The aviation value chain: Economic returns and policy issues

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ABSTRACT

The airline industry is the central part of the commercial aviation value and supply chain. Nevertheless, it has the lowest profit margin and return on investment compared to other sectors in the chain. This leads to the question whether the airline industry is sustainable in the long run, the so called 'empty core' problem. This paper discusses the returns in the aviation supply chain and provides several policy recommendations that might be considered to improve the long-run sustainability of the airline sector and the aviation supply chain as a whole. These include i) recognising the role of airline charges for ancillary products and services, which enables airlines to generate revenues to cover fixed costs in the presence of intense competition that drives the price of the core airline product to marginal cost, ii) reconsidering risk allocation between airlines and airports to eliminate pro-cyclical airport pricing required by some regulators or airline-airport agreements, iii) considering allowing airlines to internalise certain externalities, and iv) increasing vertical competition in distribution channels.

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1. Introduction

The global airline industry is slowly returning to profitability, but there is a long and difficult road ahead. According to IATA, the industry raised a profit of $8 billion in 2011 (IATA, 2012a) and it is forecast to make a profit of $11 billion in 2013 (Reuters, 2013). However, these improved profit margins continue to be alarmingly thin – in the best of times the airline industry earns only a modest 1–2% net profit margin on revenue. Volatile fuel prices, economic downturns, impacts of terrorism and natural disasters (hurricanes, volcanic ash, tsunamis, etc.), pandemics and government austerity measures are among the key factors that will continue to affect airline profitability.

If profit margin improvement leads only to a 1–2% return on revenues, a key question is whether the airline industry is capable of ever achieving financial sustainability. A classic paper by Button asks whether the airline industry has an empty core (Button, 2002), economist jargon for conditions under which airline competition can never reach a financially sustainable equilibrium. Button notes that the modern airline industry is as free from economic regulation as it has ever been. While safety, security and environmental regulation of the industry has strengthened, government control of

pricing, route entry, ownership and other aspects of airline economic activity has largely been removed in many major aviation markets. Newly acquired economic freedoms have inevitably led to increased competition between airlines – perhaps too much competition, which caused some researchers to question the economic viability of airlines in the long term. A simplistic way of stating this is that competition between airlines may be so intense that they will always compete price down to the marginal cost of providing service, leaving fixed costs uncovered.

The airline industry needs to find some means of earning revenues sufficiently above short to medium term marginal cost to cover its fixed costs. One view of this is driven by a capacity argument – there is too much capacity in air transport markets and returns will be below the cost of capital until capacity is driven out. In this view, the challenge is that the industry has had decades of weak returns, yet capacity continues to be added in almost every geographic market in the world. This view seems to imply that capital markets are imperfect and invest in airlines which do not cover their costs of capital. However, there are also differences in business models among the airlines, with some carriers achieving an adequate return that covers their costs of capital, and these add capacity, even as carriers with inadequate return maintain their capacity to protect market share, rather than shed it. This does not explain, however, why sub performing legacy carriers are able to obtain financing.

Another view is that the overall aviation value chain is financially sustainable, but that certain segments of the industry's value chain have market power and have been able to transfer profits

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from airlines to themselves (Brattle Group and Norton Rose, 2003; US Department of Justice, 2003). As will be seen, airlines — while arguably the most important member of the value chain — achieve the lowest return. *The Economist* succinctly summarized the key problem faced by the airline industry: it makes profit for everyone along the aviation value chain except for itself (Economist, 2012). In the last decade, airlines have consistently posted lower rates of return for shareholders compared to aircraft manufacturers, airports, air navigation services providers (ANSPs), and especially global distribution systems (GDSs), travel agents, freight forwarders and other players along the aviation value chain. In this view, the solution may partly lie with rebalancing the value chain, injecting competition in segments which are earning economic (above cost of capital) profits or removing regulatory impediments to air carriers reaping some benefit from other parts of the value chain.

This paper aims to further contribute to the dialogue on sustainability of the aviation value chain by exploring in greater depth sustainability of the airline sector — the core and arguably the most vulnerable element in the aviation industry today — in the context of financial performance and long-term sustainability of other sectors along the aviation value chain.

This paper is organized as follows: Section 2 provides a brief overview of past research on the topic; Section 3 describes the aviation value chain and its participants; Section 4 addresses financial performance and sustainability of the value chain under the current *status quo*; Section 5 provides several policy recommendations that may improve the financial viability and sustainability of the aviation supply chain; Section 6 provides concluding remarks.

