Managing Strategic and Financial Risk in Airline Expansion: The Case of Ethiopian Airlines[1]

Aly Verjee
Master of Studies (MSt) Candidate,
Department of Politics and International Studies
University of Cambridge

[1] The author selected this topic in December 2018. On the morning of 10 March 2019, Ethiopian Airlines flight ET302 from Addis Ababa to Nairobi crashed six minutes after take-off. All 157 passengers and crew aboard were killed. As of the time of this essay's submission, the accident's cause remains unknown, and the long-term implications for the company uncertain. While this paper does not address the management of *operational* risks of airlines, ET302 reminds us that this dimension is all too real, and that there can be potentially devastating consequences.

Condolences are offered to the families, friends, and colleagues of the passengers and crew of ET302, and to all associated with the airline.

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Student Name: Aly Verjee

Email contact: av506@cam.ac.uk

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Bio-sketch (Approximately 150 words)

I am a candidate for the Master of Studies degree at the Department of Politics and International Studies, researching the psychology of international mediation.

Professionally, I primarily work as a political analyst of contemporary African politics, focusing on eastern Africa. I am currently a senior visiting researcher at the United States Institute of Peace in Washington, DC, and a fellow of the Rift Valley Institute. I previously served as deputy and then acting chief of staff to the former president of Botswana, Festus Mogae, in his capacity as chairperson of the Joint Monitoring and Evaluation Commission, which oversaw the 2015 peace agreement in South Sudan. During the 2013-15 South Sudan peace talks, I served as a senior advisor to the chief mediator, the former foreign minister of Ethiopia, and former chairman of the board of Ethiopian Airlines. I have also served as the European Union's chief political analyst for election observation missions in Tanzania, Zambia and Sudan.

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Email contact: av506@cam.ac.uk

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"If you want to be a millionaire, start with a billion dollars and launch a new airline."[2]

A maxim in commercial aviation is that airlines almost always lose money.[3] Some analysts go as far as to argue that the global industry has collectively never turned a profit.[4] Whatever the accuracy of the overall accounting, it is clear that commercial aviation is an industry in which it is difficult to thrive; Adam Pilarski describes it as a sector that "seems to violate the most basic principles of economics and business."[5]

History is replete with examples of failed airlines, many of which were once profitable enterprises (e.g. Pan Am, Trans World Airlines (TWA), Swissair, and most recently in the UK, Monarch and Flybmi). According to industry executive Robert Martin, since 2001, there have been at least 301 airline company failures worldwide.[6] And of all the aspects of the airline business, **expansion** is one of the riskiest. Again, the industry's history demonstrates that airline expansion risks, and often overextends, the fundamental strengths of the business.

However, despite the many pitfalls, most airlines do explicitly seek to expand. Therefore, **identifying – and then managing and mitigating – the risks of expansion** is essential if a growth strategy is to succeed. This essay addresses the case of what was, for nearly sixty years, a small, mostly unremarkable, state-owned airline, in an aviation market more commonly associated with war and poverty, and its rise to become its continent's largest and most profitable airline, and one of the most rapidly growing worldwide: Ethiopian Airlines (call sign: ET), founded in 1945.

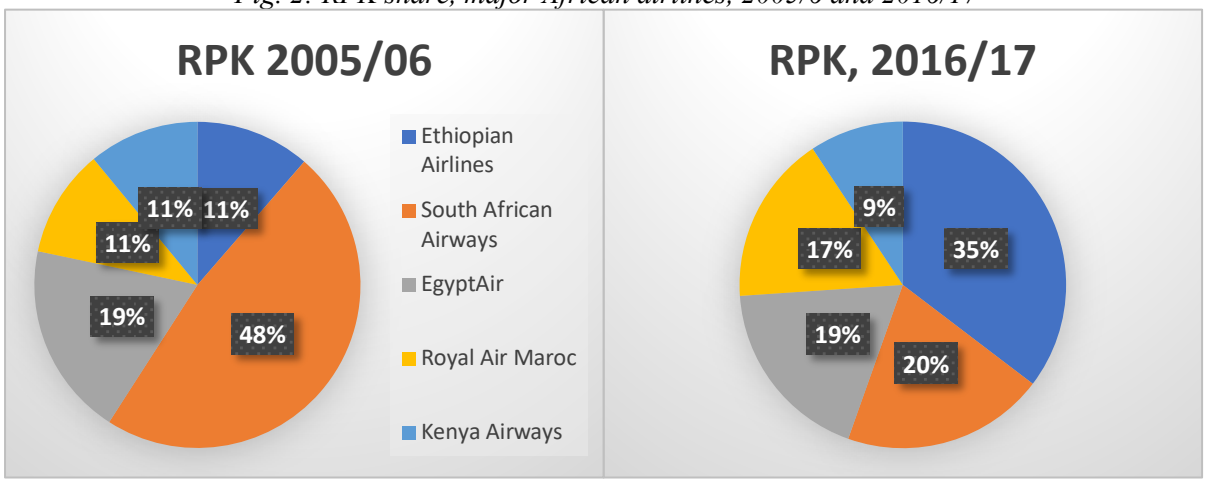
In a little more than a decade, Ethiopian increased more than six-fold the number of passengers it carried (see Fig. 1). Ethiopian is **now Africa's biggest airline** by passenger traffic, growing even in years that saw a decline in air traffic on the continent.[7]

