

**STUDY TO ASSESS THE POTENTIAL IMPACT OF PROPOSED
AMENDMENTS TO COUNCIL REGULATION 2299/89 WITH
REGARD TO COMPUTERISED RESERVATION SYSTEMS**

OCTOBER 2003

**Prepared for the European Commission
Directorate-General for Energy and Transport**

by

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PREFACE

In December 2002, the Directorate-General for Energy and Transport (DG TREN) selected *The Brattle Group*, in conjunction with *Norton Rose*, to examine a proposal it had developed for modifying the European regulatory regime for Computerised Reservations Systems (CRSs). Additionally, DG TREN asked us to report more generally on the relevance of continued regulation given industry developments since the CRS Code of Conduct was established in 1989.

As part of its review of the CRS Code and consideration of possible amendments to it, DG TREN has consulted interested industry participants on a systematic and ongoing basis, including hosting a formal Consultation Meeting on 16 December 2002. We have attended some, but not all, of these consultations.

We also have consulted extensively with the European Commission (both DG TREN and the Directorate-General for Competition) and conducted interviews with industry participants, including representatives of CRSs, airlines (both parent and non-parent carriers), airline associations, travel agencies (brick-and-mortar and online), and consumer groups. We had no authority to compel testimony or the production of information, however, and relied solely on voluntary representations and co-operation from these participants. Prior to the formal presentation of a proposed new regulation to the European Parliament and Council, the Commission may want to conduct a more formal investigation of the industry, using its power to compel testimony, pursuant to Regulation 17 or Regulation 1/2003.

EXECUTIVE SUMMARY

Introduction and Regulatory Context

Computerised reservation systems (CRSs) were an outgrowth of the computer systems that major airlines developed in the 1960s to handle their own internal reservations. Six proprietary CRS systems were made available commercially in the 1970s to help travel agents cope with the dramatic increase in the number of air fares and service offerings sparked by US airline deregulation. Travel agencies embraced the systems, most of which were airline-owned, and consumers in turn increased their reliance on travel agents to make airline reservations.

CRSs quickly gained leverage over airlines at large: because most travel agencies subscribed to only one of the reservation systems, airlines had to participate in every CRS in order to reach all of their potential customers.* At the same time, the post-deregulation growth of hub-and-spoke systems gave major airlines market power in those regional markets where their hubs were based. As a result, the vertical integration of firms participating in these two markets—*i.e.*, CRSs and their parent carriers—gave airline-owned CRSs the incentive and ability to restrict competition in both the airline and the CRS markets.

Initially, parent carriers used CRS market power to limit competition in regional airline markets. The most pervasive anti-competitive practice was display bias: each CRS gave priority on the display screen to flights operated by its parent carrier, and gave the flights of rival carriers less prominence. CRSs also provided more reliable and up-to-date information on their respective owner-airlines, because the parent carrier's internal reservation system and the CRS were housed in the same computer ("architectural" bias). Display and architectural bias proved to be very effective tools for diverting passengers from rival airlines to the CRS parent carrier. In addition, CRSs imposed highly discriminatory booking fees and other access terms on rival carriers, raising their direct costs. These practices boosted the owner-airline's short-term profits, and over time discouraged rivals from competing in areas where the parent carrier was dominant, thus reducing passengers' competitive choices.

Subsequently, parent carriers began using their own market power to restrict competition in the CRS market. For example, in markets in which a CRS owner-airline had a significant presence, the carrier would limit its participation in, or withhold information from, competing CRSs so as to make the systems unattractive to local travel agents.

In response to these competitive problems, the European Community (EC) in 1989 adopted a CRS Code of Conduct (Code) modelled after rules imposed five years earlier in the United States (US). The short-term objective was to prohibit directly the use of market power by airline-owned CRSs to restrict competition. The longer term objective was to dissipate CRS market power itself. Toward those ends, the Code required all CRSs to provide at least one unbiased display; give all carriers access to their system on non-discriminatory terms; and refrain from imposing certain highly restrictive contract terms on travel agents. The Code authorised CRSs to make booking and marketing data available, but only on a non-discriminatory basis.

* This description of the origins of CRS regulation is based on a recent analysis by the US Department of Justice. Reply Comments of the Department of Justice, Department of Transportation Notice of Proposed Rulemaking on Computer Reservation System Regulations (June 9, 2003): 4-9.

Subsequent amendments to the Code imposed obligations on other groups, including “parent carriers” (airlines that either owned or marketed a CRS) and travel agents. One provision requires parent carriers to give all CRSs the same information and booking opportunities. This “mandatory participation” requirement was designed to prevent parent carriers from restricting competition in the CRS market.

CRS regulations in Europe and the United States proved successful in eliminating the most targeted exercises of market power. However, key provisions have had the unintended consequence of facilitating the non-targeted exercise of CRS market power. Most importantly, because the mandatory participation rule effectively requires parent carriers to purchase the same level of service, or “functionality”, from all CRSs, it significantly limits carriers’ leverage to negotiate better fees and terms from any individual CRS. In much the same way, the Code’s non-discrimination requirement stifles price competition, because if CRS vendors provide a discount to one airline, they must provide it to all.

These unintended effects of the CRS Code have gained more attention in recent years, as financially strapped carriers have faced ever rising booking fees even as they struggled to lower their distribution costs. Parent and non-parent carriers alike have labelled these fees “excessive”, and complained that the Code was doing more to impede competition than to encourage it. At the same time, changes in CRS ownership and technology are gradually eroding the key features of the competitive landscape for which the Code was designed. First, many airlines have divested their CRS ownership. Three of the four CRSs (Galileo, Sabre and Worldspan) no longer have any airline ownership, and Amadeus is now 40 percent publicly owned. Second, the Internet, which allows airlines to sell seats directly, is decreasing the CRS role as an essential intermediary.

In light of these developments, and reflecting its general desire to reduce the level of regulatory control over the market for air travel, the European Commission (Commission) is considering whether all parts of the Code remain necessary and appropriate. In December 2002, the Directorate-General for Energy and Transport (DG TREN) requested comments from stakeholder groups on a number of potential amendments to the Code. The two most significant proposed changes would eliminate the mandatory participation requirement on parent carriers, and remove the prohibition on CRS discrimination with regard to fees and services (non-discrimination requirement). A third proposed change would revise the rules allowing CRSs to share Marketing Information Data Tapes (MIDT).

The debate over booking fees and proposed changes to CRS regulations has been heated. CRS vendors strongly dispute airline claims that booking fees are “excessive” or that they constitute evidence of market power. At the same time, some of the airlines objecting to excessive booking fees are nevertheless concerned that elimination of the mandatory participation and non-discrimination requirements could result in a resumption of anti-competitive practices.

In addition to seeking stakeholder input, DG TREN asked *The Brattle Group* and *Norton Rose* to assess the foreseeable impact of its proposed amendments to the Code from an economic and legal perspective. In response to DG TREN’s request, we examined air travel distribution using established principles of competition analysis. Specifically, we examined the elements of the distribution “supply” chain: travel agents and other retail distributors of air travel products, CRS vendors, and airlines. For each element, we defined the relevant market in which anti-competitive behaviour could occur and examined the level of market concentration. We then explored the possible exercise of market power by key participants. Finally, we analysed three policy options: 1) complete elimination of the CRS Code of Conduct; 2) adoption of DG TREN’s proposed changes to the Code; and 3) adoption of a modified form of DG TREN’s proposal that would preserve the mandatory participation requirement, and a corresponding requirement for airline-owned CRS vendors, in parent carriers’ home markets. Separately, we analysed

competitive concerns related to the cost and use of MIDT and evaluated options for restricting the sharing of MIDT.

Summary of Key Findings

CRS Market Power

- Individual CRSs have the potential to exercise market power over airlines in non-strategic ways.
 - Most airlines must participate in every CRS today, for the same reasons they had to do so in the 1980s: brick-and-mortar travel agencies continue to account for a very large share of airline passenger revenue; and these travel agencies, most of which still subscribe to just one CRS vendor, remain heavily dependent on CRSs.
 - CRS regulation, while preventing targeted exercises of market abuse, has unintentionally facilitated non-targeted CRS market power. Most important, it has eliminated the countervailing bargaining leverage that carriers would naturally possess (*e.g.*, the ability to withhold fares selectively).
 - Another contributor to CRS leverage is the fact that travel agents have had little incentive to subscribe to the lowest-priced CRS. However, this is not a “market failure”, as some airlines claim. Rather, it is what economists call a “principal-agent” problem, which is both more common and less serious than a market failure, and is not generally a sufficient basis for government intervention.
- Despite these sources of CRS leverage, the exercise of CRS market power is not inevitable, and high booking fees alone are not proof of competitive harm. That is so because the CRS market is “two-sided”. CRSs function as intermediaries, linking airlines with travel agents (and ultimately consumers). Each CRS charges airlines booking fees in exchange for providing access to travel agents. The CRS then spends some of those fees on “signing bonuses” and incentive payments to recruit and retain travel agency subscribers. Those CRS payments to travel agents are a form of price competition, and they reduce the direct payments (*i.e.*, commissions) that airlines must make to travel agents.
 - In a “two-sided intermediary” market, vigorous competition “downstream” can counteract market power “upstream”. The mobile phone industry is illustrative. Mobile phone service providers are two-sided intermediaries, connecting their subscribers with people from other phone networks. In Europe, these service providers set high call-termination charges, exploiting monopoly power over those who want to call their subscribers. However, the service providers then largely dissipate those potential profits in competing to attract and retain subscribers.
 - Similarly, if the competition among CRSs for travel agents were sufficiently vigorous, any excessive profits that the CRSs earned from high booking fees would be dissipated, or negated, through higher CRS payments to travel agents. Competition among travel agents, in turn, would ensure that those payments were transferred to consumers, in the form of lower service fees or higher quality service. As a result, consumers (and airlines) would not be harmed by high booking fees.

- Evidence is mixed as to the actual level of “downstream” competition:
 - First, anecdotal evidence suggests that CRSs do indeed compete aggressively to recruit and retain (some) travel agents. Second, an empirical analysis of payment flows since 1995 indicates that increases in the booking fees that CRSs charge airlines have been fully offset by reductions in the commissions that airlines pay travel agents, leaving consumers—and airlines—no worse off. Third, claims of excessive CRS profits rest on faulty interpretation of accounting data.
 - However, other evidence suggests that CRS competition for travel agents is less than perfect. Most compelling, the five largest US airlines have spent \$200 million to launch and operate the online travel agency Orbitz, as a strategy to lower their CRS booking fees. If downstream competition were perfect, airlines would be indifferent toward higher booking fees, because they could simply offset them by paying travel agents less. Additional evidence of imperfect CRS competition for travel agents comes from the fact that individual CRS vendors hold extremely large shares of the travel agent market in many EU countries. The high switching costs that travel agencies incur when they change CRS vendors are another impediment to perfect downstream competition.
 - Competition among travel agents for passengers may be less than perfect as well, at least in the short run.
- Under these conditions (*i.e.*, less-than-perfect competition “downstream”), each CRS nevertheless functions as an intermediary between airlines and travel agencies. But it is an “imperfect” intermediary from an efficiency standpoint, and excess CRS profits are not fully dissipated by increased CRS payments to travel agents. Thus, CRS market power likely does cause harm to consumers (and airlines), but it causes less harm than airlines claim.
- New technology is promoting competition on both sides of the two-sided CRS market. In particular, US airlines’ ability to withhold popular web fares from CRS vendors has given them significantly more leverage to negotiate lower booking fees just in the last two years. This leverage is possible only because US CRS regulation (in contrast to Europe’s CRS Code of Conduct) does not extend to fares and other offerings on the Internet. Thus, web fares have provided a kind of “natural experiment” in CRS deregulation. The results of this dramatic experiment suggest that elimination of CRS rules that prevent carriers from withholding fares and functionalities more broadly would lead to additional competition and consumer benefits.

Market Power and Vertical Relationships between Airlines and CRSs

- Our findings on CRS market power lend preliminary support to DG TREN’s proposal to repeal the mandatory participation and non-discrimination requirements as a means of giving carriers additional bargaining leverage against CRS vendors. However, absent those provisions, vertical relationships between airlines and CRSs could create the same incentive for targeted abuses of market power that existed in the 1980s. This is the fundamental policy trade-off inherent in CRS regulation.
- The incentive would be greatest in those markets in which the parent carrier and the CRS a) both have a large share of their respective markets and b) are in a position to maintain or gain market power in the airline market, the CRS market, or both. Unless both of those conditions exist, it would be counterproductive for an airline-affiliated CRS to try to abuse market power.
- Absent regulation, the incentive to abuse market power would exist under almost any airline-CRS vertical arrangement, not just ownership. Thus, airline divestiture of CRS ownership does not eliminate the risk of competitive abuse if the two entities maintain a sufficiently strong relationship—particularly one involving redistribution of profits. Nevertheless, on balance, direct airline ownership of a CRS poses a greater risk than a contractual relationship.
 - Amadeus and its owner-airlines—Air France, Iberia and Lufthansa—have a market presence that borders on “double dominance” in the carriers’ respective home markets (France, Spain and Germany). Thus, the concerns raised about the potential for competitive abuse absent the mandatory participation and non-discrimination requirements are not frivolous.
- The incentive for abuse notwithstanding, vertical relationships between airlines and CRSs can create significant efficiencies, even when both entities are dominant.
 - An airline might vertically integrate with a CRS as a means to increase efficiency and reduce distribution *costs*.
 - Alternatively, an airline might integrate with a CRS in order to lower its *prices*, by eliminating the mark-up taken by the CRS.
 - Vertical integration also can avoid free-rider problems, thereby encouraging investment and higher quality service.
- Although an airline can capture many of these efficiencies either through ownership or through a contract with a CRS, the trend toward voluntary divestiture is a strong indication that vertical efficiencies may no longer require airline ownership. Rather, a contractual relationship may be sufficient to capture the efficiencies. This has implications for the type of regulatory regime needed to prevent anti-competitive abuse.

Impact Analysis

The appropriate goal for CRS policy is to deter anti-competitive conduct by airline-affiliated CRSs while allowing efficient vertical arrangements. Moreover, this should be done using policy mechanisms that minimise the prospect of adverse unintended consequences.

The major policy choice is whether to address the potential for anti-competitive abuse through *ex ante* regulation or *ex post* application of general competition law. Economists and legal experts have devoted considerable thought to the merits of prescriptive *ex ante* regulation of economic activity versus *ex post* application of competition law. The best mix of the two approaches in any given policy setting depends on several criteria:

- The likelihood of anti-competitive conduct;
- The potential enforcement cost of *ex ante* regulation (e.g., unintended consequences);
- The difficulty of identifying specific forms of anti-competitive activity in advance; and
- The difficulty of detecting illegal conduct.

The following options all provide for some degree of oversight of the CRS market, but they differ largely in the degree to which they rely on *ex ante* versus *ex post* oversight.

Option 1: Eliminate the CRS Code of Conduct

Under Option 1, the EC would eliminate the CRS Code of Conduct altogether. Most important, this option would terminate *ex ante* regulation in the following areas:

- No requirement for a neutral CRS display;
- No requirement that parent carriers participate equally in all CRSs;
- No prohibition on discriminatory booking fees or other forms of discrimination by CRSs;
- No restrictions on CRS contract provisions with travel agents;
- No restrictions on travel agents; and
- No requirement that participating carriers provide equally comprehensive information to every CRS.

Under this option, stakeholders would rely solely on *ex post* enforcement of EC and national competition law to discourage and discipline anti-competitive behaviour.

Pro: The Code was created for an economic environment—airline ownership and control of CRSs—that no longer exists, and thus the costs of the Code may now exceed the benefits. First, the current form of *ex ante* regulation unintentionally facilitates CRS market power over airlines, harming consumers and airlines. Elimination of the mandatory participation and non-discrimination requirements would allow market forces to operate in the CRS market, promoting greater price and service competition and encouraging innovation. Although anti-competitive conduct remains a concern, it could be addressed through *ex post* application of competition law.

