Entry and Exit Conditions for Australian Aviation

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Abstract:

The degree of industry rivalry and the conditions of entry into and exit from the industry, are important factors in determining the effectiveness of competition in Australian domestic aviation. To date, industry rivalry has been intense, but the entry and exit conditions are rather less clear. This paper examines the conditions for entry to and exit from the Australian aviation market. We discuss the individual factors which bear on the success of entering the aviation market such as: natural barriers, firm-created barriers and institutional barriers to entry and find that many of these factors do not apply uniformly to all entrants but rather are dependant on the operator's entry profile. We conclude with a discussion of the current scope for successful entry into the Australian aviation market.

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1. INTRODUCTION

The Australian aviation market has changed dramatically in recent years. As documented by the BTCE (1993), a number of reforms since 1987 have removed regulatory impediments to competition, allowed the entry of new airlines, and broadened the permissible scope of existing airlines. Major gains have been achieved, especially reductions in air fares and improved quality of service. Efficiency has improved and the annual net welfare gains so far achieved from reform are estimated at around $100 million a year (Smith and Street 1992). Another result is that Australian-based airlines are now better placed to compete on international markets and to contribute towards making Australia a premier tourist destination.

Although increased competition was the key to achieving these gains, the Australian airline industry falls far short of textbook examples of perfect competition or contestability, and this raises the question of what drives airlines to be efficient and to offer high service quality and low air fares. The failure of the two Compass Airlines particularly causes us to ask whether Australia has yet arranged the set of market-place conditions for ensuring an optimum level of airline efficiency and for maintaining the gains so far achieved. While we do not go so far as to conclude that what has happened is merely a reversion to a de facto "two airlines agreement" - indeed, we repeat that much has changed for the better - we do believe there is a case for monitoring the level and effectiveness of airline competition, and for considering whether the conditions for competition can be improved.

Under the imperfect competition conditions that prevail in the real world, the degree of industry rivalry and the conditions of entry into and exit from the industry are important factors in determining the effectiveness of competition. To date, industry rivalry has been intense, but the entry and exit conditions are rather less clear. Hence, this paper.

2. ECONOMIC THEORY - CONDITIONS FOR ENTRY AND EXIT

Entry

The theory of industrial organisation provides us with a useful starting point in our examination of the current Australian aviation market. By using the framework developed in the theory we can address the question of whether the current structure of the Australian aviation market is such that continued competition and the retention of gains to date will be ensured.

In the traditional analytical model of industrial organisation proposed by Edward Mason (1939), market structure plays an important role in determining a number of

industry features. In Mason's model, it was assumed that market structure affected the firm's conduct and performance within the industry. Since the original development of this model, the assumption of a rigidly deterministic relationship between market structure and the conduct and performance of firms operating within that market has been dropped. The interdependence among the three elements of the traditional model, however, generally is accepted.

According to Joe Bain (1956) there are four basic elements that determine the market structure. These are the degree of seller concentration, the degree of buyer concentration, the degree of product differentiation and the conditions of entry for the market. The conditions of entry significantly influence the future structure, conduct and performance of the market, as they determine the scope for entry and the type of new entrant that might survive. In terms of the Australian aviation industry, many of the recent reforms in aviation policy have been aimed at reducing the barriers to entry (for example the end of the two airlines policy and the move towards a single trans-Tasman market).

There has been some debate about what exactly constitutes a barrier to entry. Bain (1956) argues that a barrier is any advantage held by incumbent firms over those firms that might potentially produce in a given market. A narrower definition limits barriers to any costs of production that must be borne by a firm seeking to enter an industry, but which are not borne by firms already in the market (Stigler 1968). Given that we are trying to identify factors that may make successful new entry difficult, we have adopted the broader definition in this paper. Regardless of the definition adopted, barriers to entry allow the incumbent firms to earn supranormal profits without the threat of competition from new entrants, and they result in a distortion in the allocation of resources from the social point of view.

Entry barriers may be the result of the nature of the industry itself, or they may arise from the conduct of those firms already operating in the industry, or from government regulation. There are three broad categories which may be used to define these barriers:

- natural barriers
- strategic barriers
- institutional barriers

Natural barriers

Natural barriers to entry result from the established market position of incumbent firms and the high establishment costs faced by entrants.

Some examples of natural barriers are ownership by the incumbents of superior production techniques or accumulated capital that reduces the incumbents' costs of production and which make it difficult for entrants to compete with the incumbents. In addition, incumbents may be able to take advantage of economies of size, scale, scope and network or route density that may exist in a transport service market.