2. Literature review

Several past studies analysed the viability of different sectors of the aviation supply chain. Some studies analysed performance of individual sectors (airlines, airports, aircraft and component manufacturers, avionics suppliers (Charles and Ghobrial, 1995)), but only a few have attempted to provide a comprehensive overview of sustainability across multiple sectors in the aviation value chain. A notable paper in this regard is that of Pearce (2012) which focuses on performance and sustainability of the airline sector (passenger and cargo) of the aviation value chain in the post-deregulation period (Pearce, 2012), generally noting poor financial performance, persistent inadequate returns on invested capital and questionable sustainability at least in the short term. Forsyth looked at the issue of aviation sustainability and environmental achievement (Forsyth, 2011). Other notable papers are by Arpey, Franke and Morrell (Arpey, 1995; Franke, 2007; Morrell, 2011).

The Association of European Airlines and Seabury issued a position paper in 2012 which showed that based on return on capital employed (ROCE), the airline industry in Europe was unable to meet the 7% threshold for long term sustainability. The research found that although some airlines were able to meet the 7% threshold for single years, there were not many airlines that met this target on an average basis over a longer term. In addition, the research found that ROCE in the airline industry is generally lower compared to other sectors in the value chain. Average ROCEs ranged from 8 to 20% for aircraft lessors, 9–20% for GDSs and 5–11% for airports, compared to −14% to 11% for legacy carriers (Association of European Airlines and Seabury, 2012). Among proposed solutions that airlines can adopt in order to remain sustainable, researchers have identified the need for airlines to innovate via new business models, customer segmentation and use of new technologies. Past research suggests that airlines are better off taking a risk on innovation than remaining stagnant. Carriers need to choose a market segment and become competitive in that segment alone, as the old method of moving between segments is no longer sustainable. Further, airlines need to study their customers to understand which customers are willing to pay for which services. Lastly, technological innovation including the use of newer aircraft, updating check-in and security technologies for easing holdups at the terminal level and the emergence of lower cost GDS platforms are key sources of cost reductions for airlines going forward (Franke, 2007).

Several studies addressed financial viability of the airport sector, particularly in the light of increased airport privatization (Bieger and Wittmer, 2011; Graham, 2009). Graham (2009) studied the role of commercial non-aeronautical revenues for airports and found that such revenues account for roughly 50% of all revenues, gaining importance as a source of revenue and better profits for airports. The development of commercial non-aeronautical revenues is in part the result of increasing pressure on airports, either by their new private sector owners or by government owners unwilling to provide further capital, to improve their financial performance while lowering aeronautical fees and charges. It is also partly due to the trend of airport privatization typically accompanied by development and expansion of commercial revenue-generating activities (Graham, 2009). Bieger and Wittmer (2011) analysed sustainability of three sectors of the aviation value chain: airlines, airports and aircraft manufacturers. In their discussion of airports, several key factors for sustainable growth were identified including adapting infrastructure for advances such as new aircraft; creating a business model which covers traffic created through both retail services and entertainment services; and adapting financing to be able to operate through the cyclical financial environment, even during economic downturns; and the need for airport operators to be aware of the airport environment (through corporate affairs) (Bieger and Wittmer, 2011).

There is a significantly smaller body of literature that provides a comprehensive assessment of the aviation supply chain as a whole. An important contribution in this area was a 2006 study by IATA in partnership with McKinsey & Company, which analysed profitability of the aviation value chain (IATA, 2006). The study looked at the causes of poor airline investor returns in the context of fundamental structural factors affecting the airline industry in particular and the aviation value chain more generally. Key insights from this study include:

- the aviation supply chain has attracted substantial amounts of capital, with the bulk of the capital invested in airlines ($380 billion of $680 billion in total investment in 2004);
- between 1996 and 2004 airlines generated positive operating profits, but the positive profits were insufficient to provide the 'normal' rate of return to justify investment risks or, in other words, the return on invested capital fell short of the cost of capital in the airline industry;
- LCCs have generally performed better than network carrier in terms of investment returns, but in aggregate they failed to generate sufficient returns to cover the cost of capital;
- the aviation value chain as a whole generated a return on invested capital above the cost of capital (approximately 0.2% of invested capital), primarily as a result of high returns for aircraft manufacturers, financial lessors, freight forwarders and, in particular, computer reservation systems (CRSs);
- the returns across the aviation value chain vary by sector with the highest returns observed in the CRS, freight forwarding, fuel supply and manufacturing sectors. Absent gains in productivity, efficiency or higher risk profile, excessive returns suggest the presence of monopoly power in some sectors; and
- despite being a high risk investment environment, the airline industry does not provide investors with adequate returns on capital and offers the lowest average return amongst all sectors.