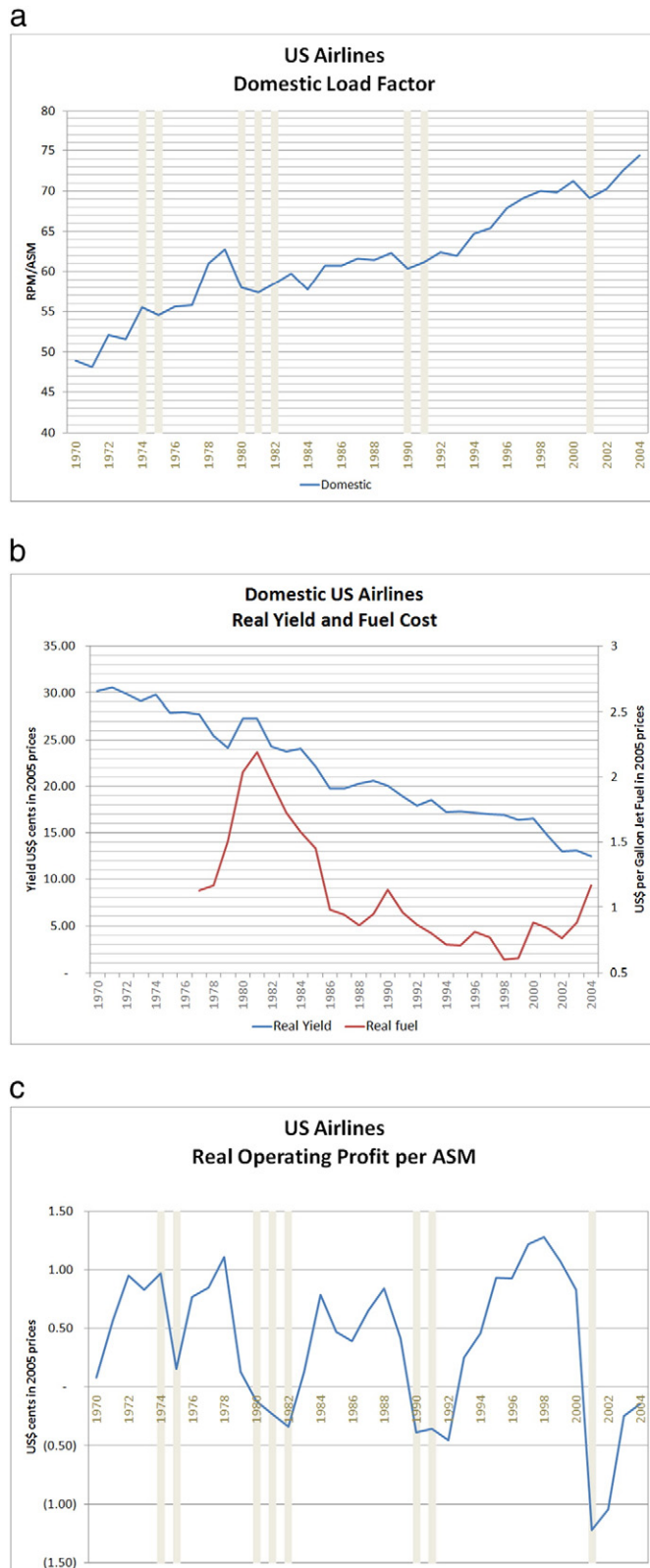
## 3. Traditional and LCCs in the United States

The US offers the best account of how competition unfolds between LCCs and traditional carriers, and clear evidence of the benefits of the LCC business model.

For all airlines, revenue from passengers makes up 75% of the total in the United States. The other 25% is distributed among cargo (15%), charges for excess baggage, penalties for date changes, etc.

In 2003 US airlines' main costs are labor and fuel. Table 1a shows the breakdown of cost per available seat mile (CASM) for several traditional airlines and LCCs (Southwest and JetBlue). Labor costs make up almost 40% of the large airlines' operating costs. The majority of airline employees support unions and these obtain attractive collective agreements, after months, or even years, of negotiation. American West negotiates its collective agreement with pilots between 2000 and 2004. Table 1b shows detailed operating data for several US airlines.

Fuel costs depend on the aircraft's capacity and age. The cost of fuel is the most volatile and unpredictable part of an airline's operating costs;



**Fig. 1.** (a) Operating and financial data for airlines in the United States. (b) Operating and financial data for airlines in the United States. (c) Operating and financial data for airlines in the United States. Shaded years: recession. RPM = revenue passenger mile = one passenger carried one mile. ASM = available seat mile = one seat carried one mile. Load factor = RPM / ASM. Yield = revenue/RPM. RASM = revenue / ASM. Profit per ASM = revenue/ASM – cost / ASM = RASM – CASM. Profit per ASM = yield × Load – CASM. Source: Air Transport Association.

see Fig. 1 for the evolution of the real cost of a gallon of fuel. LCCs effectively engage in aggressive fuel hedging programs.

Maintenance costs increase with the age of an airline's fleet. New aircraft experience less wear and tear and therefore need fewer parts. Furthermore, when parts are needed for the newest airplanes, the manufacturer warranty often covers them. The number of departures drives land operating costs. Payments for airport use, established in contracts between the airlines and the air terminals, represent the main element in this category. The commission airlines pay to travel agents decreases in the United States from an average of 12% in 1994 to less than 5% in 2002.

Costs differ significantly between LCCs and traditional airlines. The operating model is an important driver of these differences. Whereas traditional airlines continue using the hub and spoke model, LCCs operate point to point. In the hub and spoke model, flights from several origins are channeled to their destination through an intermediate airport (hub). Using this model, traditional carriers are able to serve people living in relatively small cities. LCCs in contrast use point to point systems, which work best when flying passengers between large cities that have a lot of people moving between them. Although LCCs have faster aircraft turnaround at airports, they do not benefit from consolidating traffic at hubs.