Second, CRS abuse is neither necessary nor sufficient to inflict harm on competitors. It is not necessary because owner-airlines have other ways to deter entry and disadvantage rivals (*e.g.*, an airline can punish travel agents who sell too many tickets on competing carriers). Nor is CRS abuse a sufficient form of anti-competitive behaviour because a targeted carrier can use “counter-measures” to get around it (*e.g.*, higher payments to travel agencies).

Third, neither display bias nor CRS contract provisions with travel agents—the two areas that the Commission would continue to regulate *ex ante* under Option 2—should be overriding competitive concerns. Unbiased displays now provide a competitive *advantage* for travel agents, and there are many ways for a targeted airline to counteract adverse display bias. Moreover, strict rules on display bias are markedly inconsistent with regulation of sales in other sectors of the economy (*e.g.*, supermarket displays).

As for CRS contract provisions, it is critical to market efficiency for travel agents to be able to switch CRS vendors easily. However, an agent would not enter into a long-term contract voluntarily unless the CRS offered sufficient inducements.

Con: The European market may not yet be at a stage where it can benefit from sole reliance on *ex post* regulation. Airlines remain heavily reliant on CRSs. Moreover, the largest European CRS is still airline-owned. Absent *ex ante* regulation, Amadeus and its parent carriers would have a strong incentive to engage in competitive abuse in their respective home markets, where they enjoy an advantage that borders on “double dominance”.

Although CRS abuse may be neither necessary nor sufficient, it is likely to continue absent *ex ante* regulation. First, it is probably the least costly way for a parent carrier to inflict competitive harm on its rivals. Second, although rivals can take counter-measures, those counter-measures are costly. Thus, CRS abuse likely would remain the weapon of choice.

Option 2: Adopt DG TREN’s December 2002 Proposal

This option consists of the changes to the Code that DG TREN proposed in December 2002. Like Option 1, it would remove *ex ante* regulation in two broad areas. Option 2 would:

- Eliminate the requirement that parent carriers participate equally in all CRSs; and
- Eliminate the prohibition on discriminatory booking fees and other forms of discrimination by CRSs.

Option 2 also would eliminate Annex II, which regulates passive bookings, and the Article 4(1) requirement that participating carriers make equally comprehensive information available to all CRSs. In contrast to Option 1, Option 2 would leave in place restrictions on CRS contract provisions with travel agents. Also, a streamlined restriction on display bias would remain.

Pro: As with Option 1, elimination of the mandatory participation requirement for parent carriers and the non-discrimination requirements on CRS vendors would enhance market incentives, allowing airlines to use their natural bargaining leverage and forcing CRSs to compete more aggressively for carrier participation on the basis of price (booking fees) and service quality. Consumers and airlines could benefit. Elimination of Annex II is a plus as well, because the original problem (passive bookings) has receded, and giving carriers additional bargaining leverage would address it indirectly. Retention of a requirement for neutral display is beneficial for the reasons discussed above, and the streamlined requirement is preferable because it gives the regulated entity more choice with respect to compliance.

Con: As with Option 1, elimination of the mandatory participation and non-discrimination requirements on parent carriers raises serious concerns about the potential for anti-competitive conduct. Under this option, no less than under Option 1, Amadeus and its parent carriers would have an incentive to engage in CRS abuse in the carriers' home markets. Thus, although this option should inject added competitive pressure into the setting of booking fees, it also could allow for a resumption of targeted exercises of CRS market power. Granted, competition authorities could monitor the situation closely. But abuse would be difficult to detect, and enforcement action could take years. On balance, the costs of this option probably outweigh the benefits as long as the largest European CRS remains airline-owned.

Option 3: Retain Mandatory Participation and Non-Discrimination Obligations in Parent Carriers' Home Markets

Option 3 is identical to Option 2 except that it preserves Articles 3a(1)(a) and 3(4) of the current Code of Conduct under certain conditions. Specifically, Option 3 would:

- Require parent carriers (including airlines that market a CRS) to abide by the mandatory participation requirement in their home markets; and
- Require airline-owned CRS vendors to provide any improvements in service to all participating carriers on an equal basis in the owner-airlines' home markets.

Option 3 also might include one or more “unbundling” requirements, as described in Appendix V, to weaken the vertical links between airlines and CRSs.

As with Options 1 and 2, CRSs would be able to differentiate between carriers in other respects, including the fees they charge. Moreover, a parent carrier could vary its participation in CRSs in markets outside of its home country.

Pro: Option 3 addresses the major flaw in Option 2: the potential incentive for parent carriers and their CRS affiliates to engage in CRS abuse absent the mandatory participation and non-discrimination requirements. Moreover, it does so in a targeted way. First, it retains the mandatory participation requirement on parent carriers only in their home markets, which is where the market conditions are most conducive to competitive abuse. Second, it retains only the limited, corresponding obligation on CRS vendors—that is, the requirement that airline-owned CRSs make any service improvements available to all participating carriers in the home market of any owner-airline. CRS discrimination with respect to service offerings could be subtle and therefore hard to detect and challenge *ex post*. Thus, *ex ante* regulation (but limited to an owner-airline's home market) is appropriate.

Moreover, by preserving a regulatory burden on parent carriers, Option 3 retains the current incentive in the Code for parent carriers to sell off their CRS holding. Thus, it should encourage further divestitures and discourage re-integration through ownership. Similarly, by retaining the Code's application to carriers that have a marketing relationship with CRSs, Option 3 encourages such carriers to adopt an alternative contractual arrangement that would be more transparent and less conducive to competitive abuse.

Granted, this option (like the first two options) does not explicitly prohibit a CRS parent carrier from using discriminatory booking fees to raise rivals' costs, even in its home market. However, that type of discrimination would be more transparent, and therefore easier to detect and challenge *ex post*.

In sum, Option 3 is an elegantly simple way to address the very legitimate concerns that non-parent carriers and CRSs have raised. The simplicity of the approach would make its implementation relatively straightforward.

Con: If *ex post* enforcement is not speedy and tough, CRSs would have an incentive to impose discriminatory fees on rivals in those markets where conditions are conducive to competitive abuse (*i.e.*, parent carriers' home markets). Moreover, if there are efficiencies from vertical integration that can be achieved only through an ownership or marketing arrangement, Option 3 would discourage carriers from achieving them by relying on *ex ante* regulation.

Marketing Information Data Tapes

MIDT are one of the most controversial elements of the CRS debate, pitting smaller carriers, business travellers and travel agents against large network carriers. One complaint is that MIDT are prohibitively expensive. In response, DG TREN has proposed:

- to clarify language allowing “groups” of airlines and travel agents to buy MIDT collectively, thus reducing its cost to individual airlines and agents.

To address the broader concerns about large carriers' alleged anti-competitive use of MIDT, DG TREN has proposed:

- to require CRSs to remove information on MIDT that would identify individual travel agents; and
- to consider requiring CRSs to delay the release of the MIDT, and/or to restrict further the level of detail available in the MIDT.

CRS Market Power

Historically, the price of MIDT information has been beyond the reach of many small and medium-sized carriers both in Europe and the United States. However, CRSs are reshaping MIDT to increase sales, including providing data in smaller packages that will be attractive to airlines that do not have worldwide operations. Thus, the price of MIDT does not appear to reflect CRS market power.

The related issue of group purchase of MIDT may be one of the unintended consequences of the existing CRS rules. In normal markets, data providers naturally and efficiently price discriminate on the basis of the size of the purchasing entity. In part, because of the CRS rule prohibiting price discrimination, CRSs have been slow to identify ways to sell the same data at lower prices to small airlines than to large airlines. Elimination of the non-discrimination rule should suffice to solve the group purchase problem. But even without that, the market appears to be solving the problem, as noted above.

Airline Market Power

In fundamental ways, the exchange of MIDT appears harmful to competition. MIDT allow a dominant carrier to know how many seats a rival is selling and the booking class for each seat—key ingredients necessary to determine the rival's pricing strategy and the success of that strategy. In addition to making key competitive data transparent, MIDT may harm competition by facilitating the commission override programs that large carriers use to induce travel agents to sell their product. Commission overrides transform a travel agent from a neutral seller's agent to a direct distribution agent for a particular airline—but with no disclosure to the consumer.

Large carriers claim that MIDT are invaluable for a host of pro-competitive activities, including route planning, network development, and marketing. However, the carriers have not explained why alternative sources of data could not serve the same purpose. (Carriers *have* explained why MIDT, and only MIDT, enable commission override programs, but such programs may be detrimental to consumers.) Thus, it is difficult to evaluate carriers' claims based on public information.

One option is to eliminate travel agent identifiers from MIDT, so that airlines cannot pressure travel agents to reduce rival bookings. This option also would make it more difficult for carriers to implement commission overrides—a plus. Another option is to prohibit CRSs from releasing data on any carrier that does not give its consent (“opt in”). That option would make it more difficult for dominant carriers to challenge new entrants. Moreover, some carriers that now eschew CRSs might participate if they could keep their data confidential. A third option is to ban the sharing of MIDT altogether. This would improve the climate for new entrants, and would make air transport more like other industries, where firms are not given immediate access to sales data on competitors. The first and second options seem pro-competitive on balance. The third option may be too extreme without additional proceedings to determine whether alternative data sources could meet legitimate carrier needs.

1 REGULATORY CONTEXT

Computerised reservation systems (CRSs) were an outgrowth of the computer systems that major airlines developed in the 1960s to handle their own internal reservations. CRS technology was made available commercially in the 1970s to help travel agents cope with the dramatic increase in the number of air fares and services sparked by US airline deregulation. Travel agencies quickly embraced CRSs, and consumers in turn increased their reliance on travel agents to make airline reservations.¹

At the time, the airline industry missed what many now regard as an historic opportunity to build a single, neutral CRS that would give travel agents and consumers unbiased, up-to-the-minute information on all airline fares and schedules. Instead, individual airlines concluded that it was in their best interest to develop and market to travel agents a proprietary CRS. Thus, the industry comprised a half-dozen CRS vendors, all but one of them airline-owned.²

By the end of the 1980s, the European Union (EU) and the United States (US) both had imposed regulations to curb widespread exclusionary behaviour by CRSs and the major airlines with which they were affiliated. CRS regulations were expanded at several points during the 1990s on both sides of the Atlantic.

The European Commission (Commission) is now re-examining the CRS issue with an eye to scaling back the CRS Code of Conduct, and the Directorate-General for Energy and Transport (DG TREN) has informally proposed a number of concrete changes. The US Department of Transportation has proposed similar changes as part of a formal rulemaking process. These parallel reviews are a response to structural changes occurring throughout the air travel distribution industry, as well as to the perception by carriers on both sides of the Atlantic that CRS booking fees are excessive and that CRS regulations are partly to blame.

This chapter looks at the regulatory context for the Commission's re-examination of the CRS Code of Conduct. First, we review the exclusionary practices that gave rise to CRS regulation. Next, we discuss the regulatory restrictions that Europe and the United States imposed on CRSs and their airline-affiliates, and the unintended effect that some of these regulations have had on CRS bargaining leverage over air carriers. Finally, we discuss the debate over the changes to the CRS Code that DG TREN proposed in December 2002.

¹ *Upheaval in Travel Distribution: Impact on Consumers and Travel Agents*, Report to Congress and the President by the National Commission to Ensure Consumer Information and Choice in the Airline Industry (November 13, 2002): 13-14. For more on the history of manual and computer-based reservation systems for air travel, see Global Aviation Associates, *The History and Outlook for Travel Distribution in the PC-Based Internet Environment* (March 2001).

² The first CRSs were developed by US airlines, but European airlines soon developed their own. Of the four remaining CRSs, one (Amadeus) was founded solely by European airlines, and another (Galileo) is the product of a merger between a US and a European CRS.

Origins of CRS Regulation³

CRS regulations in Europe and the United States were a response to competitive problems in the adjacent CRS and airline markets. According to the US Department of Justice, market power was prevalent in both markets and the vertical integration of firms participating in the two markets—*i.e.*, CRSs and their airline-owners—gave these firms the incentive and ability to restrict competition in both markets.

CRSs had market power over airlines because of three conditions that existed at the time (and that may still exist). First, travel agents accounted for the majority of airline passenger revenue. Second, almost all travel agency sales involved the use of a CRS. Third, most agencies subscribed to only one CRS vendor. As a result, each CRS controlled access to a separate group of travel agents, and each group of agents represented a significant share of passenger revenue. Thus, airlines had to participate in every CRS. Stated differently, from the perspective of an airline, individual CRSs were not a substitute for one another.

The airline market was characterized by regional concentration, with hub-and-spoke, or network, carriers typically providing more than half of the flights to and from hub cities. Travel agents in a particular region subscribed disproportionately to the CRS owned by the dominant carrier, in part because they perceived that it would have the most recent information about the carrier's fares and seat availability.

This market power gave airline-owned CRSs the incentive and ability to limit competition in both the CRS and airline markets. Anti-competitive practices by CRSs and their parent carriers took four forms.

The most pervasive practice was display bias. Each CRS gave priority on the display screen to flights operated by its owner-airline (or by other carriers that paid for a better screen position) and gave the flights of rival carriers less prominence. Because travel agents generally selected one of the first flights listed on the display, CRSs found that even subtle changes in the ordering of flights could significantly affect bookings.⁴

Second, the timeliness and reliability of the information that CRSs displayed was subject to “architectural” or “functionality” bias. A host carrier's internal reservation system was housed in the same computer as its CRS, whereas other carriers had to transmit reservation information to the CRS computer from afar. Thus, CRSs invariably had more reliable and up-to-date information on seat availability and the status of reservations on the host/parent carriers. In addition, CRSs consciously controlled the order in which information was loaded into the computer—for example, loading the parent carrier's fare reductions first and those of rivals last (or not at all). Not surprisingly, travel agents booked tickets disproportionately on the parent carrier, because they had more confidence in the information they received on its flights.

³ This section draws heavily on a recent summary of the background and history of CRS rules prepared by the US Department of Justice. Reply Comments of the Department of Justice, Department of Transportation Notice of Proposed Rulemaking on Computer Reservation System Regulations (June 9, 2003): 4-9.

⁴ According to one study, 70-90 percent of all US bookings were made on flights from the first screen of the CRS display, and roughly 50 percent of the bookings were made on the flight occupying the first line. Civil Aeronautics Board, *Report to Congress on Computer Reservation Systems* (1983): 42, cited in Global Aviation Associates, *The History and Outlook for Travel Distribution in the PC-Based Internet Environment*, 24.

Third, airline-owned CRSs charged highly discriminatory booking fees. (Booking fees are flat, per segment charges that an airline pays whenever a travel agent books a ticket using a CRS.) For example, in the United States, rival carriers were forced to pay \$2-\$3 per flight segment, while non-rival carriers paid only \$0.25 per segment.⁵ Some small and new entrant carriers were effectively precluded from using travel agents as a distribution channel because they could not afford the CRS booking fees.

Thus, parent carriers took advantage of CRS market power in multiple ways to limit competition in regional airline markets. Display and architectural bias directly diverted passengers from rival airlines to the parent carrier. Discriminatory booking fees served to raise rival airlines' costs. In the short run, these practices raised the parent carrier's profits, and over time they discouraged rivals from competing in areas where the parent carrier was dominant, thus reducing passengers' competitive choices.

In addition, parent carriers used their airline market power in various ways to restrict competition in the CRS market—a fourth broad form of exclusionary behaviour. For example, in markets in which a CRS parent carrier had a significant presence, it would limit its participation in competing CRSs so as to make them unattractive to local travel agents. Alternatively, a parent carrier would refuse to provide certain financial benefits or other rewards to local travel agencies that subscribed to rival CRS systems. Although this strategy caused a parent carrier to lose some sales, the airline gained even more in revenue by preserving its own regional dominance and that of its CRS affiliate.