Fig. 1: Ethiopian Airlines traffic, in millions of passengers, 2005-18.

[2] Richard Branson, founder of Virgin Atlantic, Virgin Australia, Virgin Nigeria, and Virgin America airlines, circa 2001.
[3] To memorably quote Omar Fontana, the founder of airline Transbrasil, "there are three ways to lose a lot of money: slow horses; fast women; and airlines. But you know, they're all a lot of fun."
[4] "Five Reasons Why the Airline Industry Will Never Be Profitable," Faculty of Law, McGill University, 2011. https://www.mcgill.ca/iasl/files/iasl/ASPL614-Five-Reasons-Airline-Never-Profitable.pdf
[5] A. Pilarski, "Why Can't We Make Money in Aviation?" London: Routledge, 2007.
[6] "BOC Aviation CEO Update," CAPA Low Cost Long Haul Global Summit, 4-5 Oct 2018, https://centreforaviation.com/analysis/video/boc-aviation-ceo-update--the-need-to-understand-everything-about-airlines-from-their-business-model-and-management-team-through-to-liquidity-and-the-competitive-market-882
[7] W. Davison, "Ethiopian Airlines Profit Rises 12 Percent in 2014-15," Bloomberg, 7 March 2016.

In 2008, rival South African Airlines (SAA) carried three times as many passengers as Ethiopian. Ethiopian now carries almost twice as many passengers as SAA.[8] As shown in Fig. 2, Ethiopian **now dwarfs its competitors** by industry metric revenue passenger kilometres (RPK), increasing its share from 11% in 2005/6 to 35% in 2016/17.[9]

Fig. 2: RPK share, major African airlines, 2005/6 and 2016/17



Further demonstrating its significance, **Ethiopian recently overtook Emirates and its mega-hub Dubai** in the number of international transfer passengers carried to Africa.[10]

Today, Ethiopian Airlines is the largest African airline group by revenue and ranks 52nd globally, ahead of better-known Finnair (55th), Malaysia's Air Asia (58th), and US Hawaiian (59th), and on par with the UK's Virgin Atlantic (46th), Alitalia (48th), and Air India (50th).

By the available seat kilometres (ASK) industry metric, Ethiopian is comparable to Taiwan's China Airlines, but with much more rapid growth: a 20% increase in ASK year on year (see Fig. 3), with dramatic growth in destinations served and fleet size (see Fig. 4).[11]

Fig. 3: ET Growth in ASK and RPK, 2005-18

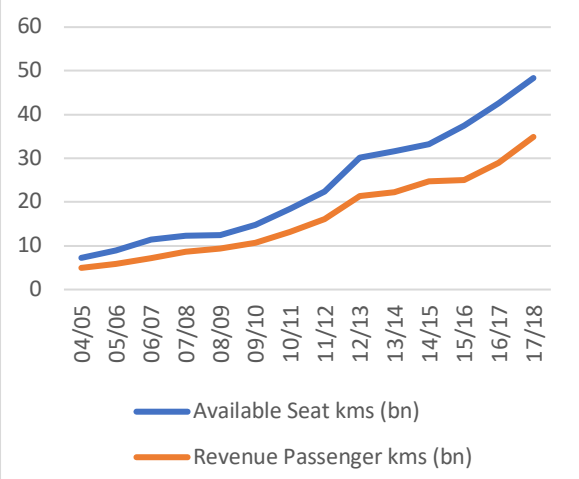
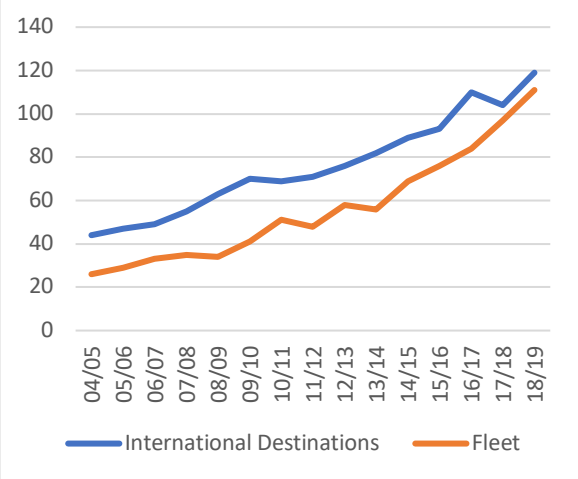