LCCs share many other characteristics. They tend to use a single type of aircraft, which allows them to reduce spare parts inventories, avoid complex purchasing, and streamline training costs. Southwest uses the Boeing 737–200 and JetBlue the Airbus A320 exclusively. Traditional airlines start to add regional jets, like the Embraer ERJ and the Bombardier CRJ, to their fleets. These jets have operating costs per ASM that are 3–4 US\$ cents (henceforth, cents) higher than that of an Airbus 320, and they have only half the flying range, so it makes sense to use them only for short routes that have little traffic.

LCCs also keep pricing simple, not unlike everyday low prices (EDLP) at supermarkets. For a given flight, prices vary by how far in advance the ticket is purchased: 14, 7 or 3 days before the flight. Pricing is more aggressive on routes with greater competition. LCCs use direct sales channels massively, and pay low or no commissions to travel agents. They offer only one class, keep onboard services to a bare minimum, and generally charge for food or any extras. The obsession of Ryanair with removing all frills leads it to introduce a £18 charge for the use of wheelchairs. In 2002, it is forced to eliminate this policy after a London County Court rules it to be discriminatory and unfair.

LCCs tend to operate out of secondary airports because it is easier to get permits and it is often also cheaper. All of these characteristics allow LCCs to gain a real cost advantage over traditional operators. Table 1a shows several operating metrics and Fig. 3a shows the evolution of revenue per available seat mile (RASM) and CASM for traditional and low cost carriers.

Variations on the LCC model also prove to be effective. JetBlue does not serve food on-board, but has planes equipped with leather seats and televisions. EasyJet operates from Europe's main city airports.

At the beginning LCCs focus on connecting high-density traffic cities, which often serve as hubs for the traditional airlines. However, as time passes, and the low hanging fruit has been picked, they begin to move to medium- and small-sized city airports.

#### 4. The Latin American market

There are 40 airlines in Latin America serving 580 airports (Hansman, 2004). The largest operator is Grupo Cintra (Mexicana de Aviación and AeroMéxico). In Central America alone there are 53 airports. By 2003, the region represents 10% of global air traffic, as volume doubles between 1985 and 2002.

As in Europe, national governments nurture and protect flag airlines in Latin America. Lagging Europe by only a few years, Latin American countries open their markets to their partners in regional trading blocks.



### Freedoms of the Air

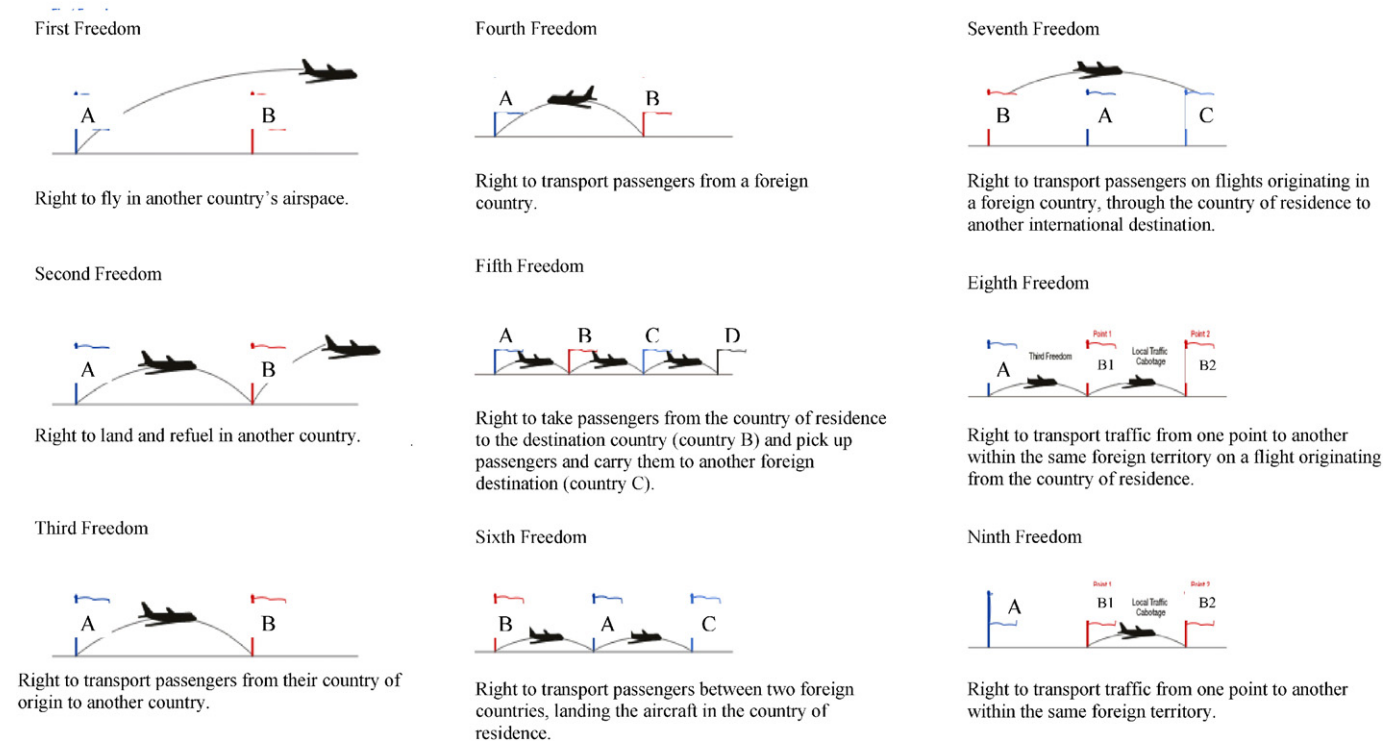


Fig. 2. Freedoms of the air.

In 1991 the Andean Region implements an open skies policy through which the airlines of Bolivia, Colombia, Ecuador, Peru and Venezuela obtain third, fourth and fifth freedoms for passengers and cargo, with no capacity or frequency restrictions. Passenger transport for un-served routes is automatically authorized. Service between city pairs that are already covered is authorized only if the market is deemed large enough to accommodate the entrant. The Mercosur countries (Argentina, Brazil, Paraguay and Uruguay with Bolivia and Chile) sign a similar agreement that same year.