Economies of size refer to a reduction in unit costs resulting from an airline becoming larger in any dimension, such as number of aircraft, number of routes or number of services. Economies of scale are a subset of economies of size whereby a long-run reduction in unit costs results from increasing all inputs by the same multiple. The existence of size or scale economies would suggest that larger airlines were able to produce at lower unit (per passenger) costs than smaller airlines, and this could act as a barrier to entry by limiting the number of operators who could operate profitably within the market. In relation to economies of scale, Bain argued that the market can support a small number of incumbent firms making supranormal profits without inviting entry, if the minimum efficient scale of production satisfies a sufficient proportion of industry demand (Bain 1956).

Economies of scope are the variations in unit costs resulting from change in the number of outputs produced.

Economies of network density are the variations in unit costs resulting from increasing the output of transportation services within a network of a given size (Caves, Christensen and Tretheway, 1984); that is, they are economies due to output growth *within* an existing network. Economies of density result from the fixed costs associated with a network; costs which are independent of the level of overall output. Gillen, Oum and Tretheway (1985) suggest network fixed cost items include promotional expenses within a given network, maintenance, administrative, and passenger and traffic servicing costs, and estimate that significant economies of network density exist in airline operations, in the order of up to about 40 million revenue tonne-kilometres (RTKs) per point served. Beyond this point costs are flat.

Another possible entry barrier suggested by Jean Tirole (1990) and others is that entrants may have trouble finding finance for their investments given the risk to investors. Whether this does act as a barrier to entry however, is disputed. It may be argued that unless there is a significant difference in the level of outlay required by new entrants when compared to the initial outlay of the established firms, then new entrants are not disadvantaged. If, however, entry requires a high level of irreversible expenditures (that is, a high level of sunk costs is necessary to enter the market), then it could be argued that incumbent airlines are more likely to react aggressively towards new entrants to protect their initial, irrecoverable outlay.

Strategic barriers

Strategic barriers result from the behaviour of the incumbents. Incumbents can create barriers to entry by adopting operating strategies which deliberately block the entry of new players. If incumbents are able to create a level of brand loyalty for their product, for example through product differentiation, entrants may find it difficult to attract a sufficient share of the market.

A substantial strategic barrier to entry could result from the incumbents having the power to exclude new entrants from essential services. For example, if the

incumbents have control over input supplies, this would affect the ability of new firms to successfully operate in the market.

Institutional barriers

Institutional barriers are beyond the control of those operating in the industry and are the result of the government's policies towards the industry. Such factors might create barriers to entry that are not dependent on the behaviour of the incumbents but which allow the incumbents to continue to earn supranormal profits.

Exit

Industrial organisation theorists have long ago recognised the importance of exit costs but have so far given them very little explicit attention (see for example, Hay and Morris 1991, page 94)

Costs of exit from an industry can be barriers to entry. They can be entry barriers because potential competitors can be deterred from entering the industry by the perceived risk of incurring large losses in the event of exit. Exit costs could also determine the strategic behaviour of an incumbent firm by giving it an incentive to signal to potential competitors that it is so committed to the industry that attempts to enter and compete are not worthwhile. A firm could send this signal by "burning its bridges", reducing its fallback options, and thus raising its own exit costs (Tirole 1990, page 316). The higher exit costs of this firm increase the risk for potential entrants that if they do enter, they could also be the first ones to exit, as their exit costs would not be as high. While we did not find any literature examining whether this style of behaviour has been adopted by industry in practice, it has had strong endorsement in the theoretical literature.

The importance of exit costs were well articulated in contestability theory. In a contestable market, exit is absolutely costless and is seen as one way of guaranteeing freedom of entry (Baumol 1982). By this it is meant that any firm can leave without impediment, and in the process of departure recoup any costs incurred in the entry process. William Baumol argues that if all capital is saleable or reusable without loss other than that corresponding to normal user cost and depreciation, then any risk of entry is eliminated.

Michael Levine (1987) notes that, in early literature on American airline deregulation and on airlines as a role model for contestability, analysts emphasised most strongly the contribution of the nature of airline inputs to ease of entry and exit. It was argued that aircraft were obviously mobile, and that airlines used publicly provided airports, airways and communications facilities rather than constructing their own. Industry analysts also emphasised the ability of airlines to purchase inputs from others - for example, by leasing aircraft or contracting for maintenance and ground services, or even by contracting for reservations services - asserting or implying that this conduct would allow entry and exit without substantial sunk costs.

Contestability

Airlines were the darlings of contestability theorists in their first flush of enthusiasm. Elizabeth Bailey and others (1986) for example, investigated whether airline markets are perfectly contestable. They argued that if firms are able to engage in "hit-and-run" entry into markets without incurring losses as a result of sunk costs, it must be true that: all factors of production are mobile among markets; consumers are willing and able to switch quickly among suppliers; and existing firms are unable to alter their prices quickly in response to the entry of a new firm. An examination of aviation markets however, shows that none of these stringent requirements hold.