In sum, CRS and airline market presence had a mutually reinforcing effect in regional markets. The dominant airline's CRS affiliate was able to sign up more travel agents because of its inherent advantages (*e.g.*, better information on the dominant carrier). Once the CRS gained dominance, it used bias and discriminatory fees to discourage competition and help the parent carrier maintain and expand its dominant position. The CRS in turn shared "incremental" airline revenues (*i.e.*, revenues the parent carrier earned as a result of owning a CRS) with travel agents in the form of lower subscriber fees, further strengthening the CRS's dominant position.

Regulatory Response in Europe and the United States

US Department of Transportation's CRS Rules

Because the US airline industry was deregulated a decade before Europe's, these practices appeared first in the United States. In 1984, as its last major act, the Civil Aeronautics Board (CAB) issued regulations designed to prevent these practices. In 1992, after an extensive review, the US Department of Transportation (DOT) formally readopted the existing CRS rules (the CAB had included an automatic termination date) and prescribed several new ones. In 1997, DOT adopted yet another CRS regulation. The US Department of Justice (DOJ) supported all three regulatory actions.

According to a recent analysis by DOJ, the rules were designed to achieve two goals.⁶ The near-term purpose was to prohibit directly the most obvious ways in which airline-owned

⁵ Global Aviation Associates, *The History and Outlook for Travel Distribution in the PC-Based Internet Environment*, 52.

⁶ 2003 Reply Comments of the Department of Justice, 9-13.

CRSs were exercising market power to harm competition in the airline market. Three CRS regulations were designed to serve this near-term goal:

- The prohibition on display bias;
- The prohibition on architectural/functionality bias; and
- The prohibition on discriminatory booking fees.

The longer term purpose of the rules was to dissipate CRS market power—both by facilitating the use of multiple CRSs by travel agents, and by reducing the regional dominance of existing CRSs (*e.g.*, by fostering new entry by non-airline-owned CRSs, and promoting expansion of the smaller airline-owned CRSs). Three CRS rules (or sets of rules) were established to serve this long-term goal:

- The mandatory participation rule (adopted in 1992), which requires airlines that own a CRS to participate in competing systems at the same level at which they participate in their own system.
- The prohibition on “parity” clauses in CRS contracts with airlines (adopted in 1997). Parity clauses, a type of Most Favoured Nation clause, require non-owner airlines to participate in the contracting CRS at a level at least as high as they participate in any other CRS, thus reducing competition. They effectively extend the mandatory participation requirement to non-parent carriers.
- Restrictions on certain terms in CRS contracts with travel agents, including terms that: mandated lengthy contracts, required a minimum level of use of the CRS, prohibited the use of multiple systems, prevented agents from using their own hardware to access competing systems, and tied commission payments from the parent carrier to system use.

An additional competitive concern arose soon after the original CRS regulations were imposed: although CRS booking fees were uniform (*i.e.*, no longer discriminatory), they were uniformly high. In response to criticism from carriers, DOT conducted a study that drew on extensive financial information provided by CRS owners. The 1988 study found that booking fees charged by the three largest CRS vendors were twice the average cost of providing the service.⁷ (Although parent carriers themselves had to pay high booking fees to rival CRSs, they earned far more in fees from other airlines than they paid out themselves.) DOT and DOJ concluded that booking fees were not disciplined by competition because carriers needed to participate in every CRS.

As a regulatory response, DOJ proposed (as it had to the CAB in 1984) that booking fees on airlines be set at zero, which would force CRSs to impose the fees on travel agents instead of airlines. DOJ argued that, whereas airlines had to participate in every CRS, travel agents were in a position to “shop” for the lowest-priced CRS. Thus, requiring agents to pay booking fees would lead CRSs to compete on price. However, DOT (like the CAB) rejected the DOJ proposal and other proposals to reduce the level of booking fees on the grounds that they were not practical.

⁷ US Department of Transportation, *Study of Airline Computer Reservation Systems* (May 1988).

Europe's CRS Code of Conduct

Europe's first regulation of CRSs was indirect—part of a “block exemption” to the general prohibition against anti-competitive agreements found in Article 81(1) of the European Community (EC) Treaty. The 1988 block exemption, one of several that the EC approved to help smooth the transition toward a deregulated air transport market, covered certain agreements among airlines that wanted to develop and implement a joint CRS system. As a condition of exemption, the airlines had to abide by restrictions on CRS display bias and discriminatory access terms, among other things.

However, it became clear that those restrictions would not reach CRS systems developed and owned by single airlines, such as the US systems owned by American Airlines, United Airlines and TWA. Thus, as part of a comprehensive series of measures designed to liberalise the European air transport market, the EC adopted a stand-alone Code of Conduct that covered all CRS systems, including US systems operating in Europe.

Using the CAB regulations as a template, the EC's 1989 CRS Code of Conduct targeted four key areas: display bias, discriminatory booking fees, anti-competitive agency contract terms, and booking and marketing data. Specifically, the Code required CRSs to:⁸

- Provide at least one unbiased display;
- Give all carriers access to their system on non-discriminatory terms, including non-discriminatory booking fees; and
- Refrain from including certain highly restrictive terms in contracts with travel agents.

In addition, the Code authorised CRSs to make booking and marketing data available, but only on a non-discriminatory basis.

In 1993, the Commission clarified certain provisions of the Code and added several new ones to reflect developments in the industry. The most significant addition (Article 3a) was a requirement that parent carriers give other CRSs the same information and booking opportunities that they gave their own CRS. As with DOT's rule, this “mandatory participation” requirement targeted dominant parent carriers that were limiting their participation in rival CRS systems to make those systems less attractive to local travel agents.⁹ Another new provision (Article 3(4)) required CRS vendors to make any improvements in service available to all participating carriers on an equal basis. To further discourage discrimination, the Code required greater separation between a CRS and its parent carrier. Still other amendments limited the number of times a code-share flight could be listed in a primary display, and extended the Code to non-scheduled flights.

Despite the adoption of the mandatory participation rule in 1993, CRS owner-airlines continued to exclude rival CRSs. Prompted by a Sabre complaint filed with DOJ, the

⁸ The Code of Conduct applies to all CRS vendors, in contrast to the US CRS rules, which apply only to airline-owned CRSs. In practice, this distinction has had no effect, however, because until recently all of the CRSs have had airline ownership.

⁹ In addition, Article 4(1) of the Code requires *participating* (i.e., non-parent) carriers to give each CRS information that is accurate, transparent, and no less comprehensive than what it provides to any other CRS.

Commission conducted an investigation of discriminatory behaviour by Amadeus parent carriers—Air France, Iberia, Lufthansa and SAS.¹⁰ The investigation was initiated pursuant to the Commission’s powers under Treaty Article 82, which prohibits the abuse of dominant position. Although the Commission concluded that there was no evidence of discrimination by Lufthansa, Iberia or SAS, in February 1999, the Commission charged Air France with the following:

- Distributing its non-European tariffs so that Amadeus could receive them up to three days before Sabre (between October 1993 and June 1997);
- Distributing its intra-European non-domestic tariffs so that Sabre received only part of the tariffs or received them with as much as a one-week delay (between 1992 and 1996); and
- Failing to communicate its “Fly” and “Drive” tariffs to Sabre in 1997.

The Commission subsequently opened a formal procedure against Air France, but Sabre concluded a “code of good behaviour” with Air France prior to the Commission reaching a final judgement. Under this code, Air France agreed to participate in all CRSs at the same level of connectivity; to enable every CRS to have access to the same level of functionality; and to promote Sabre as favourably as it did any other CRS. Sabre subsequently entered into similar agreements with Lufthansa and SAS.

In 1999, the EC again amended the Code of Conduct, following an extensive review of complaints received from air carriers and CRS vendors concerning alleged infringements of the Code. A provision was added to bring CRS subscribers (travel agents) directly within the scope of the Code. It requires travel agents to provide unbiased and comprehensive reservations services, and to avoid making speculative or fictitious bookings to increase their incentive payments. The Code also was expanded to include rail transport. (See Appendix I for a complete summary of the key provisions of the CRS Code of Conduct.)

Notably, the 1999 amendments did not direct CRSs to exclude incentive payments to travel agents from their booking fee calculations. Air carriers had sought such a directive because of the continued rise in booking fees, some of which reflected the growth in CRS payments to travel agents. The Commission explained its decision in a 1997 report accompanying its proposed changes to the Code:

With the help of external consultants, the Commission carried out a detailed examination of CRSs’ charging policies....The report suggested that the present trend in incentive schemes was leading to a competing spiral between CRSs in their bids for subscriber business which did not result in any added value for the carrier who has to foot the bill through increased booking fees. [However] the consultant’s report demonstrated that the higher the degree of competition, the higher the level of the distribution fee....Given the close correlation between the level of incentive payments and the extent of competition between CRSs in a

¹⁰ Sabre filed the original complaint with the US Department of Justice. DOJ requested that the Commission’s Directorate-General for Competition initiate an investigation—the first such request under the “positive comity” agreement between Europe and the United States. This and other information on the case—*Sabre/Amadeus*, Case No. IV/36.488—comes from personal communication with officials from the Competition Directorate-General.

particular market, the Commission is persuaded by the CRSs' assertion that incentives awarded to subscribers are distribution costs. As such, they can be included in the booking fee calculation.¹¹

We analyse the relationship between booking fees and incentive payments in more detail in Chapter 3.

Unintended Consequences of CRS Regulation

A number of CRS regulations have been both effective and lacking in harmful side effects.¹² In particular, the restrictions on display bias and architectural bias have eliminated the worst forms of bias, and have done so without creating other, unintended consequences.

Other CRS regulations have been effective at eliminating (or limiting) discriminatory practices but in doing so have created unintended consequences. In particular, the mandatory participation rule ensures that parent carriers can no longer withdraw from (or limit their participation in) rival CRSs as a way to restrict competition in the CRS market. However, in doing so, the rule insulates CRS vendors from market forces to some degree.

To elaborate, absent the mandatory participation rule, a carrier that was unhappy with the booking fees charged by a particular CRS could withdraw from, or substantially lower its level of participation in, that system. The mere threat of exit would trigger the type of negotiations over price that occur routinely between customers and suppliers in unregulated industries. However, the mandatory participation requirement prohibits CRS parent carriers from taking such action, thus frustrating their ability to negotiate with vendors. As one US carrier expressed it:

Because airlines subject to [the mandatory participation requirement] must do business with all CRSs, no matter how excessively priced their fees or abusive their behaviour, CRSs have no incentive to reform their business practices or lower their prices. Meanwhile, the affected airlines have no leverage to negotiate better terms and conditions from those CRSs.¹³

Similarly, the regulations that prohibit CRSs from discriminating among air carriers in terms of fees and other contract terms have been a mixed blessing. Those provisions have limited, if not eliminated, the kind of discriminatory practices through which CRSs restricted competition in the airline market. However, much like the mandatory participation rule, non-discrimination requirements unintentionally stifle competition. CRS vendors lack normal market incentives to seek increased sales by lowering their fees, because if they provide a discount to one airline, they must give it to all.

¹¹ European Commission, *Report on the Application of Council Regulation (EEC) No. 2299/89 on a Code of Conduct for Computerised Reservation Systems* (July 9, 1997): 14.

¹² “Effectiveness” here refers to regulators’ near-term goal of putting a stop to the major ways in which airline-affiliated CRSs were restricting competition in the airline market, as discussed earlier. In Chapter 3, we will consider whether CRS regulations achieved the long-term goal of dissipating CRS market power.

¹³ Comments of Northwest Airlines on DOT NPRM (March 18, 2002): 3-4. At the time of these comments, Northwest was a partial owner of Worldspan. In July 2003, Northwest and the other parent carriers fully divested their ownership of Worldspan.

In sum, the mandatory participation and non-discrimination requirements solved the immediate problem that led to the imposition of the Code: targeted abuse of market power by vertically integrated airlines and CRSs in regional markets where both had market power. But in doing so, these regulations have enhanced CRS bargaining leverage against all airlines to some degree—a predictable but unintended effect.

Proposed Changes to the CRS Code of Conduct

These unintended effects of the CRS Code have gained more attention in recent years, as financially strapped carriers have faced steadily rising booking fees even as they struggled to lower their distribution costs. Parent and non-parent carriers alike have complained that certain CRS regulations do more to impede competition than to encourage it.

As the same time, changes in CRS ownership and technology are gradually eroding the key features of the competitive landscape for which the Code was designed. First, many airlines have divested their CRS ownership. Three of the four CRSs (Galileo, Sabre and Worldspan) no longer have any airline ownership, and Amadeus is now partly publicly owned. Second, the Internet is eroding the CRS position as an essential intermediary. Most carriers now sell seats directly on the Internet, and some “no-frills” carriers in Europe sell more than 90 percent of their seats this way. In the United States, even large carriers, which remain heavily dependent on CRSs, recently have been able to use their “web fares” to negotiate lower booking fees.

In light of these and other developments, and reflecting its general desire to reduce the level of regulatory control over the market for air travel, the Commission has said it wants to consider whether key provisions of the Code remain necessary and appropriate. Toward that end, DG TREN began consultations on appropriate ways to: a) simplify the Code of Conduct and reduce its reach, b) replace regulation with market discipline and apply general competition laws instead of sector-specific rules, and c) eliminate rules that increase the cost of CRS services.

In December 2002, DG TREN requested comments from stakeholder groups on a number of potential amendments to the Code. The two most significant proposed changes would:

- Eliminate the mandatory participation requirement on parent carriers; and
- Eliminate provisions requiring CRSs to treat all carriers alike with regard to their fees and service offerings (non-discrimination requirement).

In addition, DG TREN proposed to revise the rules regarding sharing of Marketing Information Data Tapes (MIDT) to: a) remove the information enabling identification of individual travel agents and b) allow for the purchase of MIDT by certain groups of airlines and travel agents. Finally, DG TREN proposed to:

- Streamline the requirement for CRSs to provide a neutral display; and
- Eliminate Annex II of the Code, which imposes certain restrictions on how travel agents can use their CRS equipment.
- Eliminate the requirement that participating carriers give each CRS information that is no less comprehensive than that which they provide to any other CRS (the requirement that participating carriers to provide accurate and transparent information would remain).

Several of DG TREN's proposed changes—in particular, elimination of the mandatory participation and non-discrimination provisions—have proved to be controversial. Non-parent airlines such as British Airways and KLM have warned that, absent those requirements, Amadeus would seek to limit competition in the airline market—particularly in those markets in which its parent carriers are dominant. Galileo and Sabre have issued similar warnings about the potential for the Amadeus parent carriers to restrict competition in the CRS market. In short, there is a concern that removing these CRS regulations in order to eliminate their harmful side effects would result in a return of the original malady: anti-competitive conduct in markets where CRSs and their airline affiliates may retain market power.

This report analyses the potential effects of proposed changes to the Code—with particular emphasis on the mandatory participation and non-discrimination provisions. Chapter 2 lays the foundation for our analysis by describing the air travel distribution industry and defining the relevant markets in which anti-competitive conduct potentially might occur. Chapter 3 asks whether CRSs do indeed exercise market power over airlines: we evaluate the validity of carrier claims regarding excessive booking fees, and consider whether the “downstream” competition among CRSs to recruit and retain travel agency subscribers serves to dissipate excess fees that CRSs collect from airlines “upstream”, such that consumers (and airlines) are not harmed. Chapter 4 examines the conditions under which—absent CRS regulation—vertical relationships between airlines and CRSs would lead to a reappearance of anti-competitive conduct. We also look at the potential for such vertical relationships to create cost and service efficiencies. Chapter 5 evaluates the strengths and weaknesses of three concrete policy options. Finally, Chapter 6 analyses the MIDT issue and evaluates alternative changes to the current Code.