In 1997 Panama, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua each sign separate, but almost identical, open skies bilateral agreements with the United States, providing market access without any restrictions on routes, capacity, frequency, code sharing or fares. This liberalization contributes to the rapid growth of tourism between the United States and Central America, particularly Costa Rica, which sees the number of US visitors double over the preceding nine years.

By contrast, within Central America strict reciprocity regarding market access rules exploitation agreements: if a new Panamanian airline requests a route to Guatemala, a Guatemalan company must have the

same right to cover the route to Panama. Several city pairs in Central America are very low density. In 2004, less than 50 passengers travel daily in each direction between San Pedro Sula and Managua, or San José and Guatemala.

The fares of TACA and Copa, TACA's only real competitor in Central America, are similar. Fares are high in absolute terms and very high compared to other modes of transportation. In March of 2004 the round trip air fare between San Jose and San Salvador of TACA and Copa is \$370, while the bus service is only \$80. A study that Grupo TACA conducts between 2003 and 2004 reveals that about 80% of passengers who use air transportation in Central America do so for business, 15% for pleasure and the rest to visit family and friends (VFF). Of the 80% of passengers that travel for business, 65% are corporate staff. These clients value direct flights, punctuality and convenient schedules. They prefer flights that leave early in the morning and return late in the afternoon. About 62% of passengers buy their tickets less than seven days before the trip.

New carriers attempt to break into the Central American market. The WSJ reports in June 2005 that Nature Air will start offering service

**Table 1a**  
US Airlines cost per available seat mile 2003. (US\$ cents).

	SW	JetBlue	AA	Delta	United	Continental	US Airways
Salaries and benefits	3.10	1.96	4.17	4.57	4.43	2.87	4.59
Fuel	1.16	1.08	1.59	1.40	1.65	1.24	1.10
Maintenance	0.60	0.17	0.49	0.45	0.34	0.48	0.57
Commissions	0.07	–	0.61	0.50	0.67	0.49	0.62
Leasing	0.25	0.44	0.39	0.52	0.58	0.84	0.74
Terrestrial land operations	0.52	0.50	0.67	0.62	0.69	0.58	0.61
Depreciation and amortization	0.53	0.37	0.79	0.89	0.68	0.42	0.42
Others	1.37	1.56	1.77	1.71	2.30	2.44	3.05
<b>CASM</b>	<b>7.60</b>	<b>6.08</b>	<b>10.50</b>	<b>10.66</b>	<b>11.34</b>	<b>9.36</b>	<b>11.70</b>
Average stage length (in miles)	730	1272	1,080	780	1,060	1,120	725

**Table 1b**

US airlines, operating data.  
Source: airline annual reports.

	2000	2001	2002	2003
<i>Southwest</i>				
Average daily utilization (hours)	11.2	11.1	11.1	11.1
% of sales online	na	na	na	50%
ASM (million)	59,910	65,295	68,887	71,790
RPM (million)	42,215	44,494	45,392	47,943
Yield (US\$ cents)	12.9	11.77	11.77	11.97
Average stage length (miles)	663	690	720	730
<i>JetBlue</i>				
Average daily utilization (hours)	12.0	12.6	12.9	13.0
% of sales online	na	na	na	63%
ASM (million)	1,371	4,208	8,240	13,640
RPM (million)	1,004	3,281	6,836	11,527
Yield (US\$ cents)	8.37	9	9.46	10.12
Average stage length (miles)	825	1,152	986	1,272
<i>American Airlines</i>				
Average daily utilization (hours)	na	na	na	10.0
% of sales online	na	na	na	7%
ASM (million)	161,030	153,035	165,209	172,200
RPM (million)	116,594	106,224	120,328	121,747
Yield (US\$ cents)	14.06	13.28	11.86	11.91
<i>Delta</i>				
Average daily utilization (hours)	na	na	na	9.0
% of sales online	na	na	na	24%
ASM (million)	154,974	147,837	141,719	151,679
RPM (million)	112,998	101,717	102,029	113,311
Yield (US\$ cents)	14.06	12.08	12.74	12.73

between San Jose–Costa Rica and Granada–Nicaragua for \$199 round trip. In 2003 Aeropostal Alas de Centroamérica establishes itself in Costa Rica to offer service between the Juan Santamaría airport and neighboring countries with DC-9 and MD 82/83 aircraft, starting in 2005. In 2004 there are also reports of a joint venture between Sol Air, a Honduran airline, and the Venezuelan Aeropostal to cover routes between Honduras, Guatemala and Costa Rica (La Nación, 2004).

## 5. Grupo TACA

The history of TACA goes back almost to the beginning of air transportation as told by Yerex (1985). In 1931 Lowell Yerex, a pilot from New Zealand, arrives in Tegucigalpa to help General Tiburcio Carías fight a war. When the hostilities end, a grateful Carías gives Yerex a single-engine plane to fly cargo and mail within Honduras. Yerex names his company Transportes Aéreos Centroamericanos (TACA).

In 1935 Yerex buys Guatemala's Compañía Nacional de Aviación and the airlines belonging to Nicaragua's Empresa Palacios. In 1936 he acquires a Costa Rican airline. In this way he obtains control of local routes through autonomous companies in each Central American country. As a result, TACA has 14 planes, 10 pilots and approximately 80 employees (Yerex, 1985).

In 1939 TACA carries 10,000 tons of cargo and approximately 200 tons of mail, making it the largest cargo carrier in the world. After it establishes companies in Venezuela and Colombia in 1943, TACA's footprint extends from the United States to Argentina. Pan American,

**Table 2**

Direct sales. (Percentage of total sales).  
Source: TACA.

	1999	2000	2001	2002	2003
Call centers	2%	3%	4%	4%	6%
TACA centers	10%	13%	12%	12%	11%
taca.com	–	0%	0%	2%	4%
Total	12%	16%	16%	18%	21%

**Table 3**

TACA capacity and market share by route 2003.  
Source: TACA.