Although there is currently an excess supply of aircraft, restrictions on entry to international aviation markets and the scarcity of airport space severely limit the mobility of factors of production. Frequent flier plans place some limits on consumer mobility in the Australian aviation market, and following the collapse of Compass Mk1 and 2, consumers may be hesitant to support a new airline entering the Australian aviation market with a similar operating strategy to the failed airlines. It is also unrealistic to assume that the incumbents are unable to alter their prices in response to new entry. As was seen while Compass was operating, airlines can adjust their fares to meet their competition in a matter of hours and there is no chance that the incumbents' reaction time would be slower than the speed of entry and exit by potential entrants (Duldig 1992).

Even earlier than Bailey and other's examination of the application of perfect contestability to aviation markets, modifications to the pure contestability theory were creeping in: Bailey and Panzar (1981) concluded that airline markets are "basically contestable", Morrison and Winston (1987) concluded "imperfectly contestable", and Levine (1987) "workably contestable". Now no-one would believe that airline markets approach perfect contestability and, if there is any residual belief in airline contestability, it would have to be one of these modified concepts. Given the inevitable confusion about what these terms mean, however, especially whether they are different, it is perhaps forgivable if we have not attempted in this paper to measure Australian-domiciled airlines against an elusive contestability yardstick. We rather prefer to go back to the basics which underlie competition theory and industrial organisation theory.

3. ENTRY AND EXIT - THE CURRENT AUSTRALIAN MARKET

We now turn to an examination of entry and exit conditions as they apply in the Australian aviation market.

Natural Barriers

Economies of size

As we have said, if there were economies in the delivery of airline services from increases in size, this could limit the number of airlines able to compete in the market.

There are quite a number of cost savings achievable with airline operations - such as: cost per seat declining with the size of the aircraft; cost per kilometre flown declining with the stage-length of the flight; and cost per passenger declining as the load factor increases towards 100 per cent. However, these cost savings are well within the reach of small operators. For example, Nyathi and others (1992) point out that, in choosing the wide-bodied Airbus A300 aircraft, Compass Mk1 was able to achieve the benefits of economies of aircraft size. In fact, BTCE estimates put Compass Mk1's operating costs per available seat-kilometre at well below that of the incumbent airlines.

Economies of network density are, however, one supply-side factor that is akin to a size economy and which can affect the number of competitors in the market.

The existence of economies of network density implies that if an airline is to successfully compete in a market, it must either have at least as much density as its competitors, or increase its density to the minimum size necessary to capture all available density economies. Yet this requirement does not seem in itself to present an insurmountable problem. In the year ended 31 December 1991, Compass Mk1 was able to deliver about 34 million RTK per point served, which was not far short of Ansett's approximately 40 million and Australian's approximately 37 million (BTCE 1993). The fact that Compass was able to achieve sufficient network density implies that such economies are within the reach of small new entrants and, are not a barrier to entry

Financing difficulties

As mentioned earlier, Tirole (1990) suggests that entrants may find it difficult to obtain financing due to the risk that creditors perceive is associated with such a venture. This has been borne out by the experience of the two Compass Airlines.

While Compass Mk1 was able to raise equity capital of $65 million, being $15 million more than it sought through public float, Nyathi and others (1992) point out that Bryan Grey originally sought $100 million which he was forced to cut back through an inability to find an underwriter for this amount. The situation facing Compass Mk2 was even tighter. Compass Mk2 sought $50 million capital through a public float and ended up being under-subscribed by 46 per cent, which had to then be made up by the underwriters.

Compass Mk2 also faced constraints from the credit market which led to the company failing to get access to normal credit lines. This led to extra start-up costs unforeseen in the company prospectus, including $10 million for purchase of parts, and $10

million for purchase of engines and airframe spares which the company had planned to acquire through lease financing.

These recent experiences suggest that access to finance and credit poses a significant barrier to entry. However, the $100 million which is probably required, should not be seen as an excessive amount of money to raise. It represents less than three per cent of the total assets of either Ansett or Qantas Australian, and it seems reasonable to suppose that this amount, or more, would be available from the market provided that the investment is not deemed excessively risky. The risk associated with Compass' (Mk1 and 2) financial requirements was a product both of its entry strategy and of the prevailing aviation market conditions, such as firm-created brand loyalty which impeded access to the high yielding business traveller market, and which in themselves created entry barriers. With the collapse of Compass Mk1 still relatively fresh in the minds of investors, an additional risk may have been perceived for Compass Mk2. An entrant with a strategy which avoided other entry barriers would possibly not face significant access difficulties to finance. Alternatively, a big company seeking to diversify into airlines, or an airline like Air New Zealand which is an existing international operator granted domestic operating rights, would probably not find finance all that difficult to obtain if the market judged that it was profitable to enter.

Strategic Barriers

Passenger market segmentation and brand loyalty

To understand the effectiveness of brand loyalty as an entry barrier in the aviation passenger market we must first understand the composition of the passenger pool. We can broadly consider the passenger market as being composed of business and leisure passengers.