2 INDUSTRY OVERVIEW AND DEFINITION OF RELEVANT MARKETS

This chapter lays the foundation for our analysis of competition in the air travel distribution industry. First, we provide a descriptive overview of the three key sectors that make up the industry:

- Airlines, which provide the air travel;
- Computerised Reservation Systems, whose services are an input to the retail sale of air travel; and
- Travel agencies, which engage in the retail sale of air travel, including online travel agencies as well as traditional “brick-and-mortar” travel agencies.

To determine if current conditions are conducive to the exercise of market power, we also define the relevant product and geographic markets in each sector. The last section of the chapter describes the flow of payments among the airlines, CRSs and travel agents.

In antitrust cases, the outcome is often determined by how a market is defined. To illustrate, Coca Cola’s share of the market will vary widely, depending on whether the relevant market is defined as colas, all soft drinks, or all drinks.¹⁴ Consistent with the approach used by competition authorities in Europe and the United States, we define a relevant market as a set of products and the geographic area in which producers have the power to raise prices well above competitive levels.¹⁵

A producer’s ability to increase the price of a product depends heavily on whether consumers have access to substitutes for the product. Thus, if the potential for substitution is limited, competition authorities are more likely to view a product or group of products as a relevant market. For example, if CRSs are not substitutes for one another, then each CRS is a relevant market.

Similarly, the geographic limit of a market is determined by asking whether an increase in the price of a product in one location would substantially affect the price of the same product in another location. If the answer is yes, the products are in the same geographic market; if the answer is no, they are in separate markets.¹⁶ For example, the price of soft drinks in one city does not affect soft drink prices in another city, because consumers will not travel merely to avail themselves of lower soft drink prices. Therefore, the relevant geographic market for the production of soft drinks is local.

¹⁴ Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization* (Harper Collins, 1994): 803-804.

¹⁵ European Commission, “Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law,” *Official Journal C 372* (December 9, 1997).

¹⁶ Carlton and Perloff, *Modern Industrial Organization*, 803-807.

Once we define a relevant market, we examine its level of concentration—that is, the share of sales accounted for by the largest firms. When market concentration is low, there is sufficient competition to make it difficult for any single firm profitably to raise prices above competitive levels, or for a collection of firms to collude successfully for a sustained period. With high market concentration, there is less competition and thus greater potential for unilateral or co-ordinated anti-competitive behaviour.

DESCRIPTION AND DEFINITION OF MARKETS

Airlines – The Providers of Air Travel

The European passenger airline industry is made up of scheduled carriers, charter carriers, and no-frills carriers. The scheduled airlines include international carriers (sometimes called “flag” carriers), as well as intra-EU and regional carriers. In 2002, European airlines (defined as carriers in the fifteen EU Member States, plus Finland, Norway and Switzerland) carried about 423 million passengers on domestic and international routes.¹⁷ Table 1 provides detail on the 25 largest European carriers based on passenger traffic.

Relevant Markets for the Provision of Air Travel

Competition authorities typically view *air travel* between specific city-pairs as a separate product market, because travel time and other considerations make alternative modes of transportation poor substitutes, although this is less the case in Europe with its well developed passenger rail systems. Individual *city-pairs* are viewed as separate product markets, because travellers typically have particular points of origin and destination in mind, and they are not willing to substitute other points in response to changed market conditions. For example, if a traveller wants to fly from London to Lisbon, an increase in the London-Lisbon air fare generally would not lead her to substitute another destination.¹⁸

¹⁷ Association of European Airlines, European Regions Airline Association, International Air Carrier Association, and *Airline Business*.

¹⁸ The Commission defines relevant markets for passenger airline services on a “point of origin/point of destination” basis (see *KLM/Alitalia*, Case No. COMP/JV.19, 11 August 1999). Thus, included in the relevant market for competition law purposes are (i) direct flights between the two airports concerned; (ii) direct flights between the airports whose respective catchment areas significantly overlap with the catchment areas of the airports concerned at each end; and (iii) indirect flights between the airports concerned to the extent that these indirect flights are substitutable for the direct flights. This market definition therefore accepts the possibility that airports serving the same city, such as London Heathrow and London Gatwick, may compete in the same market.

The Commission also considers that other modes of transport, in particular rail, but also car, coach and ferry, may compete in the same relevant market. The Commission continues to distinguish between time-sensitive and non-time-sensitive passengers. Time-sensitive passengers want to reach their destination in the shortest possible time and frequently require flexible travel arrangements. Non-time-sensitive passengers are prepared to accept longer journey times and are more price-sensitive. Importantly, the Commission has accepted that indirect services may offer valid alternatives to direct services, even for time-sensitive passengers, at least with respect to long haul routes (see *United Airlines/US Airways*, Case No. COMP/M.2041, 12 January 2001).

Table 1
Top 25 European Airlines Ranked by Passenger Traffic 2002

Airline	Country	Passenger Traffic	Passengers
		(RPK) millions	millions
		[1]	
British Airways	UK	100,112	38
Air France	France	97,151	39
Lufthansa German Airlines	Germany	88,570	43.9
KLM Royal Dutch Airlines	Netherlands	59,417	23.4
Iberia Airlines	Spain	40,470	23.9
Alitalia	Italy	30,025	22.2
Virgin Atlantic Airways	UK	27,004	3.8
SAS Scandinavian Airlines	Sweden	23,212	21.9
Swiss	Switzerland	22,371	11.6
MyTravel Airways	UK	21,900	7.4
Britannia Airways	UK	18,430	8
Thomas Cook Airlines (Germany)	Germany	17,406	5.6
Austrian Airlines Group	Austria	17,335	8.8
Air 2000	UK	16,296	6.5
LTU International Airways	Germany	16,100	5.7
Hapag-Lloyd	Germany	14,399	6.3
Thomas Cook Airlines (UK)	UK	13,970	5.3
Finnair	Finland	12,793	7
Air Berlin	Germany	12,726	6.6
Monarch Airlines	UK	11,857	4.6
Corsair	France	11,470	2.1
TAP Air Portugal	Portugal	11,383	5.6
Ryanair	Ireland	10,200	15.7
easyJet	UK	9,208	11.4
Air Europa	Spain	9,033	6

Note:

[1]: RPK is Revenue Passenger Kilometer.

Source:

Airline Business (September 2003): 72-74.

Market Concentration in the Provision of Air Travel

Many air travel markets at the city-pair level are highly concentrated, with fewer than four carriers from which travellers can choose. By this measure, many markets are not significantly different than they were a decade ago. However, even concentrated markets can be competitive. While airline city-pair markets have not shown themselves to be “contestable”, as some economists predicted in the run-up to deregulation, they are nevertheless subject to entry. A network carrier generally enters a new city-pair market by adding another origin/destination city

to its hub, and no-frills carriers such as Ryanair and easyJet regularly introduce service in new point-to-point markets.¹⁹

Because many city-pair markets are concentrated, air carriers may have market power over travel agents (as well as consumers), whom they traditionally have paid to sell their tickets. In one case, the Commission concluded that British Airways was dominant in the United Kingdom market for the purchase of travel agency services, in part because it purchased a much larger share of such services than other airlines.²⁰

CRS Services – An Input to the Retail Sale of Air Travel

CRSs provide three basic services to their clients, which primarily are travel agencies. First, they aggregate and display information on flight schedules and fares across multiple airlines, allowing agents to “comparison shop” for the most convenient and least expensive flight. Second, agents can use the CRS “booking engine” to make reservations and issue tickets on most carriers whose flights are displayed. Once the ticket is booked, the CRS maintains a database on behalf of the agency, which allows any travel agent in the ticketing agency to handle an itinerary change. The CRS also notifies the agency immediately if there is a change in the flight schedule. Third, a travel agency may opt to add a “back office” accounting system to its CRS computer. This system maintains client records for billing purposes and keeps the agency’s accounts, which allows small travel agencies to operate with a lean staff and minimal paperwork.

In addition to providing these client services for travel agents and other users, CRSs also manage, or “host”, the internal reservation systems of many airlines. For example, British Airways recently contracted with Amadeus to manage its internal reservation system, which was previously handled in-house.²¹ CRSs are not the only entities that host internal reservation systems, however. Computer services providers such as EDS host many airline internal reservation systems, and some airlines host their own systems. Because the hosting function need not be performed by a CRS (and because the market for hosts is competitive, according to the airlines we interviewed), we will not address it in our analysis. However, we mention it here because it is relevant to our analysis of airline-CRS vertical integration in Chapter 4.

Four CRSs operate in Europe and the United States. Although these systems were developed and for many years owned by airlines, three of the four no longer have any airline ownership, and the fourth is partly publicly owned. The systems are:

Amadeus: Madrid-based Amadeus is 60-percent owned and controlled by three of its founding airlines: Air France (23.4 percent), Iberia (18.3 percent) and Lufthansa (18.3 percent).²² The remaining 40 percent is publicly owned—up from 25 percent in 1999, after Amadeus launched its initial offering.

¹⁹ Continental Europe has seen a dramatic upsurge in services by no-frills carriers—from 13.6 percent of seats in 2002 to 28.7 percent in 2003. However, no-frills carriers are still operating largely on routes within the United Kingdom. Association of European Airlines, *Yearbook 2003* (July 2003): I-8, 9.

²⁰ European Commission Decision of July 14, 1999, relating to a proceeding under Article 82 of the EC Treaty, Case No. IV/34.780, 14 July 1999.

²¹ Geoff Naim, “Case Study: British Airways,” *FT.com* (May 28, 2003).

²² Amadeus, *Annual Review 2002*: 27.

Galileo: Galileo became a public company in 1997, when its American and European airline-owners sold 37 percent of their equity in a public offering. They sold an additional 37 percent in 1999, leaving United Airlines as the sole airline-owner. In 2001, Cendant Corporation, which has no airline affiliation, purchased the entire company.

Sabre: American Airlines developed and for many years owned Sabre, the largest CRS. American sold close to 20 percent of its interest in Sabre in a 1996 public offering, and the remainder in 2000.

Worldspan: Until recently, Worldspan was 100 percent owned by three US airlines: Delta (40 percent), Northwest (34 percent), and American (26 percent). (American Airlines became a Worldspan owner when it bought TWA in 2001.) However, on July 1, 2003, Travel Transaction Processing Corporation, newly formed by Citigroup Venture Capital Equity Partners (CVC) and Teachers' Merchant Bank, purchased Worldspan from its three airline-owners.²³

Short of ownership ties, a number of airlines have marketing relationships with a CRS. In Europe, national flag carriers historically owned the national marketing company (NMC) (also called the national distribution company, or NDC) that promoted the most prominent CRS in their home market. For example, Lufthansa owned Start Amadeus, the German distribution system for Amadeus, and Alitalia owned Galileo Sigma.

Most European airlines have sold off their ownership of the NMC to the CRS itself. For example, Lufthansa recently sold its 66 percent stake in Start to Amadeus, and Alitalia has sold off its ownership of Sigma. However, a few flag carriers are still NMC owners. Specifically, Finnair, Air France and Iberia own a share of the Amadeus NMC in their home markets. (Note that Air France and Iberia are also owners of Amadeus.) Similarly, Austrian Airlines and Olympic Airways are part owners of the Galileo NDC in Austria and Greece respectively.²⁴

In the United States, most former CRS owner-airlines maintain marketing agreements with the CRS they once owned. For example, American Airlines has a marketing agreement with Sabre, as does United Airlines with Galileo. Although these agreements vary widely, the CRS typically pays its airline partner to provide marketing support as part of a formal contract.

²³ Harry R. Weber, "Airlines Sell Ticket-Processor Worldspan," *The Associated Press* (July 1, 2003).

²⁴ According to DG TREN, airlines that market a CRS, including airlines that own some or all of a national marketing company, fall within the definition of "parent carrier" under the EC's Code of Conduct. However, most representatives of Amadeus and Galileo with whom we spoke did not appear to be aware that the Code covers a carrier that owns a NMC.

Relevant Markets for CRS Services

CRS services²⁵ are considered a relevant product market for two related reasons. First, travel agencies have little or no alternative to using a CRS either to search for flight and fare information or to book tickets. Second, consumers are heavily reliant on travel agencies to make their air travel arrangements. The relevant geographic market for CRS services is (at most) national in scope because conditions of sale vary from country to country, and because travel agencies—for whom CRS services are an input—operate in national markets.²⁶ (The CRS market may be even smaller than national in scope, for the same reasons that the market for travel agents, discussed below, may be sub-national.)

Market Concentration in CRS Services

There are only four CRS vendors today, compared to six (five of them airline-owned) in 1984. No new CRSs have entered the market, because the large scale needed to achieve cost efficiency represents a major barrier to entry. A prospective CRS would have to make a significant up-front investment in computer hardware and software to develop the technological capabilities that customers demand. To offset these sunk costs, it would need to achieve substantial market penetration among travel agent subscribers, which would require added investment in agent “signing bonuses”. In addition, a new entrant would have to contract with enough airlines to offer the necessary content for its services, which would involve a lengthy negotiating process.²⁷

²⁵ The Commission has defined a CRS as “a tool provided to travel agencies in order to allow them to obtain information and make reservations related to airlines and other internationally operating travel services providers, including car rental companies and hotels.” (See *Otto Versand/Sabre/Travelocity*, Case No. COMP/M. 2627, 19 December 2001.) According to the Commission, the product market includes CRS services to both traditional and online travel agencies. Similarly, the Commission treats CRS services for all types of travel reservations (airline, car, train, and hotel) as a single product market.

²⁶ For these reasons, the Commission historically has defined the CRS geographic market as national in scope. However, the Commission has not ruled out the possibility of a wider geographic market, given the advent of online travel agencies and the fact that CRS data is not limited to national borders. (See *Otto Versand/Sabre/Travelocity*, Case No. COMP/M. 2627.)

²⁷ Some characterisations of the CRS market imply that it exhibits “network externalities”, which, if true, would represent another barrier to entry. Network externalities—a type of bandwagon effect—are consumer benefits that increase with the number of people using the same product or service. Industries with network externalities are prone to dominance by one firm or a small number of firms because of the winner-take-all nature of such effects.

However, on closer examination, the CRS market does not appear to exhibit network externalities. The value to an airline of acquiring an additional passenger is the same whether the passenger comes from a large CRS or a small one. Thus, airlines have an incentive to make flight and fare information and booking services available to multiple CRSs in order to access as many potential customers as possible. The incentive for carriers to patronize multiple service providers distinguishes the CRS market from true network markets in another (related) respect: Markets with network externalities typically confront users with a “fork in the road”, forcing them to choose between one product and another (*e.g.*, Beta versus VHS videocassettes). In sum, barriers to entry such as the requirement for large sunk costs mean that the CRS market may be inherently prone to concentration, but other economic incentives exist to prevent market dominance.

CRS Market Concentration from the Perspective of a Travel Agency

Travel agencies have four CRS vendors from which to choose (most travel agencies subscribe to only one CRS). Although four firms constitute a “highly concentrated” market from an antitrust standpoint, a four-firm market can display vigorous competition. Firms are more likely to compete vigorously when they offer homogeneous, as opposed to heterogeneous, products, and when they can expand output easily. Both of these conditions appear to prevail in the CRS sector. All four CRSs provide nearly identical information, using the same technology and similar features. Moreover, CRSs can expand output (*i.e.*, serve additional travel agencies) because most of their investment, which is in hardware and software, is fixed.

The degree to which CRS vendors in fact compete to recruit and retain travel agents is key to our analysis of CRS market power over airlines. Thus, we examine the issue further in Chapter 3.