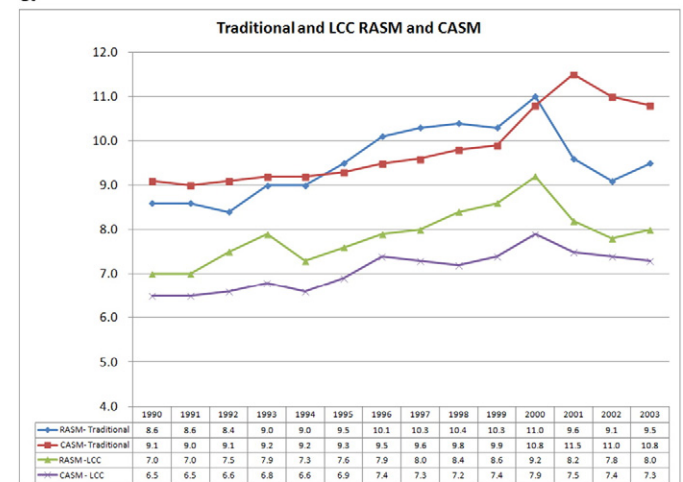
	ASM (million)	% ASM	Market share
CAM-CAM	804	13%	62%
CAM-NAM	3777	63%	42%
SAM-CAM	604	10%	28%
SAM-SAM	843	14%	10%
Total	6028	100%	29%

the only company that at that time has a similar span, responds by establishing local airlines in each of the countries of Central America: LACSA in Costa Rica, Aviateca in Guatemala and Aeronica in Nicaragua (Yerex, 1985).

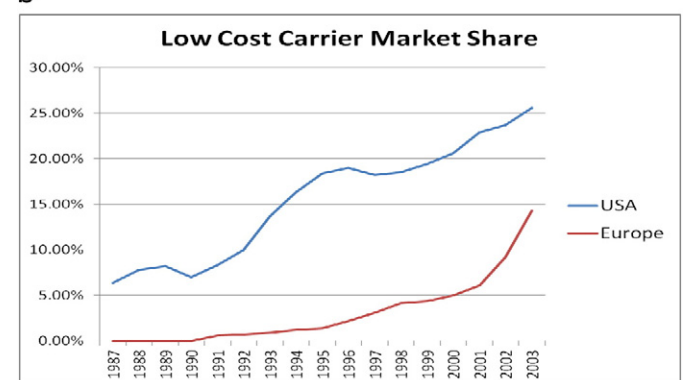
In 1945 Yerex leaves the company and sells his stock to Waterman Steamship Company, a firm with headquarters in Birmingham, Alabama. Waterman reduces TACA's operations in Latin America, choosing instead to focus on moving cargo in New Orleans. In 1960, Ricardo Kriete, a Salvadorian businessman, takes control of TACA El Salvador and turns the company's focus back to developing the Central American market. It once again competes with Pan American for passengers traveling to the US and with the companies launched by Pan American for regional passengers (Yerex, 1985).

The civil wars that ravage Central America at the beginning of the 1980s force many Salvadorans to take refuge in the United States. Over time, the growing population of Salvadoran immigrants in the US spurs growth of air travel between the two countries. TACA is careful to encourage loyalty towards the flag carrier; it offers personalized

a



b



**Fig. 3.** a. Traditional airlines vs. LCC. US domestic operations. In US\$ cents. Source: U.S. Jet Transportation Industry. b. LCC market share. Source: U.S. DOT Database and Eurocontrol.

service and shows great solidarity when an earthquake hits San Salvador in 2001.

In 1992 TACA acquires stakes in LACSA and Aviatega. At that time Aviatega is a public company flying from Guatemala to Miami, Los Angeles, Houston, New Orleans, Mexico, and the rest of Central America. LACSA is a private company that flies from Costa Rica to the same destinations as Aviatega, but also has valuable routes to New York, Caracas, Quito, Lima, Santiago de Chile, Sao Paulo and Rio de Janeiro. With the establishment of Nica in 1994 and Taca Honduras in 1996, it completes its Central American footprint, much like Yerex did years before.

In 1997 TACA becomes Grupo TACA and starts consolidating its operations. El Salvador serves as its hub for Central America and Costa Rica serves as its hub for operations between Central and South America, for which LACSA's routes are particularly valuable. 1999 sees a growth opportunity in the South American market that Grupo TACA considers poorly served so it establishes a hub in Lima, Peru.

In 1997 the open skies treaty between Central America and the US comes into effect and competition intensifies. In 1998 a price war starts with Continental and Delta for passengers traveling between the United States and Central America and TACA's cargo takes a hit from the consolidation of UPS's cargo operations in the region. Profits collapse between 1998 and 2000.

The management of TACA knows that dramatic measures are in order. After operating in a war torn region for twenty years, they are no strangers to adversity. The 2001 survival plan includes the following emergency measures:

- *Aggressive cost reductions by simplifying the organization.* Consultants' analysis shows alarmingly low productivity: TACA's revenue per employee is 30% lower than the average of Latin American airlines and almost 45% lower than the average of US airlines. Management moves swiftly to eliminate duplicate activities and those that are not adding value, and to improve other processes. These measures generate US \$20 million in savings and boost productivity by 47%. By May 2002 the revenue level per employee is US \$147,000.
- *Turn around unprofitable routes or get rid of them.* After carefully studying all the TACA routes, they decide to eliminate 30 and improve another 50. Fig. 4 shows TACA's routes.
- *Migrate to a 100% Airbus Jet fleet.* In 2000 TACA has a fleet with 44 aircraft: 19 Airbus 320, three Airbus 319, five Airbus 300 and 17 Boeing 737–200. By 2003 TACA has a fleet of 21 Airbus 320 and seven Airbus 319. The new fleet saves about US \$10 million a year.
- *Increase profit through improved yield management and more effective sales channels.* A benchmarking study shows profits would increase by raising fares on certain routes.