Business passengers are much more likely to make bookings or change flight plans at the last minute. They are more likely to require particular departure times. They will value their travel time more highly, and be more sensitive to any travel delay. They will also be more likely to desire the convenience of seamless services between their ports of origin and destination. In other words, business passengers are more sensitive to certain aspects of service quality but less sensitive to price than leisure passengers.

Business passengers fly more frequently than leisure passengers and on each trip can be paying up to four times as much as deep discount leisure passengers. For example consider the difference between a return Melbourne-Sydney first class fare of $718 and the deepest discount fare of $169. Even a business passenger flying in economy class at full fare pays $478 for the trip, or 2.8 times as much as the deep discount leisure passenger (source Fantasia CRS June 1993). This difference in revenues obtained from business and leisure passengers highlights how new entrants are disadvantaged relative to incumbents if they find it difficult to attract business passengers. Stephenson and Fox (1987) found that in 1986, while only 3 per cent of

US travellers fell into the frequent flier category (more than 12 trips per year by air), they accounted for 27 per cent of all trips. They also found that while an estimated 46 per cent of all airline trips were for business purposes, these trips accounted for 68 per cent of airline revenues.

Airline clubs and frequent flier schemes

One method used by the incumbents to ensure brand loyalty is the establishment of airline clubs. Qantas-Australian's Flight Deck and Ansett's Golden Wing offer members access to private lounges which offer free food, alcoholic drinks and business facilities. Entry to these airline clubs is not free. Both involve a substantial once only joining fee and an annual membership fee. These represent sunk costs to airline travellers and hence an incentive to stay with an airline once a member of the club.

Another method used to establish and *retain* brand loyalty are frequent flier programs. In these programs, passengers earn points for air travel, and a range of affiliated purchases such as rental car use and overnight stays at participating hotels. Points earned can then be exchanged, primarily for free airline tickets. The main aim with such schemes is to attract and retain the loyalty of passengers who fly frequently. The value of a frequent flier reward is commensurate with the aggregate number of points earned. Therefore, once in a scheme it makes sense to continue to fly with the airlines covered by the scheme and earn the maximum number of points.

According to Levine (1987) the frequent flier scheme was invented to impede contestability. There are a number of ways in which it does this. First it ties customers by linking them to rewards in non-linear ways, creating something akin to demand-side economies of scale. Second, it creates economies of scope, as a wide network of routes will create greater opportunity for frequent flying passengers to accumulate points. Third, it allows an airline that is successfully employing the scheme to improve its proportion of passengers paying high fares: as business travellers commonly do not personally pay for their tickets but do personally receive the frequent flier benefits and the schemes offer more points the higher the fare paid, this creates an incentive for a business traveller to extract the highest possible fare from his or her employer. Frequent flier schemes can also result in an incentive for individuals to continue travelling with one airline even when there is a clear advantage for the employer (ticket purchaser) in switching to another. This is called the principal-agent problem in the literature.

Compass experience with brand loyalty. Ansett and Australian both introduced frequent flier schemes in August 1991. Compass Mk1 did not seek to introduce a similar scheme; however, in recognising the dangers of losing passengers to such schemes it attempted to woo business organisations by offering a three-for-one ticket deal (three return tickets for the price of one fully-paid return fare). Further moves to appeal to the business market included selling books of tickets. A book of five tickets resulted in fares 25 per cent cheaper than Compass full fare, up to a book of 50 tickets when fares were 40 per cent cheaper.

Frequent flier programs were well entrenched by the time Compass Mk2 started up. Upon entering the market Compass Mk2 offered a frequent flier rewards scheme and spent as much as $2 million in setting up business lounges at Melbourne and Sydney in an attempt to compete with the facilities offered by the incumbent airlines. It also offered 20 of the available 142 seats on its McDonnell Douglas MD80 aircraft as "executive class" for business passengers, aimed at providing a higher quality of in-cabin service than its economy class. In September 1992, Compass Mk2 introduced its Corporate Appreciation Program (frequent flier program). However, these strategies appeared ineffective, at least in the short term, as by the time of Compass Mk2's interim report to its shareholders in February 1993, the Chief Executive Officer, Sam Coats, was reported by the Courier Mail (1993) as saying that Compass desperately needed to increase its share of the business market, which offered much higher yields than economy class.

It would appear that the combination of the airline clubs, the frequent flier bonus schemes and the service quality attributes offered by the incumbents could hinder the ability of an airline starting from scratch to successfully enter the business market. However, if a new entrant chose not to contest the business market and could survive on the lower yields offered from leisure travel then clearly this barrier would not apply.

Also, if Air New Zealand were to enter the Australian domestic market and attempt to capture business traffic, the fact that it has a credible established market presence may well mean that it would not face such a high barrier as a completely new airline.