CRS Market Concentration from the Perspective of an Airline

As we discussed in Chapter 1, competition authorities in the United States traditionally viewed each CRS to be a separate market from the perspective of an airline. Most travel agents used just one CRS. Thus, each CRS offered access to a different group of travel agencies, and in turn to a different set of potential customers. Since airlines could not afford to ignore a sizable group of potential customers, they had to participate in every CRS.²⁸ In Chapter 3, we will consider whether this is still the case.

Travel Agencies and the Retail Sale of Air Travel

CRS services are an input to the retail sale of air travel. Three distinct entities sell air travel on a retail basis:

- Traditional “brick-and-mortar” travel agencies, including tour operators;
- Online travel agencies, including websites associated with brick-and-mortar agencies, as well as “independent” websites such as Opodo and Orbitz; and
- Airlines themselves, through their reservation offices, call centres and websites.

Whereas travel agencies sell tickets for travel on many different air carriers, carriers sell tickets only for their own flights and those of their alliance partners.

Travel agencies and airlines sell air travel to two types of consumers: business travellers and leisure travellers. Most European businesses depend on a specific brick-and-mortar travel

²⁸ DOJ expressed this view succinctly in 1989: “Each CRS provides access to a large, discrete group of travel agents, and unless a carrier is willing to forego access to those travel agents, it must participate in every CRS. Thus, from an airline’s perspective, each CRS constitutes a separate market and each system possesses market power over any carrier that wants travel agents subscribing to that CRS to sell its airline tickets.” Comments of the US Department of Justice, DOT Docket No. 46494 (November 22, 1989), quoted in the US Department of Transportation, “Computer Reservation Systems (CRS) Regulations; Statements of General Policy; Proposed Rule,” (hereafter “DOT NPRM”) 67 *Federal Register* 69366 (November 15, 2002): 69376.

agency to manage their travel-related accounts. This allows easy tracking of expenses for corporate accounting purposes, and ensures automatic notification of any schedule changes or cancellations. Additionally, brick-and-mortar agencies help business travellers book complex itineraries and secure special fares. Online agencies and airline websites are beginning to offer the capability to manage travel-related accounts, particularly for smaller businesses.²⁹ However, brick-and-mortar agencies still handle the vast majority of all corporate travel.

In contrast to business travellers, leisure travellers are more apt to vary their distribution channel based on the nature of the trip. European leisure travellers typically rely on a brick-and-mortar agency for package tours or complicated travel, because personalised service remains important for handling complex bookings or resolving questions regarding fare restrictions. However, leisure travellers with simple itineraries and ready Internet access often use online travel agencies or airline websites, where they may find lower fares. Nevertheless, while use of online travel agencies in Europe is growing, it is still extremely low, as we discuss below.

The distinction between business and leisure travel is relevant to our analysis because some distribution channels are more dependent on CRSs than others. Airline distribution channels do not use a CRS at all to sell or book tickets.³⁰ By contrast, brick-and-mortar travel agencies are highly dependent on CRSs—to search for flight and fare information, book reservations, and manage client records and agency accounts. Online agencies rely heavily on CRSs as well for search and booking functions, but technological advances likely will reduce their dependence in the future.³¹

Table 2 shows the share of all air travel sales, or bookings, in Europe by distribution channel for 2001 and 2002, based on estimates calculated by Sabre. Brick-and-mortar travel agencies handled the majority of all bookings—59.1 percent in 2002, down slightly from 60.7 percent the year before. Online travel agencies handled only 2.6 percent of total bookings last year, up from 2.3 percent in 2001. “Supplier direct” bookings (*i.e.*, airline reservation offices, call centres and websites) accounted for 38.2 percent of all bookings, compared to 37.0 percent in 2001.

²⁹ Susan Stellan, “Online Booking Cuts Costs and Simplifies Trips,” *New York Times* (September 2, 2003).

³⁰ As we noted earlier, an airline’s internal reservation system may be hosted by a CRS, but hosting is a separate function that is not directly relevant to this report.

³¹ Moreover, online agencies’ dependence on CRSs does little to contribute to potential CRS market power over airlines, according to US competition authorities. Most consumers search multiple online sites before purchasing a ticket. Thus, the exclusion of an airline from any one website would be far less harmful than its exclusion from any one CRS. 2003 Reply Comments of the Department of Justice, 5.

Table 2
Annual Bookings in Europe through Alternative Distribution Channels

	2001	2002	2003 Projections	Average
				Annual Change
Brick-and-Mortar Travel Agencies	60.7%	59.1%	57.6%	-1.0%
Online Travel Agents	2.3%	2.6%	3.9%	0.5%
Supplier Direct [1]	37.0%	38.2%	38.3%	0.4%
Total	100%	100%	100%	

Note:

[1]: Includes bookings made through airline websites, call centres, and reservation offices.

Source:

Data from Sabre.

Table 2 reveals a gradual shift away from brick-and-mortar travel agencies, and a surprisingly high level of supplier direct (*i.e.*, airline) booking. However, several caveats are important. First, because the figures reflect tickets sold, rather than revenues received, they understate the role of brick-and-mortar agencies, which cater to business travellers and other less price sensitive travellers. Conversely, Table 2 overstates the importance in terms of revenue of online agencies and airline distribution channels, which serve more price sensitive travellers.

Even as an estimate of tickets booked, the Sabre figures may overstate the number of supplier direct bookings and understate brick-and-mortar agency bookings. Sabre and Galileo both have issued estimates of supplier direct bookings in the United States, and Galileo's estimates are significantly lower than Sabre's, although they show a similar trend toward increased supplier direct sales.³²

Second, precisely because brick-and-mortar agencies have a large corporate clientele, they account for a higher share of both bookings and revenues for European network air carriers compared to non-network carriers. Although the relevant statistics for Europe are not available, US statistics are informative. According to the US Department of Justice, in March 2002, brick-and-mortar travel agents accounted for fully 67 percent of the sales (revenues) of the five largest US network carriers (American, United, Delta, Northwest and Continental), down from 76 percent in May 2000.³³ The comparable figures for European network carriers are most likely even higher, because brick-and-mortar travel agencies account for a larger share of total bookings in Europe than they do in the United States.³⁴

³² Sabre maintains that supplier direct distribution accounted for 48.0 percent of all US bookings in 2002—up from 39.0 percent in 2000. By contrast, according to Galileo data, supplier direct distribution accounted for only 30.9 percent of all US airline bookings in 2002—up from 28.1 percent in 2000. Margaret Guerin-Calvert, I. Curtis Jernigan and Gloria Hurdle, *Economic Analysis of DOT Proposals to Change the CRS Rules* (March 15, 2003): 24-25, Appendix to Comments of Galileo on DOT NPRM. The Galileo estimates of supplier direct bookings do not appear directly in the Guerin-Calvert, Jernigan and Hurdle report; rather, we calculated them, using the figures from their table on “Estimated Distribution of Airline Tickets by Channel” (page 24), along with the information contained in footnote 37 and the accompanying text.

³³ 2003 Reply Comments of the Department of Justice, 14-15.

³⁴ According to Sabre, brick-and-mortar agencies accounted for 40.4 percent of all US bookings in 2002, down from 56.6 percent in 2000. Thus, for the largest US network carriers, brick-and-mortar agencies'

Relevant Markets for the Retail Sale of Air Travel³⁵

The retail sale of air travel from point A to point B is a relevant product market. As noted earlier, it would be time-consuming and inconvenient for many travellers to use an alternative mode of transportation.

The relevant geographic market for the retail sale of air travel has increased in size over time, resulting in greater competition among travel agencies. In the past, the relevant geographic market was relatively small because travel agencies had to be located close to their customers in order to deliver paper tickets on time. But with electronic ticketing and other technological improvements, travel agencies now can serve more distant customers, although a local presence is still important for those leisure travellers who need personalised advice.

However, even with electronic ticketing and other changes, the geographic market for travel agency services probably does not extend beyond national borders because of language barriers and the continued need to have an agent who is familiar with local customs, preferences, and laws. It is unlikely that business or leisure travellers in one country would use travel agents in another country even if the agents offered lower fees or better service.³⁶

Moreover, CRS payments to travel agencies provide empirical evidence that the relevant geographic market for travel agencies may be even smaller. As we discuss later, CRSs systematically provide more generous signing bonuses and incentive payments to large travel agencies than small ones, and these payments presumably get passed on to consumers—in the form of lower prices or higher quality service—as travel agencies compete with one another for customers. The fact that small travel agencies nevertheless can survive alongside the CRS-favoured large agencies suggests that they offer customers offsetting benefits. The most logical explanation is that some customers prefer to patronize a travel agency that is close to their home or office. If so, then the geographic market for travel agencies may not yet be national in scope.

share of bookings, as calculated by Sabre, is 20-27 percent below their share of revenue. If Sabre's data understates the revenue share of European brick-and-mortar agencies by a similar amount, then those agencies account for 80 percent or more of the revenue of the major European network carriers (*i.e.*, 59.1 percent plus 20-27 percent).

³⁵ The Commission has defined the market for travel agency services on a number of occasions. In *Otto Versand/Sabre/Travelocity* (Case No. COMP/M. 2627), the Commission defined travel agents as, “retailers which supply various services to travellers, such as flights, car rental, and hotel booking, and which are generally remunerated by the supplier of the service concerned.” In addition, the Commission identified two distinct sub-markets in the travel agency sector: business travel services and leisure travel services. Business travel agencies service the business travel needs of corporate managers and employees in accordance with corporate travel budgets and plans. Leisure travel agencies service the leisure travel needs of individuals in connection with their non-business vacation and personal travel. The Commission does not differentiate between traditional brick-and-mortar agencies and online agencies. The Commission does not exclude the possibility, however, that online travel agency services could become a separate market in the future.

³⁶ The Commission has previously considered the geographic scope of the travel agency market to be national, for both traditional and online travel agencies, due to language barriers and the current need for national distribution channels for tickets and vouchers. However, the Commission notes that, given the trend toward electronic “ticket-less” systems, and the potential for multi-language websites and customer support, the market for online travel agency services may be expanding beyond national borders.

Market Concentration in the Retail Sale of Air Travel

Europe has a large number of travel agencies, as shown in Table 3. The fact that travel agencies are so numerous suggests that entry into the business at a modest size is relatively easy. Easy entry in turn implies that travel agencies probably do not earn excess profits.

Table 3
Number of Travel Agencies and Average Growth (1996-2001)

	1996	1997	1998	1999	2000	2001	Average Annual Change
Austria	2,700	2,803	2,797	2,580	2,540		-1%
Belgium	2,600						
Denmark	597		676	690	600	580	-1%
Finland	430	490	520	580	613	671	11%
France	2,840	2,900		2,900	5,500	5,500	19%
Germany	18,700	17,900	17,700		21,500	20,800	2%
Greece	4,700					4,435	-1%
Ireland	395						
Italy	6,000	6,550	6,900	7,500	8,500	9,000	10%
Luxembourg	39						
Netherlands	1,100			1,500	923	990	-2%
Portugal	614	667	688	722	744	762	5%
Spain	2,830		3,073	3,446	3,813	3,900	8%
Sweden	600	600	600	810	700	570	-1%
United Kingdom	7,259	7,316	7,404	9,563	9,400	7,697	1%
Norway	530	520	500	490		500	-1%
Switzerland	1,400					2,200	11%

Source:

Group of National Travel Agents' and Tour Operators' Associations within the EU (ECTAA),
http://www.ectaa.org/ECTAA%20English/Facts_Figures/Agent.htm.

However, despite the large number of travel agencies overall, the market nevertheless could be concentrated if a few big agencies controlled the bulk of the market, or if several holding companies controlled many different agencies. That scenario is not implausible, because (as mentioned above) large travel agencies are able to negotiate more lucrative CRS payments than smaller agencies. (For similar reasons, large travel agencies also receive more generous incentive payments from airlines.) Moreover, some large agencies may be more profitable because they are better positioned in the market, offer superior services or are more efficient.

To test for this scenario, we examined Sabre and Worldspan data on the number of CRS bookings completed, by travel agency, during two overlapping periods: April 2002 through March 2003 (Sabre), and calendar year 2002 (Worldspan). We looked at the market share—defined as the percentage of total CRS bookings—for the single largest travel agency, and for the five largest travel agencies, in each EU country.

The results confirm our initial assessment that the travel agency sector is not concentrated. Based on CRS bookings completed, the largest travel agency in each EU country has a market share of only 11-13 percent on average. Moreover, as shown in Table 4, the five largest travel agencies in each country have a combined market share of just 33-36 percent on

average.³⁷ The only markets that might be considered concentrated are Finland, where the top five travel agencies have a combined market share of 74-76 percent, and Denmark, where the comparable market share is 53-67 percent.

Table 4
Aggregate Market Share of Five Largest Travel Agencies in Each Member State

Country	Aggregate Share of CRS Bookings by Top 5 Travel Agencies	
	[1]	[2]
Austria	33.4%	38.1%
Belgium	38.7%	41.3%
Denmark	52.8%	66.5%
Finland	74.1%	76.3%
France	30.3%	33.0%
Germany	29.6%	32.6%
Greece	13.3%	12.6%
Ireland	22.7%	22.8%
Italy	9.7%	10.9%
Luxembourg	41.7%	42.5%
Netherlands	31.8%	38.1%
Portugal	27.1%	27.0%
Spain	30.7%	31.2%
Sweden	40.4%	47.7%
United Kingdom	20.3%	23.5%
Average	33.1%	36.3%

Notes:

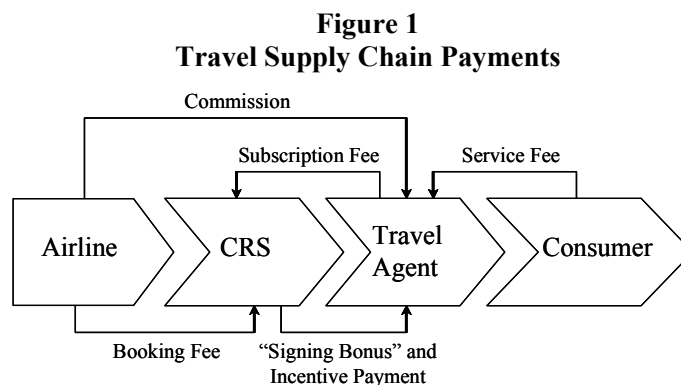
[1]: April 2002 through March 2003; data provided by Sabre.

[2]: Annual 2002; data provided by Worldspan.

³⁷ The Worldspan data list travel agencies by their IATA agent home code. Because major agencies often have more than one IATA agent home code, we aggregated the Worldspan data by travel agency name rather than by code.

FLOW OF PAYMENTS AMONG AIRLINES, CRSs AND TRAVEL AGENCIES

To analyse competition in the air travel distribution industry, it is critical to understand the flow of payments associated with booking an airline ticket through a CRS. Figure 1 illustrates this flow of payments, and we describe the individual payments in more detail below:



Booking fees: When a travel agency books a ticket using a CRS, the ticketing airline pays the CRS a booking fee. The booking fee is a flat charge per passenger per flight segment, and the fee is the same regardless of whether the travel agency making the booking is a brick-and-mortar or an online agency. However, the fee varies depending on the level at which the ticketing airline participates in the CRS used to make the booking. For example, a small airline may participate at only a basic level, which allows an agent to book a flight. By contrast, major network carriers typically participate at the highest level of functionality, which allows agents to access information on seat availability in real time, among other things.

All four CRSs charge roughly the same booking fee for a given level of carrier participation (*i.e.*, there is no low-cost CRS). The average booking fee today is about \$4.00-\$4.40 per segment, or about \$11 for the average passenger ticket.³⁸ As we discuss more in the chapters that follow, carriers maintain (and CRSs dispute) that the steady climb in these fees is a reflection of CRS market power, and that key provisions of the Code have facilitated the exercise of that market power.