Fig. 4: ET Destinations and Fleet Size, 2004-19



[8] "Ethiopian Airlines 2015 outlook: more rapid expansion as it becomes Africa's largest airline," CAPA Centre for Aviation, 13 January 2015, https://centreforaviation.com/analysis/reports/ethiopian-airlines-2015-outlook-more-rapid-expansion-as-it-becomes-africas-largest-airline-204559

[9] RPKs are the number of revenue passengers carried multiplied by the distance flown.

[10] O. Mohammed, "Ethiopia overtakes Dubai as top feeder of air traffic to Africa," Reuters, 29 November 2018.

[11] ASKs are the airline's available seats multiplied by the distance flown. Data adapted from the FlightGlobal World Airline Rankings, 2014-2018, and Ethiopian Airlines annual reports, 2004-16.

Ethiopian's success was far from inevitable; managing the risks of expansion was key

As recently as 2013, aviation experts Heinz and O'Connell argued that African carriers, including Ethiopian, were "being severely threatened by Gulf based carriers that are continuously strengthening their footprint in Africa."[12] Even more recently, based on 2015 data, industry analyst OAG reported that "African aviation punches below its weight," a description in which it did not exclude Ethiopian.[13]

Yet the data suggests Ethiopian has risen above its peers and is competitive even when going head to head against industry giants.[14] However, **focusing on profits and growth does not explain the company's success, nor how the risks of failure were overcome**.

Especially where its competitors have stagnated, and, as in the cases of once larger SAA and Kenya Airways, are now suffering huge losses, how did Ethiopian overcome and manage the risks of expansion?[15] This **essay reviews Ethiopian's response to manage and mitigate strategic and financial risks inherent in airline expansion, categorized in five areas:**

1. the risk of burgeoning operating costs (financial risk);
2. the risk incurred in sizeable capital acquisition costs (financial risk);
3. sales currency risks (financial risk);
4. political risks in emerging markets, including protectionism (strategic risk);
5. the risk of market downturns (strategic and financial risks).

Although Ethiopian has rarely articulated its expansion strategy in terms of risk mitigation, I argue that the airline's choices exemplify three forms of risk management:

1. applying proven **defensive** strategies from other airlines (e.g. fuel hedging, trialling new destinations conservatively, with set performance cut-offs);
2. applying proven **affirmative** strategies (e.g. participating in airline alliances, targeting an increase in cargo in underserved markets);
3. applying innovative **affirmative** strategies, such as:
    a. through joint ventures, pioneering an original, secondary hub approach in minor markets (e.g. Lomé in the West African nation of Togo) which helped strengthen entry into a much larger sub-regional market (West Africa) to overcome the potential political risks and protectionist tendencies;
    b. creating new aviation markets (initially, East Asia to Africa; later, an alternative Asia to South America route, via Africa) to diversify the business and insulate the company from localised market downturns.

Managing and mitigating risk one: burgeoning operating costs

One great risk of airline expansion is increasing operating costs, without a corresponding, comparable increase in revenue generated. Even without growth, an airline's "input costs are volatile."[16] In common with most airlines, Ethiopian's largest operating cost is fuel. In

[12] S. Heinz, J. F. O'Connell, Air Transport in Africa: Toward Sustainable Business Models for African Airlines, Journal of Transport Geography 2013, 31: 72-83.
[13] OAG, "The Big Five: Disruptive Strategies for African Aviation," 2016.
[14] M. Korhonen, "Who's the biggest African airline of them all?" Africa Check, 18 September 2018, https://africacheck.org/factsheets/factsheet-whos-the-biggest-african-airline-of-them-all/
[15] J. Bowker, "South African Airways Seeks Urgent Funding After Latest Loss," Bloomberg, 16 May 2018, https://www.bloomberg.com/news/articles/2018-05-16/south-african-airways-seeks-urgent-funding-after-latest-loss; V. Juma, "Kenya Airways half-year losses contract to Sh4bn," Daily Nation, 29 August 2018, https://www.nation.co.ke/business/Kenya-Airways-net-loss-contracts-to-Sh4bn/996-4733884-r8xgd5z/index.html
[16] Five Reasons, op. cit., n. 4