Ownership of key airline inputs

Another way in which incumbent firms can raise barriers to entry is by withholding or limiting access to key airline inputs such as travel agencies, computer reservation systems, and airport terminals.

Travel agencies. Travel agents can access computer reservations systems to provide detailed up to date information on fares, conditions and seat availability for all airlines. As such they have advantages over individual airline ticket offices in providing efficient airline reservations for all airlines and, providing an appearance of choice, advantages which are reflected in the fact that about 50 per cent of domestic airline reservations are made through travel agents (TPC 1992). In view of these advantages and the fact that both incumbents have equity in a number of major travel agencies, the TPC, in investigating the causes of the collapse of Compass Mk1, questioned whether these equity links had resulted in preferential bias towards the airline concerned. No indication of a systematic bias was found.

However, the issue was raised again in relation to Compass Mk2. There have been allegations that the approximately 80 per cent of travel agencies which are owned by the incumbent airlines have showed some bias in selling tickets, that prospective customers had been told that Compass Mk2 was not represented on the computer

reservations system or that Compass prices were higher. Compass is reported as selling 42 per cent of its tickets through agents instead of the 50 per cent targeted in its prospectus. If Compass complaints about travel agent bias are well founded they would indicate a prima facie case for intervention by the Trade Practices Commission under section 46 of the *Trade Practices Act 1974* (TPC 1990).

Computer reservations systems. These have the potential to erect barriers to entry by conferring considerable market power to owning airlines through the control of information and ultimately the distribution of seat bookings. In recent times concerns have been raised in the USA about the role of computer reservation systems in the concentration of airline services, with contentions that they have been biased in favour of vendor-carrier's flights (OECD 1988).

A major problem associated with the use of computer reservation systems in the USA was screen display bias. The systems used by the majority of the travel agents in the USA were owned and developed by airlines and it was found that flights of airlines not affiliated with a system did not appear on the initial screen displaying information on a given market. With the high proportion of travel agent ticket sales from the first screen in the USA, this bias gave the airlines that owned a system a significant advantage over other carriers. In a US report to Congress in 1988, an American Airlines representative testified that 92 per cent of travel agent ticket sales in the US came from the initial screen (Tretheway and Oum, 1992).

However, BTCE analysis indicates that there is no screen display bias in the Fantasia/Sabre computer reservations system that Compass (and Qantas-Australian and many travel agents) used.

In January 1991, the Trade Practices Commission introduced a code of conduct governing the operations of computer reservation systems in Australia. This code of conduct meant that all travel agents would have equal access to Compass' system, regardless of which one of the three international reservations networks used in Australia (Abacus, Fantasia and Galileo) they were linked to.

Airport terminal access. In December 1987, just prior to the handover of management of airports to the Federal Airports Corporation, the Government re-negotiated terminal lease agreements with Australian and Ansett to ensure that new entrants would have access to a minimum level of facilities at each airport where common user facilities were not available. The re-negotiated lease agreements required Australian and Ansett each to provide two gates to new entrants at their terminals in Sydney and Melbourne, one gate each to be provided at Adelaide, Perth and Coolangatta, and one gate to be provided by Ansett at Launceston. These leases also contained sunset clauses. If new entrants have not used the terminal facilities provided by the incumbents for a period of two years preceding June 1995, the requirement to provide space lapses. Access provisions expire in the year 2000 anyway.

Compass Airlines, being the only new entrant, took up the opportunities offered by the domestic terminal leases. While Compass was provided with terminal facilities at the airports from which it operated, the company asserted that the facilities provided at a number of major airports, particularly Adelaide, were unsatisfactory. This view was reinforced by the Trade Practices Commission which reported to the Government on the reasons for the collapse of the company and found that Compass was disadvantaged to some extent in its ability to compete by the nature and terms of its access to terminal facilities (TPC 1992).

In order to provide further scope for competition from other new entrants, the Government recognised that there was a need for the early development of common user terminal facilities. In March 1993, the Government announced its intention to inject $113.1 million equity into the construction of common user terminals at Sydney, Melbourne and Coolangatta. Opportunities for growth in the industry were also to be provided by the Government through the early construction of the satellite arrivals and departure centre at Melbourne Airport and early completion of the new international terminal at Brisbane Airport.

Adequate terminal access does appear to be critical to the success of a new entrant, although Compass Mk1 and 2 (and possibly other potential entrants) clearly felt that the available facilities left much to be desired. In addition to the historical examples above, the managing director of Air New Zealand, Jim McRea, has expressed the opinion that discriminatory access to domestic air terminals in Australia will stand in the way of a single trans-Tasman aviation market. He was also reported by the Financial Review (1993) as saying that the progress of deregulation across the Tasman depended on non-discriminatory access to international and domestic air routes and infrastructure for all carriers. Also, Ansett has delayed entering the trans-Tasman market until it can establish a seamless terminal connection with its New Zealand domestic arm.