Subscription Fees: The vast majority of all travel agencies rely on only one CRS. The major reason is efficiency: for an agency to use multiple reservation systems, it would have to incur additional training costs and implement a costly accounting and recordkeeping system to consolidate transactions across systems. Travel agencies pay a subscription fee to rent equipment from the CRS to which they subscribe. The subscription fee is typically structured as a monthly rental payment. As discussed below, for many travel agencies, their subscription fee is now more than offset by payments they receive from the CRS to which they subscribe.

³⁸ Based on information obtained through interviews; see also, Sabre, “Response of Sabre Inc. to AEA Final Report re: Economic and Political Analysis of Computer Reservation Systems dated October 2001: Part I – GDS Booking Fees” (May 2002): 4-6; and *Upheaval in Travel Distribution: Impact on Consumers and Travel Agents*, 16.

CRS Payments to Travel Agents: CRS payments to travel agencies have risen significantly in recent years, as CRSs have increasingly competed with one another to place their systems in agencies. For smaller agencies, the CRS payment may simply offset the subscription fee. However, for larger travel agencies, which can generate substantial booking fee revenue, the CRS effectively pays the travel agency to subscribe. The CRS typically makes an upfront cash payment—a kind of “signing bonus”—to the travel agency. In addition, the CRS may pay the agency a rebate (sometimes called a “marketing incentive” or “productivity payment”) for each booking it makes. In the United States, where CRSs compete for travel agents much as they do in Europe, this rebate can equal \$1.00-\$1.50 of the roughly \$4.25 per segment booking fee that the CRS receives.³⁹

Travel Agent Commissions: Before travel agencies began getting paid to subscribe to a CRS, agents were compensated entirely by the airlines. Airlines paid all travel agencies a basic (or base) commission equal to a percentage of the price of each ticket the agency sold. In addition to this automatic payment, airlines gave many agents an incentive payment that varied with the number of tickets sold.

In recent years, in an effort to lower their distribution costs, European carriers have reduced basic commissions in favour of fixed fees and incentive payments (also called “override” commissions because they go beyond, or override, the base commission).⁴⁰ These override payments are based on the agency’s ability to meet an agreed-upon target for bookings on a particular airline. The target is generally expressed as a share (say, 30 percent) of the agency’s total bookings or as some increment (say, 10 percent) above last year’s bookings for that airline.⁴¹

Service Fees: To offset the loss of base commissions, many brick-and-mortar travel agencies have begun charging their customers a service fee for air travel transactions. Some online travel agencies also charge travellers a service fee to book an airline ticket.

³⁹ *Upheaval in Travel Distribution: Impact on Consumers and Travel Agents*, 16.

⁴⁰ Written responses to questions from *The Brattle Group* submitted by Michel de Blust, Secretary General, ECTAA (Group of National Travel Agents’ and Tour Operators’ Associations within the EU) and GEBTA (Guild of European Business Travel Agents), March 11, 2003. According to Mr. de Blust, European airlines have been lowering their basic commissions for at least five years. During that period, travel agent revenues from airlines have gone down by more than half.

⁴¹ Because override commissions are voluntary payments that allow an airline to influence how much business a travel agent directs to it, they are more problematic from a competition standpoint than base commissions, which are independent of market share. Override commission have raised concerns in several markets. For instance, the European Commission fined British Airways 6.8 million Euros in 1999 for abusing its dominant position in the UK over travel agents and exploiting its travel agency commission structure. European Commission Decision of July 14, 1999, relating to a proceeding under Article 82 of the EC Treaty (*Virgin/British Airways*, Case No. IV/34.780).

By contrast, US competition authorities consider that a discount by a dominant firm moves prices toward a more competitive level as long as the final price is not below cost. Therefore, the United States did not impose a similar fine on British Airways. Address by William J. Kolasky, Deputy Assistant Attorney General Antitrust Division, US Department of Justice, “North Atlantic Competition Policy: Converging Toward What?” (May 17, 2002).

3 CRS MARKET POWER

Concerns about possible CRS market power are at the heart of DG TREN’s proposed changes to the Code of Conduct. Although the Code restricts targeted exploitation of market power by CRS vendors, air carriers believe CRSs continue to exercise market power in non-targeted ways, as evidenced by what carriers claim are supra-competitive booking fees. Elimination of the mandatory participation and non-discrimination provisions of the Code, which unintentionally contribute to CRS bargaining leverage, would address that problem.

However, high booking fees alone are not proof of CRS market power. Air travel distribution is a “two-sided intermediary” market, in which CRSs (the intermediary) connect carriers with travel agencies. We know from economic theory (and we demonstrate using a formal model) that vigorous competition on one side of such a market can counteract the exercise of market power on the other. Thus, even if CRSs have potential pricing leverage over airlines, consumers—and carriers—would not be harmed if CRSs competed vigorously with one another to enlist travel agent subscribers. Instead, any excess profits that CRSs earned from booking fee charges to airlines would be dissipated through higher CRSs payments to travel agents—payments that ultimately would go to consumers in the form of lower agency fees or better service.

In this chapter we examine whether CRSs do indeed have potential market power over airlines and, if so, whether (and to what degree) CRS competition for travel agents counteracts the exercise of that market power, such that consumers (and airlines) are not harmed. First, we look at the debate over booking fees, and critique carrier claims that CRS fees and profit levels are so high as to indicate market power. We next identify the factors that contribute to CRS market power over air carriers, and the limits on this power. In the second half of the chapter, we apply the economic theory of two-sided intermediary markets, which posits that consumers (and airlines) are not necessarily harmed by high booking fees. The key factual question is whether the “downstream” competition among CRS vendors to recruit and retain travel agents is sufficiently intensive and extensive to counteract any “upstream” exercise of CRS market power over airlines. In an effort to answer that question, we analyse data on payment flows among the three industry segments (airlines, CRSs and travel agents), as well as more direct evidence on the level of, and potential barriers to, CRS competition for travel agents. Finally, we look at pending developments that may reduce CRS market power.

DO CRSs HAVE MARKET POWER?

Booking Fees: Inconclusive Evidence of CRS Market Power

Air carriers have long complained that high booking fees are a manifestation of CRS market power, and the debate has become even more heated in recent years. According to carriers, booking fees have gone up by an average of 5-6 percent a year over the last decade or

so—far more than the rise in key price indices.⁴² Carriers also point out that computing power—the major input into CRS services—has plummeted in price during the same period.

CRS service providers do not necessarily dispute the rate at which booking fees have risen. An expert analysis of booking fees done for Sabre states that the fee for Sabre’s standard service, Full Availability, increased by an average annual rate of 5.2 percent from 1990 to 2002.⁴³ But CRSs maintain that the fee hikes are cost-justified, reflecting dramatic increases both in the amount of fare searching per booking (the “look-to-book” ratio) and in the complexity of the booking process itself. CRSs also point out that their incentive payments to travel agents have gone up steeply, as air carriers have reduced their base commissions to agents.⁴⁴ For example, Sabre’s payments to agents are more than 14 times their level in 1996, according to a separate expert report done for Sabre.⁴⁵

Carriers point to two other indications that booking fees are excessive. First, they argue that CRS vendors are highly profitable, as evidenced by their comparatively large returns on equity (ROEs), which for several vendors have significantly exceeded stock returns on the FTSE 100 index.⁴⁶ In addition, carriers cite the fact that all four CRSs charge roughly the same booking fee for comparable functionality. In its recent comments to DOT, American Airlines complained that “the CRS industry has never had a low cost provider—such as the airline industry has in Southwest—because CRSs never have had to compete for participating carriers.”⁴⁷

Although we have not carried out a detailed study of booking fees *per se*, our analysis provides two insights. First, an examination of booking fees alone cannot provide the basis for any meaningful conclusions about CRS market power. Increases in booking fees are related to the

⁴² For example, in a recent submission to DOT, American Airlines states that the compound annual growth rate in the booking fees it was charged from 1995-2002 was more than double the 2.4 percent increase in the Consumer Price Index, as shown below:

Amadeus (including System One from 1995-1998)	6.3%
Galileo	6.5%
Sabre	5.2%
Worldspan	5.3%

Comments of American Airlines on DOT NPRM (March 17, 2003): 13. Similarly, according to a 2001 study of CRSs that was done for the Association of European Airlines, booking fees had increased by five percent per year in the previous five years. OXERA and GPC International, *Economic and Political Analysis of Computer Reservation Systems* (October 2001): 37.

⁴³ Douglas Wilson, *Casting Light on CRS Booking Fees* (March 17, 2003): 8, Appendix to Comments of Sabre on DOT NPRM. However, Wilson notes that the Producer Price Index for Air Travel went up even faster (5.87 percent) over the same period. Some CRSs say that booking fees have risen more slowly than carriers claim. For example, according to Galileo’s expert report, the average annual increase in Galileo’s booking fees from 1992-2002 was only 3.5 percent. Guerin-Calvert, Jernigan and Hurdle, *Economic Analysis of DOT Proposals to Change the CRS Rules*, 50.

⁴⁴ Wilson, *Casting Light on CRS Booking Fees*, 6-7.

⁴⁵ Steven C. Salop and John R. Woodbury, *Economic Analysis of the DOT’s NPRM Proposals* (March 17, 2003): 17, Appendix to Comments of Sabre.

⁴⁶ See, for example, OXERA and GPC International, *Economic and Political Analysis of Computer Reservation Systems*, 38.

⁴⁷ Comments of American Airlines, 8-9.

rise in CRS payments to travel agents, as airlines point out. But higher CRS payments to travel agents should allow airlines to pay lower travel agent commissions (in fact, higher CRS payments may be a response to airlines' reduction of base commissions). Thus, it is essential to look at changes in total distribution costs—*i.e.*, how much are airlines paying in CRS booking fees *and* travel agent commissions, not just in booking fees. This is the key insight from the analysis in the second half of this chapter, in which we look at the air travel distribution chain as a two-sided intermediary market.

Second, with respect to CRS profitability, one must exercise caution in comparing CRS ROEs to those of other firms. ROEs can seriously overstate profitability in industries characterised by high research and development expenditures or large capital investments. That is so because balance sheets typically fail to reflect the financial risk borne by investors who must tolerate negative cash flows for several years before such a business matures.

In an effort to correct for this understatement of risk, we analysed returns on equity using data for Sabre. Appendix III provides a summary of our analysis. Using alternative techniques to address the “bias” inherent in accounting measures of ROE, we conclude that Sabre’s actual returns have been reasonable.

Our analysis of Sabre returns is not definitive, by any means. For example, it cannot detect whether Sabre is using profits from its CRS business to subsidise other lines of business. But our analysis suffices to raise questions about claims that aggregate CRS equity returns are excessive.

Factors That Affect CRS Bargaining Leverage

Asymmetry in the CRS Market

The concern with excessive booking fees is not new. Historically, many government and industry officials have blamed high CRS fees on the structure of the CRS market. DOJ described the problem in 1991.⁴⁸

The ability of CRSs to exercise market power with respect to booking fees stems from the asymmetry in the market for CRS services: carriers pay the entire booking fee, but travel agents and consumers ultimately determine which CRSs are used....Since the booking fee is paid by the carrier, however, there is no reason for the agent or the consumer to concern itself with the level of the booking fee. Thus, the carrier must pay the fee if it wants the booking, and it has no opportunity to bargain with the CRS over price or substitute another CRS charging a lower fee.

DOJ’s “zero-fee” proposal, discussed in Chapter 1, was designed to address this “asymmetry”. The proposal would have shifted booking fees from carriers to travel agents, giving agents an incentive to select the lowest-priced (adjusted for quality) CRS.

Air carriers argue that the asymmetry in the CRS market has only increased in the intervening years, largely because—with the demise of base travel commissions—travel agents depend more on payments from CRSs. As one carrier recently put it, “Travel agents are no longer

⁴⁸ Comments of the US Department of Justice, DOT Docket 46494 (July 9, 1991): 44.

merely indifferent to the price paid by the airline; CRS productivity payments have given them an incentive to select the highest cost CRS.”⁴⁹

To be sure, this market structure is not ideal. But it does not represent a “market failure”, as some airlines claim. Rather, it is what economists call a “principal-agent” problem, which arises when the interests of the agent (in this case, the travel agency) do not fully coincide with those of the principal (the airline). Principal-agent problems are both more common and less serious than market failures, and thus not generally a sufficient basis for government intervention. (Such problems are frequently addressed through contracts between the principal and the agent which provide financial incentives designed to realign the two sides’ interests.) In addition, “web fares” have given carriers a tool with which to address the principal-agent problem (at least in the United States), as we discuss below.

Continued Airline Dependence on CRSs

Although web fares and the Internet are gradually changing the structure of the CRS market, airlines remain highly dependent on CRSs. The three conditions that we identified in Chapter 1 as the sources of CRS market power in the 1980s are still present to some degree.

First, brick-and-mortar travel agents continue to account for the majority of airline revenue. The figures we cite in Chapter 2 suggest that brick-and-mortar travel agencies may account for 80 percent or more of the passenger revenue of the major European network carriers. Second, most brick-and-mortar agency ticket sales involve the use of a CRS. Third, most travel agencies subscribe to just one CRS. Although regulators hoped that the CRS regulations would encourage travel agencies to subscribe to multiple CRS vendors, they underestimated the cost and efficiency loss that agencies would incur in doing so. (The restrictions did make it easier for agencies to switch from one CRS to another, however.)

Unintended Consequences of CRS Regulation

Finally, as we discussed in Chapter 1, CRS regulation itself has contributed to CRS negotiating leverage over airlines. The mandatory participation provision facilitates the exercise of CRS market power by forcing parent carriers to participate in all CRSs at the same service level. (Parity provisions, which effectively extend the same requirement to non-parent carriers, compound the effect.) As a result of mandatory participation (and parity) provisions, no major airline can credibly threaten to reduce its level of participation in a CRS that imposes excessive booking fees, because acting on the threat would require the carrier to reduce its participation in all systems. As a result, these provisions insulate CRSs from normal market pressures to lower prices or improve service quality as a way to gain customers.⁵⁰

Similarly, the non-discrimination requirement facilitates CRS market power. CRS service providers lack normal market incentives to seek increased sales by lowering their fees, because if they provide a discount to one airline, they must give it to all.

⁴⁹ Comments of American Airlines, 9.

⁵⁰ Despite these drawbacks, mandatory participation and parity provisions may lead to increased price competition among CRSs for travel agency subscribers. That is so because a reduction in product differentiation can lead to greater price competition. By forcing airlines to participate with CRSs at the same service level, these provisions reduce quality differences across CRSs from the perspective of travel agents, thus encouraging CRSs to compete for agents on the basis of price.

Airline Countervailing Power

Despite these factors, carriers may not be completely at the mercy of CRSs. Most important, a CRS must provide a full array of flight and fare information if it is to compete effectively against other CRSs in attracting travel agents. Because only carriers can provide this information, in theory, it gives them countervailing power to bargain with CRS vendors over booking fees. The nature of airline networks, with most city-pair routes served by just a small number of carriers, adds to carriers' innate bargaining power.

However, the mandatory participation provision of the Code prevents parent carriers from withholding flight and fare information selectively. The Code likewise prohibits participating carriers from providing one CRS with information that is less comprehensive than what it gives another CRS. Thus the Code entirely forecloses this source of countervailing bargaining power.

In addition to bargaining directly with CRS vendors (absent regulation), air carriers can bargain indirectly by inducing customers to switch travel agents. Airlines need access to consumers; travel agents are just a means to that end. By successfully enticing consumers to switch travel agents, carriers are able to reward some CRS vendors and punish others. For example, in return for providing lower airfares, an airline can direct corporate clients to use only travel agents who are connected to a favoured CRS.