2004/5, Ethiopian's fuel costs amounted to 32% of its operating expenses that year. In 2006/7, fuel costs had increased to 39% of operating expenses, returning to a 32% share by 2016/17.[17] The effect of global oil prices is particularly acute in African commercial aviation: as Ethiopian's CEO observed, "jet fuel…is on average 30% more expensive in Africa, our home market, than in the rest of the world."[18]

Ethiopian mitigated this financial risk by periodically implementing a defensive, fuel hedging strategy. Put simply, in hedging, the airline establishes a supplier contract to establish a known fuel cost, which will limit the company's exposure to commodity price volatility. Even if oil prices were to increase, the supplier is obliged to provide the fuel at the previously agreed price. To compensate for this higher risk to the supplier, the hedging cost of the commodity is usually substantially higher than the current spot price, and also requires significant cash collateral to be paid in advance.

As Ethiopian expanded, it varied the quantity of fuel hedged, and varied the time horizon over which hedging was used. For example, in 2006/7, a then much smaller airline only hedged 50% of its fuel requirements, to limit its cash exposure. By 2011/12, with greater cash on hand, and higher prevailing oil prices worldwide, the airline hedged up to 75% of its total fuel requirements, while implementing the hedge for a maximum of two years. By 2015, no hedging strategy was being used, although the company maintained internal expertise for "various hedging strategies," in the event such policies need to be re-activated.[19]

A similar defensive posture is taken when testing the addition of new destinations to the route network by limiting the potential for losses. New destinations have first been added "as a one-stop, initially to build demand before moving to a non-stop service."[20] As a former Ethiopian Airlines board member explained to me, "we had very strict parameters for losses on new routes. Losses were expected, but a floor would be set in advance, and if the route did not perform within the cut-off period, we already knew we would try somewhere else."[21]

Managing risk two: increasing capital acquisition costs

Airline expansion cannot occur without more aircraft to service new routes. While new aircraft may be more fuel efficient and attractive to passengers, airlines incur sizeable costs in bringing new planes into the fleet. Ethiopian took a risk in ordering the then-new, untested Boeing 787 aircraft, placing a ten plane, $1.3 billion order in 2005. At that stage, Ethiopian was only the fifteenth airline worldwide to buy the plane, and the first in Africa.[22]

The groundwork for financing this large order had been laid long in advance. Ethiopian was able to mitigate the risk of overextension by leveraging a long-standing relationship with the US Export-Import Bank, eventually obtaining a $1 billion loan guarantee for the 787s, which dramatically lowered the long-term costs of this fleet expansion with preferable interest

[17] Ethiopian Airlines annual reports, 2004/5, 2006/7, and 2016/17.
[18] "Ethiopian Registers Record Success in 2017/18 Fiscal Year," Ethiopian Airlines, 9 August 2018, https://www.ethiopianairlines.com/corporate/media/media-relations/press-release/detail/1000
[19] Ethiopian Airlines annual reports, 2006/7, 2011/12, and 2016/17.
[20] "Ethiopian Airlines extends its Asian reach and links South America with China," CAPA Centre for Aviation, 19 February 2013, https://centreforaviation.com/analysis/reports/ethiopian-airlines-extends-its-asian-reach-and-links-south-america-with-china-97845
[21] Author interview with former Ethiopian Airlines board member, Addis Ababa, February 2019.
[22] "Ethiopian Airlines to Buy Up to Ten Boeing 787 Dreamliners," Boeing, 4 February 2005, https://boeing.mediaroom.com/2005-02-04-Ethiopian-Airlines-to-Buy-Up-to-Ten-Boeing-787-Dreamliners

rates.[23] Although the delivery of the 787 was delayed and numerous performance difficulties experienced once deliveries began, over time Ethiopian reaped the benefits of increased efficiency in operating costs. Being an early adopter of a new aircraft type paid off.

Ethiopian's next big move in fleet expansion was masterful. Having historically operated an all-Boeing jet fleet, in 2009, Ethiopian ordered the new Airbus A350, leveraging the Airbus-Boeing rivalry to negotiate substantially better terms from the manufacturer, in a way that most large airlines, with an existing mixed Airbus/Boeing fleet, cannot. Although this came at the cost of investing more in staff training on a new aircraft type, the exposure to capital risk of a large purchase decreased, as Ethiopian was able diversify its methods of financing the A350s. Two aircraft were leased through a specialist aviation financier, for a twelve-year period; with twelve more financed through a combination of European state credit agencies, capital markets, and private finance.[24]As analyst Gebeyehu Abebe concludes, this mixed financing strategy "provided lower interest rates," to the airline, minimizing its overall risk exposure.[25]

Managing and mitigating risk three: sales currency risks

Given its operations and sales in more than 40 African markets, most of which have their own currencies, in addition to its operations elsewhere in the world, Ethiopian is, in its own words, "exposed to **huge** foreign currency risk resulting from changes in foreign exchange rates, partially attributable to [an] inability to repatriate its funds as a result of regulatory restrictions…or actions taken by the governments," in the countries in which it operates.