Linkages with feeder airlines. A potential barrier to new entrants can come about from the linking together, by ownership or agreement, of airline passenger markets to form a wide network. These network linkages can serve to exclude a new entrant from a particular pool of potential passengers.

The incumbent airlines are highly integrated with Australia's regional operators and have increased this integration since domestic deregulation. However, BTCE (1991) concludes that there does not appear to be any evidence that lack of feeder airline ownership constitutes a major barrier to entry.

Another source of linkage exists with international carriers. We would presume that the bulk of Qantas inbound passengers will undertake any prebooked domestic legs with Qantas-Australian. Ansett also has a number of commercial arrangements with international carriers such as Singapore Airlines. Even allowing for partial exclusion of these two sources of passengers, however, a new entrant would still be able to draw on the origin-destination traffic of the city pairs that it chose to serve, and given Australia's concentration of population in a few large cities, could potentially gain

access to a significant share of domestic passengers from serving only a small number of ports.

Institutional Barriers

To what extent do institutional barriers impede the entry of new operators? If we are considering the entry of a third Compass-styled domestic operator then there are no regulatory barriers of significance preventing such an operation apart from foreign ownership restrictions potentially limiting the amount of capital available to a new entrant.

Given the recent lack of success with this type of entry it is unlikely that such an approach will be tried again, at least as long as current domestic economic conditions prevail. A more likely entry strategy would be for an existing international airline to set up a closely linked domestic service. This is currently disallowed under the terms of Australia's bilateral air service agreements with our trading partners, except in the case of Air New Zealand which is permitted to enter the Australian domestic market in November 1994.

The government has already gone a long way towards removing the somewhat artificial regulatory differences between domestic and international aviation. In order to increase competition in the domestic market, the decision was made to allow Qantas to compete domestically, initially by selling spare capacity on the domestic sectors of its international routes. Qantas commenced its domestic operations on 1 November 1992.

So what role did barriers to entry play in the Compass collapses?

The Trade Practices Commission (TPC 1992) undertook a thorough analysis of the causes of the collapse of Compass Mk1. In its report it concludes that shortcomings in the entry strategy and management of Compass appears to have been the most important contributing factor to the failure of the airline.

The TPC concluded that while access to terminal facilities was not the only, or the most important factor in the collapse of Compass, the existing terminal arrangements did confer a market advantage on the incumbent airlines over new entrants (TPC 1992).

Other factors contributing to Compass Mk1's failure include:

- Australia entering an economic recession soon after Compass commenced operations. This cut back the base size of the passenger market, and airlines had to cut fares simply to maintain passenger numbers. As it turned out fares were cut so much that the additional demand thus stimulated outweighed the shrinkage in the market due to the economic conditions, but this effect was insufficient compensation for Compass.

- A number of severe start-up obstacles, such as late delivery of aircraft and the failure of its telephone reservations system to cope with demand.

- Undercapitalization (despite the company raising $15 million in oversubscriptions), being partly the result of unforeseen start-up costs which brought on a liquidity crisis as early as May 1991 (TPC 1992).

- Choosing to compete head-on with the incumbent airlines by offering large expansions to capacity on the major routes and underestimating its relative disadvantage in competing for full fare passengers.

- The apparent presumptions that the incumbent airlines would not be willing or able to match their discount prices and that it could unilaterally offer discounts to improve cash flow and then revert to higher prices - both of which turned out to be wrong.

Compass Mk2 collapsed on 12 March 1993 after six and a half months of operation. The major causes of the airline's difficulties were lower than anticipated yields and higher than anticipated start-up costs, leading to a critical liquidity crisis.

The situation appeared to be different from that surrounding the failure of Compass Mk1 in that, this time, the airline had not attempted to generate cash flow through a discount seat sell-off. On the other hand there were similarities with the previous experience in so far as Compass' underestimating of start-up costs had a debilitating effect on company liquidity. Another similarity was the company's inability to attract a sufficient share of the higher-paying customers away from the incumbent airlines and a general overestimation of the opportunities to generate reasonable yields.

4. EXIT COSTS FOR AIRLINES IN AUSTRALIA

The two exits of Compass Airlines provide some first-hand evidence of the costs of exit for Australian-domiciled airlines. They are clearly not zero for the Compass style of entry. The sunk costs which an airline stands to lose include: the costs of advertising to establish a brand name; costs of materials, such as uniforms, signs, logos and letterheads, which are specific to the company name and image; costs of a fighting fund to meet operating losses while the airline establishes its credentials with consumers; and deposits on terminals, aircraft, spares and other equipment. An airline will also have to meet redundancy costs of employees.