Such a strategy is most effective with those customers for whom the costs of switching travel agents are the lowest. Overall, one would expect switching costs to be the lowest for large corporate clients, who have dedicated travel professionals in-house or negotiate their own deals with airlines. Small and medium-sized businesses probably incur higher switching costs, at least in the short term, because they tend to rely on a particular travel agent for "backroom" functions and specialised services. Leisure travellers also face higher switching costs, because an alternate travel agent is apt to be less convenient or provide fewer services, although these costs are declining with the increasing use of the Internet to book leisure air transit.

Carrier Direct Booking as a Source of Countervailing Power

Carriers also can induce customers to switch away from CRSs altogether, which occurs when customers book tickets directly, through a carrier's reservation office, call centre or website. Carrier direct booking eliminates the booking fee altogether, lowering airline distribution costs significantly. Thus, carriers offer various inducements to travellers who book directly, including bonus frequent flier miles and access to the heavily discounted "web fares" available on carrier websites.

More and more travellers are booking directly with the air carrier, rather than through a travel agent (either brick-and-mortar or online). As we saw in Chapter 2, supplier direct bookings account for a sizable share of all ticket sales in Europe (38 percent according to Sabre), although they account for a lower share of revenue, especially for network carriers. The growth of carrier direct ticket distribution acts as an indirect constraint on CRS costs and fees.

Web Fares: A “Natural Experiment” in Deregulation

In addition to promoting carrier direct booking, web fares enhance US carriers’ power to bargain directly with CRSs over booking fees. The key is that the US CRS rules (unlike the Code of Conduct) do not extend to information and fares provided directly to consumers on the Internet. As a result, US carriers have been able to withhold their web fares from CRS vendors—providing them on a selective basis in exchange for concessions on booking fees.

A key element of US air carriers’ strategy with respect to web fares has been Orbitz, the online travel agency owned by the five largest US carriers. US carriers launched Orbitz in 2001—and have invested \$200 million in the venture⁵¹—out of a concern that the vertical integration of CRS vendors into online travel distribution was limiting the potential of the Internet to reduce airline distribution costs. For example, carriers were paying Sabre the same booking fee for fares booked through Travelocity, Sabre’s online travel agency subsidiary, as for bookings made through brick-and-mortar travel agencies, even though online bookings are less costly to a CRS.

In contrast to its competitors, Orbitz displays all of the publicly available fares, including web fares, of its 37 participating carriers.⁵² In exchange for providing all of their published fares to Orbitz on a non-exclusive basis, participating carriers receive a rebate equal to about 30 percent of the booking fee for tickets purchased on Orbitz, which uses Worldspan as its booking engine. In this fashion, Orbitz has used its ability to direct consumer traffic to a particular CRS (Worldspan) as a way to reduce its booking fees and distribution costs.

Moreover, through Orbitz and airline websites, web fares have become increasingly popular with American travellers. As a result, less than a year after the launch of Orbitz, Travelocity and Expedia, the largest online agencies, began giving carriers an effective rebate on booking fees in exchange for access to web fares. And within the last year, Sabre and Galileo have introduced programs that reduce booking fees directly in exchange for access to web fares.

- In October 2002, Sabre offered to reduce its booking fees on all flights by 10 percent and to maintain those reduced fees for three years, in exchange for a carrier’s agreement to provide all of its web fares (and to maintain its participation in Sabre at the highest level of functionality) during that time.
- In January 2003, Galileo introduced its Momentum program which, in exchange for access to a carrier’s web fares, will reduce the carrier’s booking fee by about 20 percent for three years on all bookings made by participating agencies. Galileo absorbs about half of the reduction directly and participating travel agencies absorb the other half by agreeing to reduce incentive payments.

Galileo’s program is significant not just because it offers carriers a reduced booking fee but because it gives travel agents an incentive to keep CRS costs low. Thus, like DOJ’s zero-fee proposal, it is designed to reduce the “asymmetry” in the CRS market.

⁵¹ Personal communication with attorneys from Zuckert, Scoutt & Rasenberger, a law firm that represents Orbitz, May 2003.

⁵² Southwest is the only large US carrier that has no participation in Orbitz. JetBlue (unlike Southwest) allows Orbitz to display its flight information and fares, but for now consumers must book their tickets directly with JetBlue.

American Airlines recently announced an “EveryFare” program that tries to achieve the same goal even more directly. EveryFare gives participating travel agencies in North America access to web fares, which they book through Sabre. In return, a travel agency agrees to pay all booking fees associated with the program. In the first year of the program, American Airlines gives participating agencies a significant per-flight credit to reduce the burden of booking fees. But that credit decreases steadily over time (one American Airlines official described it as putting travel agents on a “diet”), giving agents a direct incentive to use the lowest-priced CRS.

In sum, US carriers’ ability to withhold web fares has provided a “natural experiment” in CRS deregulation. It has given carriers a way to negotiate directly with CRS vendors over booking fees. It also has served to motivate travel agents to favour the lowest-priced CRS, thus reducing the asymmetry in the CRS market. The resulting savings from this “experiment” have been meaningful, and they suggest that allowing carriers to withhold fares and functionalities more broadly would bring even greater competition and consumer benefits.

DOES CRS COMPETITION “DOWNSTREAM” COUNTERACT THE EXERCISE OF MARKET POWER “UPSTREAM”?

The first half of the chapter reviewed the market and regulatory conditions that facilitate CRS leverage as well as the factors that limit it. Our preliminary analysis suggests that CRS vendors have the potential to exercise market power over air carriers in non-targeted ways. Although the Internet holds promise as a source of long-term countervailing power, for now, European carriers—particularly the large network carriers—remain highly revenue dependent on brick-and-mortar travel agencies, and those agencies in turn remain dependent on CRSs. Thus, most carriers must still participate in every CRS.

Nevertheless, the fact that CRSs have potential market power over airlines does not mean that consumers—or airlines—are necessarily harmed. To elaborate, economic theory tells us that in a “two-sided intermediary” market, vigorous competition on one side of the market will counteract the exercise of market power on the other. For example, mobile phone companies are two-sided intermediaries connecting their subscribers with people from other phone networks. In Europe, providers of mobile phone service set high call-termination charges, exploiting monopoly power over those who want to call their subscribers. However, the service providers then largely dissipate those potential profits in competing to attract and retain customers (*e.g.*, through subsidised handsets).

Like the mobile phone market, air travel distribution is a two-sided intermediary market: a CRS service provider serves as an intermediary, connecting participating airlines with travel agency subscribers. Thus one would expect to see a similar dynamic in the CRS market.

Professor Mark Armstrong of Oxford University, a member of our team, is an expert in two-sided markets, and has developed a widely accepted economic theory describing competition in the mobile phone and newspaper markets, among others. As part of this study, he developed several formal economic models of payment flows through the air travel distribution chain to analyse the impact on consumers of different assumptions about competition. Appendix IV

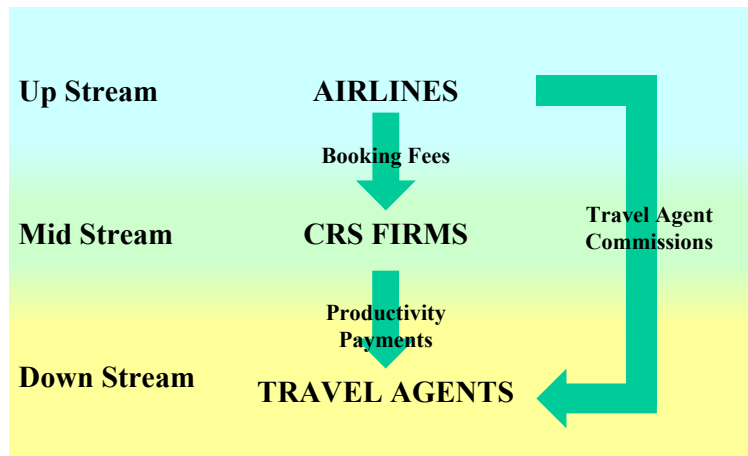
presents these mathematical models. We focus below on Professor Armstrong’s “benchmark” model.⁵³

Armstrong’s “Benchmark” Model of a Two-Sided Intermediary CRS Market

Under any model of a two-sided intermediary CRS market, the following is true and should not be controversial: A passenger’s airfare covers not only the direct and indirect costs of the flight (labour, fuel, *etc.*), but also the airline’s distribution costs. Distribution costs have two components: 1) CRS booking fees, and 2) travel agency commissions. These two components are related to one another because the CRS acts as a type of intermediary. Specifically, the CRS collects money from participating airlines in the form of booking fees. Then, to attract and retain subscribers, the CRS effectively pays some of that money to travel agents in the form of up-front “signing bonuses” and performance-based incentive, or “productivity”, payments.

Figure 2 illustrates the interrelationships among payments.

Figure 2
Travel Industry Payment Flows



Armstrong’s benchmark model (like his other models in Appendix IV) assumes that, in their role as an intermediary, CRSs attempt to exercise market power over airlines. However, the benchmark model makes two additional assumptions that are more controversial: first, that CRS

⁵³ In addition to his “benchmark” model, Professor Armstrong looks at three alternative scenarios, or models, in which CRSs attempt to exploit potential market power over airlines: In one model (“Lazy’ Consumers”), each travel agent holds a monopoly over its customers. In a second model, travel agents are not monopolists but they nevertheless compete imperfectly. In his last model, competition among travel agencies and among airlines is imperfect. Professor Armstrong concludes that there is a case for regulation under all three of these models. However, because we concluded in Chapter 2 that the travel agency market is not concentrated, we ignore these models and focus solely on the benchmark model.

vendors compete aggressively with one another to recruit and retain travel agents, and, second, that travel agents in turn compete aggressively to attract passengers.⁵⁴

Based on these simplifying assumptions, the benchmark model predicts the following:⁵⁵

1. Because (*i.e.*, assuming that) CRSs compete aggressively with one another to recruit and retain travel agents, CRSs will use any excessive profits they earn from booking fees to increase the signing bonuses and incentive payments they give to agents. This is the logical result of competition, which drives firm profits to zero.
2. When a CRS increases its payment to a travel agent, the agent can accept a lower commission from airlines and still earn the same revenue per ticket. This is a simple logical deduction: travel agencies are concerned with the total payment that they receive from selling a ticket, defined as the sum of the airline commission plus the CRS payment.
3. An increase in CRS payments to travel agents will lead airlines to reduce their commissions to agents. To elaborate, airlines have an incentive to ensure that travel agencies receive sufficient compensation, because otherwise agencies will stop providing services. However, if CRS payments to travel agencies go up, airlines will perceive some scope to reduce commissions without causing harm to agencies.
4. Therefore if CRSs increase their booking fees in order to pay for richer inducements to travel agents, airlines should be able to reduce their commissions commensurately, with no net effect on consumers, airlines or CRSs.
5. Even if the drop in airline commissions to travel agents is less than the associated increase in CRS payments to agents, travel agents—because they operate in a competitive market—will pass the difference on to consumers, either in the form of reduced service charges on tickets, higher quality service, or other inducements to passengers. (This assumption is implicit but not explicit in Armstrong’s model.)

In sum, the *theory* of a two-sided intermediary market reminds us that the components of an airline’s distribution costs are not independent. The CRS acts as an intermediary, transferring money from carriers to travel agents. This portrayal of the CRS market—which ought not be controversial—makes it clear that the proper focus of an inquiry into CRS market power is not

⁵⁴ Armstrong does not make these assumptions out of any prior knowledge that they apply in reality. Rather, he makes them in order to test the importance of downstream competition. Armstrong’s benchmark model also assumes that competition among airlines is imperfect, but this is not key to our analysis.

⁵⁵ For ease of explanation below, we first assume that all parts of the air travel distribution chain are static businesses that do not experience changes in operating costs or the quality or scope of their services. We recognise that none of the elements in the travel distribution chain are static businesses. Operating costs change, as do the quality and scope of services. The simple equation above might not apply at any particular moment. CRSs might choose to introduce valuable new services for travel agencies. The services could justify increased booking fees without prompting a change in productivity payments. It is possible to imagine many other scenarios in which booking fees could increase, and productivity payments might not increase, or perhaps productivity payments would increase by a different amount, and perhaps commissions would not decline by the same amount. However, the simple logic above should suffice to illustrate that the CRS industry does not face an inherent efficiency problem in charging excessive booking fees, as long as CRSs compete sufficiently to secure and maintain travel agency subscribers.

(simply) booking fees and market asymmetry, nor whether individual airlines have to participate in every CRS in order to reach potential customers. Rather, it is essential to look as well at the level of competition on the “downstream” side of the CRS market.

More controversially, the *benchmark model* of this theory assumes perfect competition on the downstream side of the two-sided market. The model shows us that, under that assumption, attempts by CRSs to exploit market power would not harm consumers (or airlines)—*even if individual airlines had to participate in each and every CRS*—because CRS competition for travel agents would dissipate excess profits through higher payments to agents. Competition among travel agents in turn would ensure that those payments got passed on to consumers in the form of lower service charges or higher service quality. Thus, under conditions of perfect downstream competition, an increase in booking fees would have no effect on prices paid by final consumers.⁵⁶ Nor would it harm airlines.

Below, we assess the extent of competition on the downstream side of the two-sided market.

Evidence Regarding Downstream Competition

There is considerable evidence that payment flows in the air travel distribution market are interrelated, in keeping with our basic (and uncontroversial) theory of the two-sided market. First, CRS signing bonuses and incentive payments to travel agencies have gone up rapidly: as we noted earlier, Sabre’s current payments are more than 14 times their 1996 level. At the same time, airlines have progressively lowered their commission payments to travel agents. According to an organization that represents European travel agent and tour operator associations, travel agent revenues from airlines have decreased by more than half over the last five years.⁵⁷

Second, anecdotal evidence indicates that CRSs compete aggressively to recruit (some) travel agencies, in keeping with the more controversial assumption of Armstrong’s benchmark model. For example, a 2001 study done for the Association of European Airlines reports that CRSs respond competitively when travel agencies issue tenders, and that large travel agencies switch CRS vendors at high rates.⁵⁸

More rigorous evidence of vigorous downstream competition comes from a recent study by economists Steven Salop and John Woodbury. As part of an expert report for Sabre, Salop and Woodbury show the annual change in airline distribution costs (booking fees, travel agent commissions, payment processing costs, and customer service fees) from 1995 to 2002 for a hypothetical \$300 ticket booked through a brick-and-mortar travel agency. As shown in Table 5, increases in CRS booking fees were more than offset by reductions in the commissions that airlines paid travel agents. As a result, airlines’ total distribution costs actually dropped slightly when adjusted for inflation.

⁵⁶ In this model, the final ticket price would be determined by the imperfect competition (“oligopolistic interaction”) among airlines.

⁵⁷ Written responses submitted by Michel de Blust, Secretary General, ECTAA and GEBTA.

⁵⁸ OXERA and GPC International, *Economic and Political Analysis of Computer Reservation Systems*, 12 and 33-34.

Finally, our analysis of Sabre's returns on equity is broadly consistent with the assumption of vigorous downstream competition. As discussed earlier in the chapter (and summarised in Appendix III), when we correct for the common misinterpretation of accounting data, we find no evidence that Sabre has earned more than a reasonable return on investment.