Over time, Ethiopian improved its currency management position. In 2007, the company's cash currency composition was only 88% in preferred currencies (USD, EUR, GBP and other European currencies), whereas "6.8% [was held] in African currencies, 0.67% in Ethiopian Birr and 4.67% in all other currencies," with a sizeable amount trapped in "blocked bank accounts" with funds "which are not readily transferable."[26]

By 2015, Ethiopian was losing about $10 million in currency fluctuations, and had begun to "use a natural hedge by effecting payments in the currency of sales," as well as to work with airline trade bodies such as the International Air Transport Association (IATA) for "ways to hedge currency risks with selected banks."[27] While the proportion of cash held in preferred currencies had increased to over 90%, volatility remained a risk, and sales currency revenue management required ongoing vigilance.

Proven affirmative strategy one: joining an airline alliance

Ethiopian joined the world's largest airline alliance, Star Alliance in December 2011.[28] Aligning itself with industry giants United and Lufthansa, as well as regional competitors EgyptAir and Turkish Airlines, was a big step for Ethiopian, at a time when **its own plans for growth could have been considered hostile** to existing alliance members. But by

[23] "Ex-Im Bank Supports Aerospace Exports to Ethiopian Airlines, Signer of Cape Town Treaty," 15 December 2003, https://www.exim.gov/news/ex-im-bank-supports-aerospace-exports-ethiopian-airlines-signer-capetown-treaty ; C.S., "Ethiopian dares to Dream," The Economist, 3 September 2012
[24] K. Bekele, "Ethiopian seeks loans to finance 12 Airbus aircraft purchase," The Reporter, 9 July 2016
[25] G. Abebe, Determinants of Aviation Profitability: The case of Ethiopian Airlines, Addis Ababa University, February 2017
[26] Ethiopian Airlines annual report, 2006/7
[27] Ethiopian Airlines annual report, 2015/16
[28] Star Alliance: Ethiopian Airlines; https://www.staralliance.com/en/member-airline-details?airlineCode=ET

making overtures to Star Alliance before Ethiopian's rise was fully cemented, Ethiopian won the support of Lufthansa to sponsor its alliance entry.

The commercial advantage to joining an airline alliance has long been recognised.[29] Morrish and Hamilton found that joining an alliance can improve an airline's internal productivity.[30] Oum et al. identified increased efficiencies, increased traffic exchanged between partners within the alliance, and greater traffic density.[31] For a growing airline, entering an alliance helps improve the chances that new routes can benefit from through-ticketing on other airlines, and more formal code-sharing opportunities, whereby one carrier sells space on another carrier under its own airline code. The revenues are then split. Ethiopian was quickly able to code-share with Air China, and other airlines within the alliance, such as Japan's All Nippon Airways (ANA), quickly followed.[32]

For Ethiopian, there were additional advantages to joining Star: a boost to reputation as a 'mainstream' airline, a marketing presence in airports worldwide, and expectations of greater efficiency and cost-savings.[33] In the context of mitigating risk, entering an alliance was a conventional, but useful move: it **demonstrated a willingness to co-operate at a time of growth** (unlike many of the Gulf airlines). It made other airlines more willing to consider code-sharing, which was particularly important for Ethiopian's new routes, and it offered the prospect of reaching customers who live far beyond Ethiopian's gateway cities.

Proven affirmative strategy two: targeting an increase in freight to diversify revenue

In 2004/5, freight accounted for less than 10% of Ethiopian's operating revenue; by 2017, a now considerably larger company had increased freight's contribution to its operating revenue to 16%.[34] In conjunction with, but complementary to its passenger growth strategy, Ethiopian pursued an aggressive expansion into dedicated cargo operations. By 2012, it was already Africa's largest cargo carrier with six freighter aircraft, including the only Boeing 777F in the African market. Several more freighter aircraft have been added since.