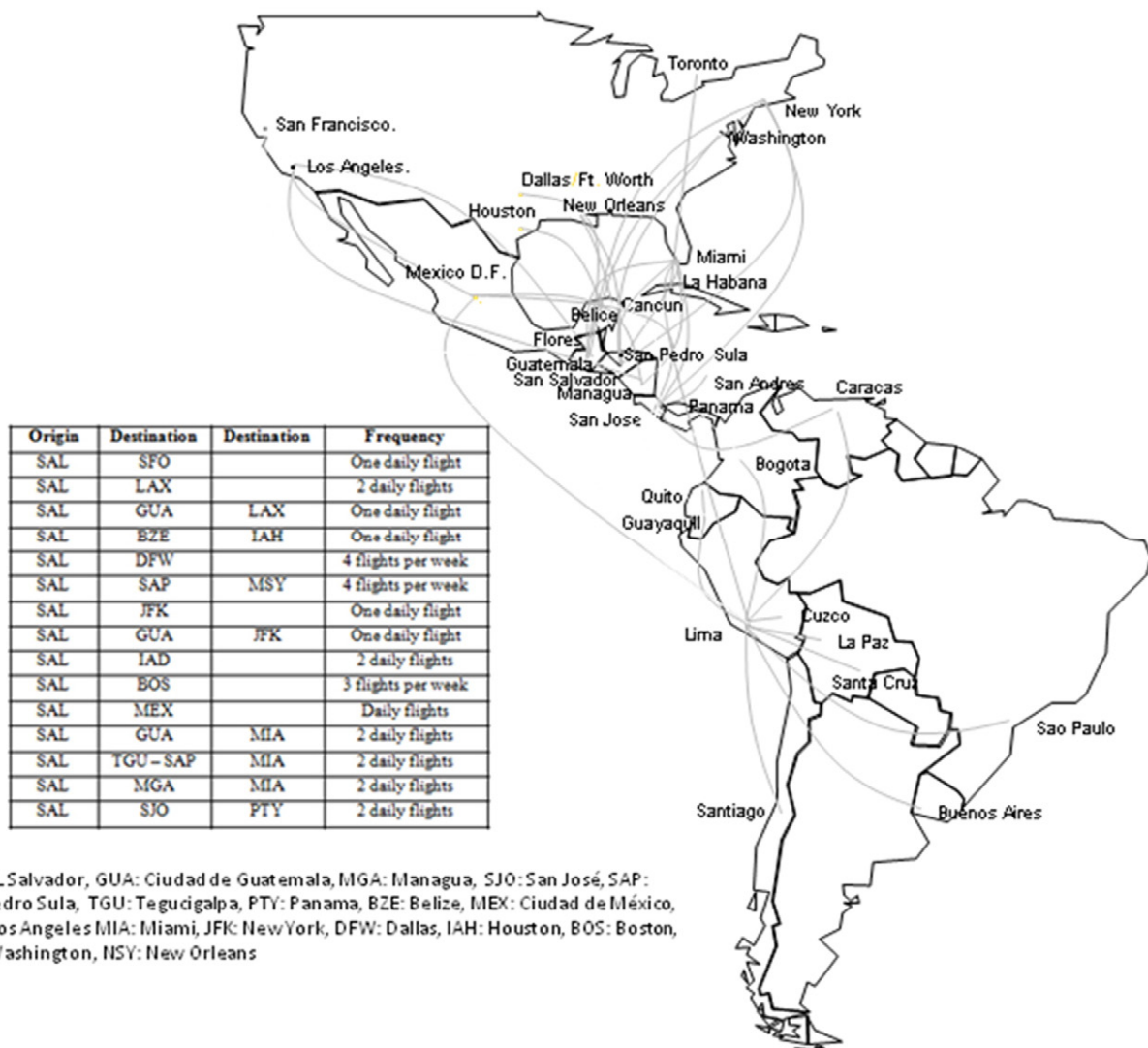


Fig. 4. TACA's route system, 2003.

TACA carries out a detailed analysis of the different market segments it serves. It establishes new fares to match its competitors and introduces additional restrictions regarding advance purchasing and minimum stay that discourage business passengers from traveling on fares designed for pleasure travelers.

It introduces new fares and implements a yield management system to try to improve profitability. TACA uses fares to segment demand and fare seat controls to avoid selling a seat for less than what is possible. For the Managua–San Salvador route, for example, the yield management office establishes how many seats will be reserved at the seven-day advance purchase fare of \$450 without travel restrictions, versus the lower fare of \$350 available 30 days prior to the travel date. These measures result in a substantial increase in profits in 2002.

In 1999, TACA sells 88% of its tickets through indirect channels. Starting several years before, and at a faster pace during the crisis, TACA's marketing focuses on developing direct sales channels. They contract an independent call center company to offer reservation and ticketing services for the entire Central American region, 24 h a day, and seven days a week. They also improve the location of TACA's physical sales and customer service centers throughout their network. By 2003 there are four TACA centers in El Salvador, three in Guatemala, two in Nicaragua, two in Honduras and three in Costa Rica. In South America and North America there is a TACA center in every city served by the airline. In February 2001 TACA launches [taca.com](http://taca.com) to reduce channel cost even further, and it hopes that internet sales will soon gain traction (Table 2). TACA expands its frequent flyer program, 'Distancia', which dates back to 2000.

After implementing all these emergency measures TACA's CASM drops to 9.3 cents. Close to 45% of CASM corresponds to flight operations, 11.2% to land operations and 10.7% to sales and publicity. Flight operation costs are those associated with fuel and crew payments. Land operations are payment for airport use and services offered externally in the loading area, such as cleaning, technical support and baggage administration. Direct maintenance represents 8.4% of CASM, administrative expenses 7.8% and passenger services 4.4%, indirect maintenance 1.7%, 1.7% depreciation and amortization, and 9% other expense items.

The average distance traveled by a carrier's aircraft is known as average stage length (ASL). In 2003 the ASL for TACA is 1059 miles. That year, TACA uses its aircraft 12 h per day.

Table 3 shows the composition of air traffic from and within different sub-regions of the Americas from 2000 to 2004. TACA carries 60% of the passengers traveling between Central American cities, while Copa carries most of the remainder. TACA carries 43% of the passengers traveling between Central and North America with a substantial lead over American and Continental. Copa again competes with TACA for passengers traveling between Central and South America, but on these routes its market share is almost twice that of TACA.

## 6. Centroamérica Fácil

The metrics of air travel in Central America in 2003 are poor. Only 20% of people traveling within Central America do so by air; of those, most travel for business. Most worrisome for TACA is the load factor of only 56% on flights within Central America.