Some of the things remarked upon by Levine concerning the contestability of the airline industry and the costs of entry and exit have proved to be true after a fashion: aircraft used by Compass have shown a high mobility in that they were put to use by Compass immediately upon entering the country and spent little time on the ground after Compass crashed before being reassigned elsewhere. Compass, however, lost money in cancelling the aircraft leases and purchase orders. Compass was able to purchase inputs and services from others, including computer reservations systems,

but it lost money on cancelling its computer lease. And there were other exit costs not foreseen by the contestability theorists.

The costs of Compass Mk1 exit are estimated as follows. When it ceased operations on 20 December 1991, it had an estimated deficiency of assets to meet liabilities of $45 million on a going-concern basis or $171 million on a ceased business basis (Ferrier Hodgson & Co. 1992). The "going-concern" loss was due to Compass trading losses and bad debts; and is not therefore an economic cost of exit (it did not imply a net welfare loss to the country of that amount because there would be many winners, such as passengers availing themselves of cheap fares, offsetting the losers): but it was a cause of exit. Most of the difference between these deficiencies ($126 million) was however, attributable to exit, and was nearly twice that of the cost to shareholders of starting up the company.

Compass Mk1 exit costs as reported by Ferrier Hodgson & Co (1992) comprised the following:

	$ M
Estimated liquidated damages on cancellation of aircraft leases	59
Estimated loss in relation to cancellation of purchase order for new aircraft	19
Capitalised costs including current costs, pre-operating expenses Route establishment expenses, and training expenses (it was planned to amortise these expenses over a period of 5 years)	35
Loss on lease of computer and aircraft engines and of equity in aircraft spares	8
Employee's redundancy costs	5
	126

Compass Mk2 lost somewhat less. As reported by Patricia Howard in the Age and Sid Maher in the Courier Mail (1993), debts were more than $28 million and assets less than $16 million. Shareholders lost everything, so the total loss was about $62 million or about 125 per cent of shareholders' funds. Again, some of these losses should not be counted as a cost of exit because they include operating losses. But clearly, the majority of these costs were unavoidable costs of exit.

It might be thought that, in future, sunk costs and consequently exit costs could be even higher. Companies dealing with airlines are learning from their experiences and may raise the costs which new entrant airlines have to sink into the business. This is probably unduly pessimistic, however, as the increased sunk costs would be more a reflection of the market-place learning from its experiences and transferring the risks to where they belong: as up-front costs to the venture-capital market.

A company that survived longer than either Compass airlines would have lower exit costs because many of the costs incurred by Compass could have been amortised or depreciated over time. According to the theory, however, a lower exit cost would increase the likelihood of the firm choosing to exit if returns were unsatisfactory, and the practical implications of this theory could have undesirable consequences for the strategic behaviour of other airlines.

The "exit costs" of the incumbent airlines are also relevant, as they reveal the extent of their commitment to the Australian airline market. It would appear their exit costs are quite high - as the incumbents are committed, for example, to thirty-year leases on terminal facilities, they continue to invest heavily in building brand loyalty through frequent flier schemes and airline clubs, and besides own, and continue to invest in, a considerable amount of fixed capital which is specific to competing on the Australian domestic market. The height of these exit costs is of course is consistent with the theory of strategic behaviour to deter entry.

Other new entrants would not necessarily face the same set of exit costs as Compass. Air New Zealand, as an established international airline which already reaches Australia, would find costs were lower - its aircraft could be readily deployed to compete either on the Australian domestic market or elsewhere in its network. Other establishment costs necessary to build brand loyalty and establish the company's presence would be add-ons to costs already incurred in existing markets and could even provide some spin-off benefits to the company from its achievement of wider network scope. If seamless connections between domestic and international terminals were achieved, the prospects for such competition would be even better.

5. RESPONSE BY INCUMBENTS

The question that now must be addressed is how are the incumbents likely to behave, given the failure of Compass Mk1 and 2 in the Australian aviation market? An important factor in determining the likely behaviour of the incumbents is the incentive for them to retain efficient cost structures if they consider another new entry is likely. Although they can adjust fares within hours, further increases in efficiency of production, or recovery from any backsliding in efficiency gains already realised, cannot be achieved in anything like the same time frame - and may take years to achieve.

Prices

A number of studies of the impacts of airline deregulation have found a significant relationship in aviation markets between the number of competitors and the level of discounts on a route. For example:

- a cross-sectional analysis of fare discounts when Compass Mk1 was operational showed that additional competition on a route led to lower discount fares (BTCE 1991);
- the impact of competition on deepest discount fares was re-examined in November 1992 to estimate the effect of Compass Mk2 on the market, with the results supporting the earlier findings (BTCE 1993); and,
- following US deregulation it was found that although airlines operating on competitive routes were adopting allocatively efficient pricing structures, when competition was weak, price levels were found to be inefficiently high (Forsyth and Dwyer 1992).