Export freight was an important sector to target for growth given Ethiopia, and much of East Africa's increasing production of time- and temperature-sensitive perishables like flowers, fruits and vegetables. Coupled with an earlier investment in a specialized cargo terminal and cold storage facility in Addis Ababa, Ethiopian was diversifying its business, at a time when cargo volumes were increasing worldwide. Partnering with global leaders such as DHL to expand operations to Brussels and Liège, Belgium, Ethiopian instituted four-times-a- week 777F service to Belgium, largely to deliver flowers and related perishables.[35]

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[29] T. Oum et al., "Globalization and Strategic Alliances: the case of the Airline Industry," Oxford: Elsevier, 2000; S. Morrish & R. Hamilton, "Airline alliances—who benefits?" Journal of Air Transport Management 2002, 8:6, 401-407; A. Tugores-García, "Analysis of Global Airline Alliances as a Strategy for International Network Development," Massachusetts Institute of Technology, 2012.
[30] Morrish & Hamilton, op. cit., n. 29.
[31] Oum et al., op. cit., n. 29
[32] "Star Alliance Members, Ethiopian and ANA, Launch Code-Share," ANA, 17 October 2014, https://www.ana.co.jp/eng/aboutana/press/2014/pdf/141017-2.pdf
[33] "Star reaffirms position as strongest alliance in Africa with Ethiopian and potentially ASKY," CAPA Centre for Aviation, 13 December 2011, https://centreforaviation.com/analysis/reports/star-reaffirms-position-as-strongest-alliance-in-africa-with-ethiopian-and-potentially-asky-64483,
[34] Ethiopian Airlines Annual Reports 2004/5, 2016/17.
[35] R. Woods, "The Lion Roars: How Ethiopian became Africa's largest cargo carrier," Air Cargo World, 5 February 2015, https://aircargoworld.com/allposts/the-lion-roars-how-ethiopian-became-africa%E2%80%99s-largest-cargo-carrier/

While most passenger airlines have cargo ambitions, many see it as a secondary, somewhat incidental, part of the business, and may not have a sophisticated long-term strategy to increase freight volumes. Given the limited transport infrastructure across Africa, air freight is particularly important even in smaller African markets that would otherwise be overlooked. By offering a cargo capacity to underserved markets, Ethiopian **recognised the potential for growth in this sector, independent of its plans to increase passenger traffic**.

Implementing this approach at a time of fleet growth was important, as it let exporters across Africa, including Ethiopia's own domestic traders, know that they were also considered in the airline's growth plans. Neither was import cargo to Africa overlooked, with Ethiopian taking steps to target both specialised freight, such as exploration and drilling equipment for the oil industry, to supplement generic freight consignments.

Innovative affirmative strategy 1: using joint ventures to pioneer an original secondary hub and spoke model to mitigate political risk

In sub-Saharan Africa, the largest aviation markets are also the continent's largest and most populous countries: Nigeria in West Africa (population 190m, GDP $375.8 bn) and South Africa (population 56m, GDP $349.4bn).[36] Ethiopian instead established its secondary hubs in Lomé, in tiny Togo (population 7.8m, GDP $4.8bn) and Lilongwe, Malawi (population 18.6m, GDP $6.3bn).[37]

Most airlines position their secondary hubs in major markets. Consider British Airways' second hub at London Gatwick, Air France's second hub at Paris Orly, or American Airline's nine other hubs after market leader Dallas/Fort Worth – Charlotte, Chicago, Los Angeles, Miami, New York Kennedy, New York LaGuardia, Philadelphia, Phoenix and Washington-National. The theory is that such hubs can rely on significant origin and destination traffic, in addition to being operationally logical places for non-originating passengers to connect.

But, in order to mitigate political risk and national protectionism, Ethiopian has pursued a **unique secondary hub strategy, focusing on smaller, more accessible and lower cost, markets with limited origin and destination traffic**. There is minimal origin and destination traffic between Ethiopia and Togo or Malawi, and growth prospects between these bilateral country pairs are modest. Yet being small countries with small economies, and with their own state carriers long defunct, both Togo and Malawi have welcomed the investment and opportunities afforded by the entry of a big carrier and overcome the historical protectionist tendencies of African governments with respect to aviation and (former) state industries. The evident political and economic asymmetry between Ethiopia, Togo and Malawi helped mitigate the risk of entry into those markets – there were unlikely to be other entrants queuing to entry Lomé or Lilongwe – while positioning the company for entry into the much larger sub-regional markets of western and southern Africa.