On March 18, 2004 TACA launches Centroamérica Fácil to try to solve this problem. The program is designed to stimulate air travel within Central America by lowering the total cost of traveling by air, that is, the sum of airfare and the cost of time used to get through airports at both ends of a voyage. To be effective, the initiative requires a joint effort by TACA and the governments of the region. TACA reduces and simplifies fares. The Central American authorities are supposed to improve immigration and customs processes to allow passengers to get out of airports faster.

In order to get a sense of the market's elasticity TACA conducts a pilot plan to reduce fares between March and May on three routes: SJO–SAL, MGA–SAL and SJO–GUA. On the SJO–SAL route the reduction

in fares generates enough traffic to leave revenue essentially unchanged. The SJO–GUA leads to 10% higher revenue, while the MGA–SAL leads to 10% lower revenue.

To save passengers additional time at airports, TACA allows them to check in 24 h before their flight. At the same time, the company begins negotiations with the region's governments to introduce simplified immigration for Central American citizens. They hope to achieve a system similar to that in Europe where EU citizens just hold up their passports as they walk through immigration.

Mr. Roberto Kriete, President of the Board and CEO of TACA, states at the time of the program's launch: "TACA made this truly innovative decision after taking measures to reduce costs and simplify procedures. Another factor is the growing demand we have experienced this year as a consequence of increased business travel, new marketing initiatives to promote regional tourism, the FTA negotiations and the political stability we now have in our countries."

## Appendix A

### A.1. TACA HRO Analysis

Between 1998 and 2001 TACA airlines confront a particularly dire combination of events that endangers its profitability. A price war with US carriers threatens margins on flights connecting Central America and the United States, demand on Central American routes is weak as a result of the economic recession, cargo revenues collapse as a result of consolidation in the sector, and the terrorist attacks of September 11, 2001, reduce demand for air transportation and increase costs. As a result, TACA profits collapse at the end of 2001.

TACA confronts these circumstances through a commitment to resilience, one of the characteristics of a Highly Reliable Organization. TACA rises to the challenge by implementing a program to regain profitability and position itself for the future: i) the company conducts a study of its operations which leads to the elimination of 30 unprofitable routes and the restructuring of another 50 routes; ii) TACA moves to a 100% Airbus fleet in order to standardize procedures, reduce spare parts inventories and the cost of training pilots; iii) encourages new channels; iv) enhances revenue management policies; and iv) reduces cost by simplifying the organization. All these measures allow TACA to turn a profit by the end of 2002 and achieve a substantially lower breakeven load. The company is able to recover from the crisis and learn from it, an important characteristic of HRO (Weick et al. 1999).

Yet even after an impressive turnaround, TACA demonstrates that it is not satisfied with short term achievements and seeks to consolidate its position through its Centroamérica Fácil program, which creates value for its customers and develops its home base market. Although perceived value is subjective, as it varies between cultures, places and time periods (Sanchez et al., 2006), academic studies on air transport generally define perceived value as "the evaluation that a client makes of the utility of a product or service, based on the perception of what is received and what is given in exchange" (Zeithaml, 1998). According to this definition, the client's perception of the value of an airline depends on the tradeoff between the price of the ticket and the service the airline gives, in terms of waiting time in airports, punctuality and the convenience of schedules (Bieger et al., 2007). TACA attends a leisure segment, which reacts mainly to the price of the ticket, and a business segment, which attaches value to the level of service the airline provides, and the convenience of its schedules. In order to attract price driven passengers, TACA implements a plan to reduce and simplify airfares on all its regional routes. It establishes a single airfare applicable to tickets purchased on certain flights, seven or more days before the flight. For service driven passengers, TACA looks to enhance the travel experience, reduce waiting times in air terminals and allow advanced check-in, up to 24 h before the flight. It also initiates negotiations with the governments of the region to simplify and expedite immigration and customs procedures for Central American passengers. Alliances to



enhance perceived value, with governments or with firms in the same or other industries, entail risks, but assure the survival of an airline in the longer term (Kleymann and Seristö, 2001). TACA understands that to maintain and expand its market position, it has to improve its value proposition.

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## Appendix B

### B.1. TACA Teaching note

The airline industry is energy intensive, has high fixed costs and its demand is very sensitive to the economic cycle. Traditional carriers and low cost carriers differ in their operations and costs and in the way they adjust to downturns. TACA operates as a traditional carrier in markets with different degrees of deregulation. The company overcomes the dire circumstances of 1998–2001 by streamlining operations and increasing revenues which shows a commitment to resilience, a characteristic of Highly Reliable Organizations. Through the Centroamérica Fácil initiative, TACA seeks to increase value for its customers through lower tariffs and less total travel time, but density in Central American city pairs does not allow for point to point operation.

Keywords: Airlines, Deregulation, Central America, Business models

### B.2. Introduction

#### B.2.1. Case overview

The case is set in October 2004 when Roberto Kriete, CEO of TACA, launches “Centroamérica Fácil”, an initiative to stimulate air traffic in Central America through a joint effort between his company and the governments of the region.

Airline regulation seeks to ameliorate the industry's poor performance, but ends up making things worse. Deregulation stimulates the creation of hub and spoke networks, which lead to greater utilization of capacity as flights carry passengers traveling to many different city pairs. Deregulation is by no means complete. In Latin America, TACA's market, some intra-regional routes are still subject to exploitation agreements which limit entry and discourage competition.

After TACA's profit collapse in 1998–2001, the company reacts by aggressively cutting costs, eliminating unprofitable routes and fine tuning its price management system. As the situation improves in 2004, the company evaluates its strategy and launches the Centroamérica Fácil initiative.

#### B.2.2. Teaching objectives

- Discuss the competitive dynamics of an industry subject to high fixed costs, high energy intensity, and that varies sharply with the economic cycle.
- Evaluate alternative business models for airlines and establish their feasibility under different market environments and geographies.
- Discuss how a highly reliable firm reacts to adverse circumstances and establishes the foundation for long term success.

### B.3. Discussion questions

Discussion of this case can be suitably organized around the five questions that follow. Each question should take between ten and fifteen minutes, leaving another fifteen minutes for conclusions.