Given the speed with which airlines can alter fares, and the relationship between the number of competitors and the depth of fare discounts, it is possible that one of the incumbents might initiate higher fares expecting the other airline to follow. Such a strategy would be made easier to implement if the economy grows and the demand for air travel expands to meet current capacity. The direction and degree of changes in air fares, however, is indeterminate as it depends on the level of rivalry adopted by the airlines.

It should be noted that, despite the failure of both Compass Mk1 and 2, average air fares in the Australian aviation market are now lower than they were pre-deregulation. In addition, because air fares are monitored by the Prices Surveillance Authority (PSA) the incumbents would need to be able to justify any dramatic increases in air fares.

Efficiency

There is some question as to whether Ansett and Qantas will have any incentive to minimise their costs, given that they dominate the Australian market and are able to charge high prices on some of the less dense routes. An examination of airlines in the USA, however, found that deregulation had resulted in productively efficient airlines regardless of the level of competition on the routes on which the airlines operated (Forsyth and Dwyer 1992).

The major Australian airlines experienced considerable difficulties in attaining more efficient cost structures in the lead-up to deregulation, and it seems unlikely that they will allow themselves to slip back into less efficient practices. A major incentive for the incumbents to retain efficient operating practices lies in the fact that a new airline can be established in only a few months, or an existing airline can, if permitted, extend its services to new markets as soon as terminal facilities are made available. The prospect of competition from Air New Zealand on the major domestic routes is likely to encourage the incumbents to maintain their efficiency

It may be that a reversion to only two operators will afford the incumbents an opportunity to collude. As there will be a close monitoring of the behaviour of airlines in the industry, open collusion would be unacceptable but there may be some scope for tacit collusion. Forsyth and Dwyer argue that even if the incumbents operate in tacit collusion there may still be scope for gains relative to the current (post-deregulation) situation (Forsyth and Dwyer 1992). These gains would result from increased allocative efficiency arising from the airlines seeking to test all markets (for example improved services for the leisure market). In addition, there may be some further gains associated with increased productive efficiency as airlines reduce costs in order to maximise profits.

6. CONCLUSIONS

Two and a half years of deregulation has produced tangible benefits to the consumer, and, while the current airline market is less than perfectly contestable, to go back to regulation would be a backward step. So how do we go forward and what can be done?

Scope for entry and the way forward

The available evidence suggests that opportunity for entry of the type attempted so far, that is, by Compass Mk1 and 2, is somewhat restricted. The reasons for this can be summarised as follows:

- First, the availability of risk finance and credit facilities for a completely new-start airline of the Compass type are likely to be severely limited.

- Second, given the difficulties in capturing a share of the existing market for business travel, difficulties which are inherent in the nature of the demand for the product, the ability of a new *small* entrant to compete in the business sector of the airline passenger market must be seriously questioned.

- Third, in the short term there is the current economic situation The most serious recession in sixty years, coupled almost simultaneously with domestic deregulation and lasting longer than anyone predicted, has seriously reduced the potential for airlines to stimulate demand.

- Fourth, the incumbent airlines have learnt a lot from the past two and a half years. They have demonstrated that they are resilient and resourceful competitors in all market sectors and have undoubtedly become more knowledgeable market participants.

However, these factors do not preclude entry, they simply modify the style of entry that is more likely to succeed. On the basis of these considerations it would appear that the discount leisure or genuine economy travel market is the area with the best prospects for new entrant competition. This segment of the market is highly responsive to price, and the major airlines, in attempting to be all things to all travellers, do face a certain cost disadvantage.

So who is best placed to contest the Australian domestic aviation market? As we have alluded to earlier in our discussion of entry barriers, we believe that Air New Zealand would be in the best position to contest the domestic market should the efficiency of the incumbents decline to such an extent as to invite entry. Air New Zealand would face only two significant entry barriers. First would be domestic terminal access, and second would be the inherent difficulties in capturing a significant portion of the frequent flying business market. However, not all routes are business dominated, and given that an entrant has unlimited scope to pick and choose routes, then one approach would be to target key tourist corridors such as Brisbane-Cairns or Sydney-

Coolangatta, and offer a low cost no-frills service to the domestic leisure market. Additionally, Air New Zealand would have the advantage of being able to 'feed' domestic sectors with passengers from its existing international services.

As things stand, the incumbents are currently behaving as though there remains a threat of entry which suggests that competition in the domestic airline market is effective

However, should the entry conditions change substantially, there are still a number of options available for enhancing competition These are:

- giving more international operators access to the Australian domestic market;
- further minimising the cost of entry, for example, by reducing the capital expenditure required to get access to terminals, and minimising the breaks between international and domestic services; or
- through the publication of information, such as on-time performance achieved by the airlines and movements in prices

Such actions would serve to keep the incumbents on their toes, and also signal to prospective entrants if there were gaps in the efficiency of the incumbent airline services to the extent that favourable conditions for entry had been created

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