Recognising that a national airline remained a point of pride for many countries, by establishing itself in smaller markets, Ethiopian has insulated itself against the more serious political protectionism that would be inevitable should it have sought to position itself in a larger regional country, which did in fact befall Ethiopian on an earlier attempt to set up a West Africa hub in Ghana.[38] Further, Ethiopian mitigated its risk by appealing to national

[36] "World Development Indicators: Structure of output," The World Bank, http://wdi.worldbank.org/table/4.2
[37] World Bank, ibid.
[38] K. Bekele, "Ethiopian to establish second hub in West Africa," The Reporter, 8 December 2018.

prestige. Rather than seeking to entirely replace the historic (if defunct) flag carrier with its own brand, Ethiopian has helped re-establish neutral, or pro-national, brands through joint ventures. In 2010, Ethiopian launched joint venture ASKY in Togo, with a 40% ownership stake and overall management control. Malawian Airlines followed a similar model, with Ethiopian Airlines running the operations with a 49% ownership stake in the venture.

Creating new companies could pose new risks, notably in terms of aircraft acquisition. But rather than establishing new, separate sub-fleets, Ethiopian transferred six B737 and two Dash-8 aircraft, branded as ASKY but still Ethiopian flagged, registered, and operated.[39] The same practice was applied to the fleet now branded as Malawian Airlines.

In turn, Togo has become Ethiopian's West African hub, servicing more than 22 destinations in 20 countries in West and Central Africa, a prospective market of tens of millions of passengers. While this strategy runs counter to the hub modelling conducted by some industry experts, which determined, based on projected passenger growth, that Ethiopian should consider a West Africa hub in Abuja, Nigeria; and a Southern Africa hub in Lusaka, Zambia, it has **allowed Ethiopian to grow without risk of resentment**.[40] A purely technical approach to establishing hubs would not have overcome the strategic, trans-boundary political risks. At the same time, extending itself in relatively low-cost environments with limited existing competition made organic hub growth easier to achieve.

Innovative, affirmative strategy 2: creating new aviation markets and geographies

East Asia to Africa

Ethiopian started flying to Beijing in 1973, becoming only the fourth international airline to serve China.[41] For decades, the relationship with China was limited. In 2004, bilateral trade between Ethiopia and China was only $353 million, with overall China-Africa trade a relatively modest $29 billion.[42] But Ethiopian both anticipated China's rise and protected its foray into China, as trade surged. By 2010, Ethiopia's trade with China had reached $2 billion, part of a $100 billion of total China-Africa trade. By 2011, Ethiopian was **the largest carrier between China and Africa** with 26 flights a week to four destinations in China.[43]

In 2013, Asian destinations still accounted for only 13% of Ethiopian's total international capacity; by 2015, **Asia's share had risen to more than 30%** of Ethiopian's international ASK, "more than any other region." By mid-2018, 4,000 Chinese passengers a day were arriving or transiting through Addis Ababa, part of an overall doubling of air traffic between Africa and Asia in the last ten years.[44]

Ethiopian recognised its **geographic advantages** to ensure that its turn to China was more than a bilateral affair. As Table 1 shows, routing from Beijing to Johannesburg transiting

[39] "Asky Airlines Fleet Details," Planespotters.net, 9 October 2018, https://www.planespotters.net/airline/Asky-Airlines
[40] N. Adlera, E. T. Njoyab, N. Volt, "The multi-airline p-hub median problem applied to the African aviation market," Transportation Research Part A 107 (2018) 187–202
[41] "Ethiopian Celebrates 40th Anniversary of Flights to China," 7 November 2012, https://www.ethiopianairlines.com/corporate/media/media-relations/press-release/detail/205
[42] "A Brief Overview of the Bilateral Trade Relationship Between Ethiopia and China," Ethiopian Chamber of Commerce, 2011; "China-Africa trade links," Reuters, 29 January 2007
[43] "Ethiopian eyes 787 service to Hong Kong and new Asian services as Africa-Asia market booms," CAPA Centre for Aviation, 12 December 2011, https://centreforaviation.com/analysis/reports/ethiopian-eyes-787-service-to-hong-kong-and-new-asian-services-as-africa-asia-market-booms-64487
[44] "Ethiopian Airlines extends its Asian reach and links South America with China," op. cit, n.20,

Addis Ababa is only 76 nautical miles (nm) longer than via Dubai, 4nm less than via Doha, and much shorter than transiting Istanbul. Other routings from Chinese cities demonstrate Ethiopian's comparative advantage. Beyond geography, Ethiopian's hub model helps ensure the business is diversified across multiple African aviation markets. In this way, the risk of over-exposure to any single African economy facing a downturn (e.g. Zambia, which has suffered in recent years due to falling copper prices) is mitigated.