#### B.3.1. Characterize the long term performance of the airline industry and its adjustment to periods of recession

The airline industry measures volume in revenue passenger miles (RPMs), and we measure capacity in available seat miles (ASMs). Since deregulation, volume increases by a factor of 3.2 and capacity by a factor of 2.6. Capacity utilization, the ratio of RPM to ASM (i.e. load in the airline business), increases from 50% to 75% (Fig. 1a). Meanwhile, yield falls dramatically in real terms (Fig. 1b). Fig. 1 shows the effect of the economic cycle on US domestic airlines. During recessions demand drops and, since airlines have difficulty in adjusting supply, yields fall and load factors fall only moderately. In 1990–91, even though fuel prices increase almost 25% as a result of the Gulf War, real yields actually drop and load falls by only two percentage points. The same drop in load occurs during the 2001 recession, when yield declines as the price of fuel again increases, but from a much lower level. The severe 1980–82 recession is an exception to this pattern. The oil shock of 1979 sends fuel prices sharply higher making lower real yields impossible and the load factor falls by five percentage points.

Fig. 1c shows how the profit per ASM of US airlines varies over the cycle. Profits drop sharply in recessions, especially in the period following September 11. A common misapprehension is that “planes fly empty” during this period. The collapse of profit is actually associated with declining margins rather than falling volume.

#### B.3.2. Contrast the performance of US traditional and LCCs during the 2001 recession. Use Fig. 3a. How does RASM change for American Airlines (AA) and Southwest (SW) from 2000 to 2002? Why? $RASM = yield \times load$

Fig. TN-1 comes from Fig. 3a and shows that the profit per ASM for LCCs is consistently between 0.5 and 1.5 US\$ cents per mile (henceforth cents). As the recession hits, LCC RASM drops but remains above CASM, whereas traditional carrier RASM drops substantially, leading to losses.

From 2000 to 2002 the RASM of AA falls by 1.54 cents, and that of SW falls by 1.33 cents. This drop in RASM must reflect a drop in yield and/or in load. Interestingly, for AA yield drops by 2.20 cents, with a very small change in load. This is the type of adjustment to lower demand discussed in relation to Fig. 1. For SW, yields drop only 1.13 cents, but load falls 5%.

As SW is the LCC, should not its yield drop more than that of AA following a fall in demand? This apparent anomaly disappears when one remembers that traditional carriers engage in sophisticated price discrimination, making business customers pay higher prices for the privilege of returning home on a Friday, or for getting more flexibility on reservations. As the economy worsens, willingness to pay for these benefits falls and traditional carrier yields collapse. Yields for traditional carriers are, therefore, pro-cyclical because price dispersion is pro-cyclical (Cornia, Gerardi and Shapiro, 2010). Yields for LCCs change less over the cycle as they follow a policy similar to EDLP for supermarkets. This is also consistent with LCCs' decision not to participate in online travel marketplaces (Sin, Chellappa and Siddarth, 2011).

#### B.3.3. Contrast the costs of traditional carriers and LCCs. Why are they different? Which group does TACA belong to? Plot airline CASM against ASL. What do you find? You can control for the effect of ASL by calculating cost per equivalent seat mile (CESM) as recommended by the US Department of Transportation. Using Southwest as an example: $CESM_{SW} = CASM_{SW} * (ASL_{SW} / ASL_{base})^{0.5}$ Since the focus is on TACA, use TACA as the base.

Fig. TN-2 shows the relation between CASM and ASL. Three things are apparent. First, airlines with longer flights have lower CASM. Longer

flights mean that fixed costs are spread over more ASMs and also mean lower fuel expense per ASM, because aircraft spend more time cruising rather than taking off and landing. Second, for a given ASL, LCCs have lower CASM than traditional carriers. The ASL of Southwest and US Airways are almost the same, but the CASM of Southwest is about 4 cents lower. Third, TACA appears to have the costs of a traditional carrier.

Fig. TN-2 shows that Delta and American have a similar CASM. As American operates longer flights its costs should be lower than those of Delta. Table TN-1 shows CESM, which is CASM adjusted for distance using the DOT formulae. The unadjusted CASM is also shown for comparison. Since the ASL of Delta is below that of TACA, its CESM is lower than its CASM, and the opposite is true for American. The CESM of both airlines is very similar.

Among LCCs, the ranking of Southwest and JetBlue is reversed when JetBlue's advantage from greater ASL is adjusted for, which is consistent with the fact that JetBlue offers some frills.

Table TN-2 contrasts the CESM of LCCs with those of traditional airlines. The average cost disadvantage of traditional carriers relative to LCCs is 3.59 cents. The main driver of this difference is labor costs, which originate from greater levels of unionization. The row, other, which includes depreciation amortization and other fixed charges, is higher for traditional carriers because hub operations tie up their airplanes. Delta operates its aircraft 9 h/day, compared to 11 for Southwest and 13 for JetBlue. Traditional carriers spend 0.55 cents on commissions, whereas LCCs rely completely on direct channels.

Land operations and fuel each represent 0.25 cents of cost differences. LCCs try to use secondary airports with lower fees and have aggressive fuel hedging programs, which are often successful. The LCCs' cost advantage due to maintenance is only 0.10 cents, lower than one would expect from having a common fleet. A closer look at Table TN-1 shows that this is driven by the high maintenance cost of Southwest, which has a common, but very old fleet. The maintenance cost advantage for JetBlue is 0.25 cents, in line with land operations and fuel.

Table TN-2 confirms that TACA's CESM is in line with that of a traditional carrier. The cost structure, however, is rather different. TACA's main disadvantages when compared to the average traditional carrier are in commissions, land operations and maintenance, each of which represents 0.45–0.50 cents. TACA's online sales are very low compared to Delta and American, but the company is working to improve them. TACA is very conscious of the high cost of land operations and is trying to convince governments to reduce them through the Centroamérica Fácil program. TACA is in line with LCCs and has a considerable advantage compared to traditional carriers in other, which represents various fixed costs. Although TACA operates a hub and spoke system, the company is able to keep its aircraft in the air 12 h a day, 1 h more than Southwest.

#### B.3.4. Characterize the markets in which TACA operates. What measures does TACA adopt to avoid bankruptcy in 2001?

Fig. 4 shows that TACA is a network carrier with hubs in San Salvador, San Jose and Lima. TACA operates in very different markets. Table 3 shows that 63% of TACA's capacity is deployed on the CAM–NAM routes, and that the CAM–CAM routes, where the company originates, represent only 13%.

In 1999 TACA starts serving the SAM–SAM market through its hub in Lima. SAM–SAM is as large as CAM–NAM, but TACA's share is only 10%. In the CAM–CAM routes, TACA has a 62% share. Restrictions to entry on these routes remain, and TACA shares this market with Copa. TACA's participation is also fairly high in the CAM–NAM routes, but this market is wide open to competition through the liberal bilateral agreements of each country with the United States.

In 2001 TACA realizes that drastic measures are in order to avoid bankruptcy. The company implements measures to reduce cost and increase revenue. The immediate closure of unprofitable routes and

the elimination of redundant positions are stop gap measures which have a rapid impact on cost. The move to a 100% Airbus fleet should lead to significant savings over time in maintenance expenses, which are 0.50 cents above the average for traditional carriers. Internet sales are expected to continue growing, but they are still small compared to TACA centers which are especially attractive to corporate clients.

#### B.3.5. What is TACA trying to achieve with the Centroamérica Fácil Program? Can TACA become a LCC?

By 2004, TACA feels that it is time to rationalize rates in Central America. Section B.3.3 shows that commissions, maintenance and land operations are higher than for other traditional airlines. As TACA depends on business travelers the company is likely to continue using travel agencies and increasingly use the TACA Centers. Maintenance costs should fall as the company exploits the benefits of a 100% Airbus fleet. Land operation expenses, however, are amongst the highest in the world and previous attempts to negotiate lower fees failed.

Why not tie the two things together? If the governments of the region accept the Centroamérica Fácil challenge, TACA can continue improving its costs position, and any positive impact of lower prices will be magnified if travelers, especially busy executives, waste less time at airports.

Section B.3.3 shows that TACA has the costs of a traditional carrier. Moreover, routes in Central America have nowhere near the density required for a point to point operation, with only three city pairs with more than 100 passengers traveling each way every day. Though traffic might expand with lower fees, the results of the pilot study are not sufficiently encouraging.

#### B.4. Epilogue

In 2009 TACA and Colombian carrier Avianca announce their merger, creating the largest airline of Latin America. The following year they start reorganizing and integrating their route networks. In 2012 they join the Star Alliance, the largest group of network carriers in the world. The 80 year old dream of Yerex, of an airline flying from the US to Argentina, remains alive.

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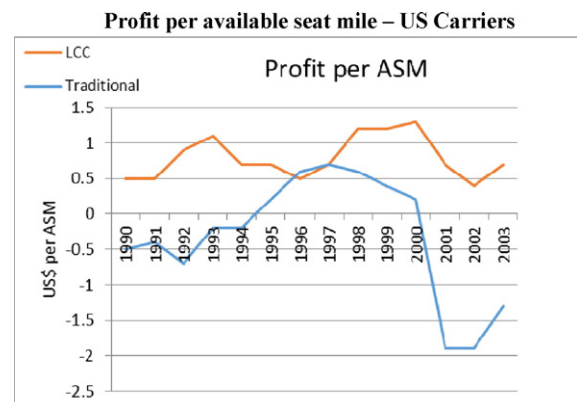


Fig. TN-1. Profit per available seat mile – US Carriers.

## Cost and Distance flown

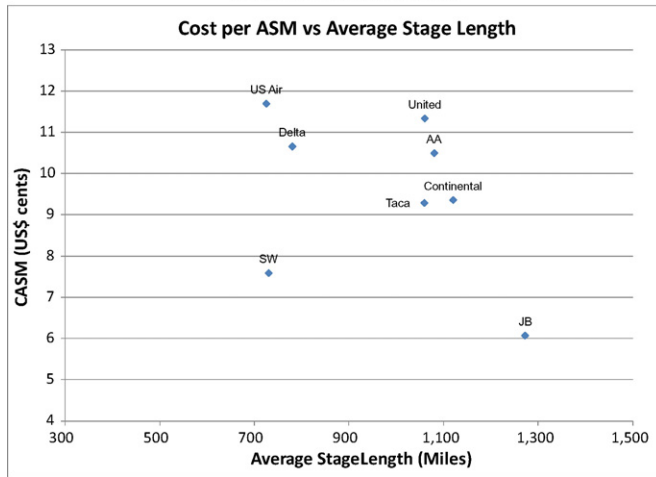


Fig. TN-2. Cost and distance flown.

Table TN-1

Cost per equivalent seat mile (CESM). US\$ cents

	SW	JET Blue	AA	Delta	United	Continental	US Airways	TACA
Salaries and benefits	2.57	2.15	4.21	3.93	4.43	2.95	3.80	2.78
Fuel	0.96	1.18	1.61	1.20	1.65	1.27	0.91	1.40
Maintenance	0.50	0.19	0.50	0.39	0.34	0.49	0.47	0.94
Commission	0.06	-	0.62	0.43	0.67	0.51	0.51	0.99
Land operations	0.21	0.48	0.40	0.45	0.58	0.86	0.61	1.04
Other	2.01	2.66	3.27	2.76	3.67	3.54	3.38	2.13
CESM	6.31	6.66	10.60	9.15	11.35	9.63	9.68	9.28
CASM	7.60	6.08	10.50	10.66	11.34	9.36	11.70	9.28

Table TN-2

Cost per equivalent seat mile (CESM). US\$ cents

	LCC	Traditional	Trad-LCC	TACA	TACA-LCC	TACA -Trad
Salaries and benefits	2.36	3.86	1.50	2.78	0.42	(1.09)
Fuel	1.07	1.33	0.25	1.40	0.33	0.07
Maintenance	0.34	0.44	0.10	0.94	0.60	0.50
Commission	0.03	0.55	0.52	0.99	0.96	0.45
Land operations	0.34	0.58	0.24	1.04	0.69	0.46
Other	2.34	3.32	0.99	2.13	(0.20)	(1.19)
Total	6.49	10.08	3.59	9.28	2.79	(0.80)

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