Table 1: Great circle distances from China to Africa via major hubs, shortest transit in bold[45]

Origin	Destination	via	Distance (nm)	Difference (nm)
Beijing	Johannesburg, South Africa	Addis Ababa (Ethiopian)	6,688	+76
		Dubai (Emirates)	**6,612**	**(0)**
		Doha (Qatar)	6,691	+79
		Istanbul (Turkish)	7,841	+1,229
Shanghai	Luanda, Angola	**Addis Ababa (Ethiopian)**	**6,637**	**(0)**
		Dubai (Emirates)	6,686	+49
		Doha (Qatar)	6,709	+72
		Istanbul (Turkish)	7,446	+809
Guangzhou	Lusaka, Zambia	**Addis Ababa (Ethiopian)**	**5,923**	**(0)**
		Dubai (Emirates)	6,044	+121
		Doha (Qatar)	6,131	+208
		Istanbul (Turkish)	7,632	+1,709

At the same time, Ethiopian made significant efforts to **cater to the needs of Chinese-speaking passengers**. As the airline's CEO noted, "we have a Chinese help desk here [in Addis] for passengers passing through…we have Chinese dedicated staff here, we have Chinese crew on board, we have Chinese food, and we have [a] Chinese call-centre."[46]

Asia to South America, via Africa

Air traffic between South America and Asia traditionally transfers in North America or Europe. As shown in Table 2, however, a transit via Ethiopia could be geographically advantageous and shorter than other routes. Industry analysts CAPA argue there is the "potential for considerable [African] transfer traffic along the full length of the South America-Asia route."[47] Ethiopian subsequently started serving São Paulo and Buenos Aires, creating two aviation markets that did not previously exist: Africa to South America, and Asia to South America, via Africa.[48]

[45] All distances obtained from the Great Circle Mapper, www.gcmap.com
[46] "Growing Chinese travelers a boon to Ethiopia's service industry: experts," Xinhua, 9 May 2018 http://www.xinhuanet.com/english/2018-05/10/c_137167640.htm
[47] "Ethiopian Airlines expands its global footprint to link the world's high growth regions," CAPA Centre for Aviation, 12 April 2013, https://centreforaviation.com/analysis/reports/ethiopian-airlines-expands-its-global-footprint-to-link-the-worlds-high-growth-regions-102851
[48] "Ethiopian Links Buenos Aires with Africa," 8 March 2018, https://www.ethiopianairlines.com/corporate/media/media-relations/press-release/detail/942

Table 2: Great circle distances from China to South America via major hubs, shortest transit in bold[49]

Origin	Destination	via	Distance (nm)	Difference (nm)
Beijing	São Paulo, Brazil	Addis Ababa (Ethiopian)	9,864	+368
		Dubai (Emirates)	9,759	+263
		Frankfurt (Lufthansa)	**9,496**	**(0)**
		Chicago (United)	10,255	+759
Shanghai	Buenos Aires, Argentina	Addis Ababa (Ethiopian)	**10,845**	**(0)**
		Dubai (Emirates)	10,871	+26
		Frankfurt (Lufthansa)	10,991	+146
		Chicago (United)	11,001	+156
Guangzhou	Rio de Janeiro, Brazil	Addis Ababa (Ethiopian)	**9,526**	**(0)**
		Dubai (Emirates)	9,569	+43
		Frankfurt (Lufthansa)	10,034	+508
		San Francisco (United)	11,732	+2,206

While, admittedly, the Africa to South America market will likely remain small for many years, the Asia to South America market is not inconsiderable and has substantial potential for growth. For Ethiopian, establishing such routes are key, both as steps to diversify the business's customer base and to insulate the company from over-reliance on any single market. Such diversification is a challenge for even established, much larger airlines (e.g. British Airways, which is heavily dependent on its trans-Atlantic business).

At a time of growth, when some of Ethiopian's existing passenger aviation markets (e.g. Europe) may already be mature, and with inherent risks in Ethiopian's home markets in Africa, basing a growth strategy exclusively on Asia's continuing rise in trade with Africa could make the company's expansion vulnerable. Although expansion into a new market like South America is no panacea to overcome the risks, for example, of over-capacity, as part of a broader commercial strategy, it may help mitigate future market downturns.

Conclusion: an approach for the industry to emulate?

Ethiopian is one of aviation's unsung success stories of the last decade. Its move to expand both risked profits and was largely unforeseen by the industry and its competitors. While the aviation business remains structurally volatile and prone to downturn, and while many others have failed, Ethiopian shows that a combination of defensive, affirmative and innovative strategies can ease the costs and challenges of expansion and mitigate the underlying risks of a growth strategy. Its example suggests that risk mitigation is, and should be, central to any airline's expansion plans. Understanding the mix of approaches Ethiopian pursued could well be instructive to those who seek to emulate its success, even in industry contexts where the circumstances appear to vary considerably.

[49] All distances obtained from the Great Circle Mapper, www.gcmap.com