Table 5
Total Cost of Airline Ticket Distribution
1995 - 2002

	1995	1997	1999	2001	2002
ASSUMPTIONS					
Average Fare	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00
Segments	2.80	2.80	2.80	2.80	2.80
GDS Price (to airline)	\$3.15	\$3.38	\$3.72	\$4.28	\$4.39
Credit Card Usage	80%	80%	80%	80%	80%
Credit Card Rate	1.90%	1.90%	1.90%	1.90%	1.90%
Credit Card Fraud	0.08%	0.08%	0.08%	0.08%	0.08%
Booking Fees and Host Messaging Costs	\$8.92	\$9.56	\$10.51	\$12.08	\$12.39
Commissions Paid by Airlines	\$27.61	\$25.63	\$21.57	\$15.22	\$11.54
Payment Processing Paid by Airlines	\$4.87	\$4.88	\$4.88	\$4.89	\$4.89
Travel Agency Customer Service Fee	-	\$5.05	\$10.10	\$13.21	\$17.34
Total Distribution Cost in Nominal Dollars	\$41.40	\$45.12	\$47.06	\$45.40	\$46.16
Total Distribution Cost in 2002 Real Dollars	\$51.78	\$52.18	\$50.13	\$46.49	\$46.16

Notes:

- [1]: Commissions represent base and override commissions as reported on DOT Form 41.
- [2]: The 2002 commission represents the average paid during the first six months of 2002.
- [3]: Total distribution costs exclude marketing and sales support costs.
- [4]: Because nearly all tickets are e-tickets, fees associated with paper ticketing are excluded.
- [5]: Credit card costs include costs associated with credit card fraud.
- [6]: The travel agency customer service fee represents the average reported in the ASTA 2002 survey.
- [7]: The 2002 travel agency customer service fee reflects the average for early 2002, before base commissions were eliminated. After base commissions were eliminated, the average service fee was \$26.55.
- [8]: The 1997 travel agency customer service fee represents the average of the fees for 1999 and 1995.
- [9]: Total distribution cost in 2002 dollars used GDP deflator.

Source:

Steve C. Salop and John R. Woodbury, *Economic Analysis of the DOT's NPRM Proposals* (March 17, 2003): A-23, Appendix to Comments of Sabre on DOT NPRM.

Limits to Downstream Competition

Despite the empirical support cited above, there is other evidence to indicate that competition on the downstream side of the two-sided market is less than perfect.

Most compelling is the fact that Orbitz's airline-owners have invested some \$200 million to launch and operate the online travel agency, as part of a conscious strategy to lower their booking fees. If downstream competition were perfect, airlines would be indifferent toward higher booking fees because they could simply offset them with lower payments to travel agents.

Additional evidence points to several possible explanations for the less-than-perfect downstream competition. Table 6 shows the market share of the four CRS vendors in each of the 15 EU Member States. Amadeus has an extremely large share of the travel agent market in Finland, France, Germany, Spain, and Sweden. Similarly, Galileo has a large share of the travel agent market in Ireland, Italy, Portugal, and the United Kingdom. These data suggest that

Amadeus and Galileo may have a sufficient competitive advantage in certain countries that they need not engage in aggressive price competition to attract travel agents.

Table 6
2002 European CRS Market Share [CONFIDENTIAL]



In addition to being large, these market shares appear relatively stable over time. For example, in 1992 Amadeus had a market share of XX percent in Germany.⁵⁹ Thus it has taken more than 10 years for Amadeus' share of the German market to decline by XX percent.

These large market shares may reflect the success of longstanding efforts by Amadeus and Galileo to satisfy local preferences through specialisation. According to a report prepared for the Association of European Airlines:⁶⁰

The regional specialisation of the CRSs is due to historical reasons. For example, Amadeus was founded by a number of European airlines (among others Lufthansa, Air France and Iberia), based on the airlines' internal reservation systems. It was therefore attractive for European travel agents to subscribe to Amadeus, as it had very good access and understanding of the key European

⁵⁹ Interview with Marcel Tack, Travel & Technology Consulting, April 11, 2003.

⁶⁰ OXERA and GPC International, *Economic and Political Analysis of Computer Reservation Systems*, 7.

airlines. Sabre was in a similar position in the US market. Subsequently, CRSs have developed market-specific features through their national arms, in order to be more competitive in a particular national market. Different CRSs have focused their attention on different products and different areas. For example, in addition to air travel services, Amadeus and Sabre offer rail services in Germany and France, which give them a competitive advantage over Worldspan and Galileo in these areas.

Regional specialisation is a form of “product differentiation”. Companies seek to differentiate themselves so as to become more attractive to customers. However, successful differentiation may reduce price competition. In this case, product differentiation may lessen the need for a CRS to compete as aggressively based on price. Thus it may impede the process whereby CRSs, as the intermediary in a two-sided market, pass higher booking fees from airlines through to travel agents.

Another factor limiting CRS competition for travel agents is “switching costs”—the costs that a travel agency incurs in changing its subscription from one CRS to another. According to one prominent travel agency in London, the tender process and employee training (among other aspects of switching) entail significant costs. The tender process requires the travel agency to study alternative reservation systems, draft requests for offers by competing vendors, and evaluate the offers—a process that can take months. If the agency wants a specialised software interface for the new system, it must spend several additional months designing the software, making refinements, and training employees. Even after they have completed their training, agency employees need several months to adapt fully to a new system, during which time they are less productive.

In sum, switching costs are sufficient to deter a travel agency, particularly a small brick-and-mortar agency, from changing its CRS vendor even if a competing vendor offers a better package. Thus, switching costs impede downstream competition.

High entry barriers represent yet another explanation for why competition on the downstream side of the CRS market may be imperfect. As we discussed in Chapter 2, entry into the CRS market is difficult due to the scale needed to achieve cost efficiency, and this too impedes competition.

Competition among travel agents for passengers may be limited as well. Just as travel agents incur costs in switching CRSs, consumers of air travel may incur costs in switching travel agents, as we discussed earlier. Thus, as CRS incentive payments to travel agents increase, competition among travel agents may not be sufficient for those benefits to be passed fully through to consumers, at least in the short run.

In sum, competition among CRSs to recruit and retain travel agents is probably less than perfect, at least in those European countries in which one CRS vendor has a large market share. As a result, an increase in CRS booking fees may not be fully dissipated, or “unwound”, through higher CRS payments to travel agents. Moreover, travel agents may not fully transfer the higher payments they receive to travellers, at least in the short run.

Under these conditions, the CRS still functions as an intermediary between airlines and travel agencies, in keeping with the theory of the two-sided intermediary market. But, it is a somewhat “imperfect” intermediary from the standpoint of economic efficiency.

THE FUTURE OF CRS MARKET POWER

Internet-based technologies hold the promise of allowing travel agents—and consumers—to bypass CRS vendors altogether, accelerating the trend toward carrier direct distribution described earlier. For example:

- *Orbitz has developed direct connect or “Supplier Link” technology that bypasses Worldspan by connecting Orbitz’s search engine directly to an airline’s individual reservation system. Airlines that use this technology save about 77 percent on every ticket booked. Orbitz has successfully connected to the reservation systems of American Airlines and Continental Airlines and has signed agreements to do the same with eight other airlines.*⁶¹
- All four CRSs are developing new software to *allow a travel agent to search simultaneously for fares in the agent’s CRS and at airline websites*. For instance, in July 2002, Sabre developed technology programmed by FareChase that allows travel agents to compare CRS and airline web fares on one screen and to book airline web fares through Sabre.⁶² The other CRSs are working to develop similar technologies.⁶³
- Highwire, a subsidiary of Galileo, has developed *technology that enables corporate travellers to self-book fares online that may not be available through a CRS*. Highwire includes a next-generation booking engine that is built on an open-architecture XML platform.⁶⁴ As a result, Highwire’s technology can be easily integrated with a corporate customer’s platforms and allows a corporate travel manager to manage several traveller supplier agreements at the same time.⁶⁵

Nonetheless, substantial obstacles remain to any attempt to bypass the current CRSs. The primary obstacle is cost, as evidenced by the large investment required to launch and operate Orbitz.⁶⁶ Another obstacle is customer and travel agent reluctance to bypass CRSs, although that should diminish as Internet use expands, response time decreases, and computer hardware and software become more sophisticated. Thus, although CRS bypass should become progressively less costly, it may be several years before the presence of ready alternatives undermines the ability of existing CRSs to exploit market power.

⁶¹ Orbitz press release (January 7, 2003).

⁶² Sabre press release, “Sabre Adds Web Fare Booking Opportunities for Travel Agents; Sabre Web Fares By FareChase to Be Launched With Booking Capability” (July 24, 2002).

⁶³ Guerin-Calvert, Jernigan and Hurdle, *Economic Analysis of DOT Proposals to Change the CRS Rules*, 29.

⁶⁴ Highwire press release, “Highwire Designated as a Strategic Partner within Galileo International’s Global Partner Solutions Program” (June 31, 2000).

⁶⁵ Rosenbluth press release, “Rosenbluth International to Distribute Galileo International’s Highwire™ in US and Canada as a Preferred Online Corporate Booking Solution, Sun Microsystems is First of Rosenbluth’s Customers to Select Highwire™, Third Largest Travel Agency Signs Five Year Renewal with Leading GDS” (March 20, 2002).

⁶⁶ Orbitz is not a CRS alternative at present; except in cases where agents use its direct connect technology, Orbitz depends on Worldspan for seat booking services.

Moreover, the problem of market power may not disappear, even when online entities replace the traditional CRS as the intermediary between airlines and consumers. Like any large brand name retailer, these online entities may possess some degree of market power insofar as they provide access to large numbers of passengers. Thus, airlines may find themselves making direct payments or inducements to the online retailers, just as they do now to CRS vendors.

Summary

Individual CRS vendors can exercise substantial pricing leverage over airlines, because most carriers must participate in every CRS in order to reach potential customers, and because travel agents—who determine which CRS is used—have had no economic incentive to select the lowest-priced CRS. CRS regulation has significantly facilitated CRS market power by eliminating carriers' inherent countervailing bargaining power. Steadily rising booking fees are a manifestation of CRS leverage against airlines.

This leverage is not inherent or inevitable, however, and high booking fees alone are not proof of competitive harm. CRSs are “two-sided intermediaries”—linking airlines with travel agents (and ultimately consumers). Even if two-sided intermediaries attempt to exploit market power over one side of the market, consumers will not be harmed as long as the intermediaries compete aggressively on the other side of the market. In this case, aggressive competition among CRSs to recruit and retain travel agents would counteract the exploitation of market power over airlines. Such competition would ensure that excess booking fee profits were transferred to travel agencies (and ultimately to consumers) in the form of increased inducements, thus reducing the commissions that airlines had to pay travel agents.

Some evidence supports this model of perfect “downstream” competition. Anecdotal evidence suggests that CRSs compete aggressively to recruit and retain (some) travel agents. And an analysis of payment flows since 1995 indicates that higher booking fees have been offset fully by lower agent commissions, leaving consumers—and airlines—no worse off. However, other evidence indicates that downstream competition is not uniformly vigorous: Most compelling is the \$200 million investment in Orbitz by the five largest US carriers, which would make sense only if the carriers believed that higher booking fees made them (and consumers) worse off. Several factors can explain the less-than-perfect downstream competition, including successful product differentiation by individual CRSs in many European countries, the costs that travel agents incur in switching CRS vendors, and the high barriers to entering the CRS market.

Under these conditions, where the assumption that CRSs compete perfectly for agents is not met, the CRS nevertheless functions as an intermediary between airlines and travel agencies. But it is a somewhat “imperfect” intermediary from an efficiency standpoint, and excess CRS profits are not entirely offset by increased travel agency inducements. Thus, CRS market power does cause harm to consumers (and airlines) but less than airlines claim.

Although CRS market power over airlines persists, new technology is promoting competition on both sides of the two-sided CRS market. In particular, US airlines' ability to withhold popular web fares has given them significantly more leverage to negotiate booking fees just in the last year. Thus, web fares represent a kind of “natural experiment” in CRS deregulation. The results of this dramatic experiment indicate that giving carriers the ability to withhold fares and functionalities more broadly would lead to additional competition and consumer benefits.

4 MARKET POWER AND VERTICAL RELATIONSHIPS BETWEEN AIRLINES AND CRS'S

The conclusions we reached in Chapter 3 lend preliminary support to DG TREN's proposal to repeal the mandatory participation and non-discrimination provisions of the CRS Code as a way to give air carriers additional leverage against CRS vendors. However, it is critical to consider whether eliminating these provisions would lead to the reappearance of competitive abuse. While many airlines argue that carriers' divestiture of CRS ownership has rendered these requirements largely obsolete, others warn that, absent these provisions, the same competitive problems would re-emerge, because of the incentives for airlines and CRSs to integrate in some form.

Indeed, economic reasoning suggests that airlines and CRSs may well maintain existing vertical ties or forge new ones—through contracts if not ownership. This is not necessarily anti-competitive, because such vertical ties may produce genuine efficiencies that could benefit consumers. However, under appropriate market conditions, any vertical arrangements between airlines and CRSs, not just ownership, may spawn anti-competitive behaviour.

In this chapter, we first examine possible concerns about deregulating the vertical relationship between airlines and CRSs. We analyse, generally, the economic incentives for a CRS and its airline affiliates to harm competition, and the market conditions that create such incentives. We also look at how the nature of the vertical arrangement (ownership versus contractual agreement) affects these incentives. Using this template, we then look at the validity of specific concerns raised about the potential for airline-affiliated CRSs—particularly Amadeus and its parent carriers—to engage in competitive abuse.

In the second part of the chapter, we examine the ways in which vertical relationships between airlines and CRSs can yield cost and service efficiencies. We look as well at whether these efficiencies depend on airline ownership of the CRS, or whether they can be achieved through a contractual relationship as well. The distinction between ownership and contractual ties is relevant to our analysis in Chapter 5, where we compare two policy mechanisms—*ex ante* regulation versus *ex post* intervention by competition authorities—to determine which would most effectively prevent CRS abuse while still meeting other policy goals.

Concerns About Deregulation of the Airline-CRS Relationship

Incentives for Airline-Affiliated CRSs to Harm Competition

Airline-affiliated CRSs face different incentives than independent CRSs. As a result, the vertical relationship between an airline and a CRS can enhance market power in the airline market, the CRS market, or both.

Consider how two CRSs—one independent and the other airline-affiliated—would set the profit-maximising booking fee for a participating carrier (assuming no requirement for non-discrimination). The independent CRS would recognise that higher booking fees could force a participating carrier to reduce its participation level in the CRS (absent a parity provision) or raise its ticket prices (or both). Either response by the participating carrier would decrease revenue to the CRS: reduced carrier participation would directly decrease CRS revenue for each carrier ticket booked, while higher ticket prices would reduce ticket sales by the participating carrier, which would indirectly decrease CRS revenue. Thus, the potential to lose revenue would constrain the ability of the independent CRS to raise booking fees.

By contrast, if an airline-affiliated CRS raised its booking fees, the potential revenue loss to the CRS would be offset at least somewhat by gains to the affiliated carrier. That is, the airline affiliate could expect to pick up some sales that the participating carrier would lose when it reduced its CRS participation level and/or raised its ticket price.⁶⁷ Thus, in the absence of regulatory restrictions, an airline-affiliated CRS would have an incentive to charge higher booking fees than an independent CRS.

For the same reason, an airline-affiliated CRS would have an incentive to use bias to harm participating carriers. Although there may be profit-related reasons for any CRS to “sell” bias to the highest bidder, an airline-affiliated CRS has an added incentive to bias its display—namely, to inflict competitive harm on rivals (and potential rivals) of its airline affiliate. Similarly, an airline-affiliated CRS might see it as advantageous to delay implementing certain enhancements that would provide a commercial advantage to one or more non-affiliated carriers.

In addition to enhancing the affiliated carrier’s market power, an airline-affiliated CRS has an incentive to enhance its own market power. For example, absent the mandatory participation rule, the airline-owner of a CRS could limit its participation in rival CRSs to harm their competitive position. Prior to the imposition of that rule, several CRS parent airlines were accused of giving their own CRS access to last-seat-availability while withholding it from other CRSs. Alternatively, a CRS-affiliated airline could withhold information from rival CRSs—another form of discrimination prohibited by the rule. In so doing, a CRS could achieve a dominant position and earn monopoly or near-monopoly profits for its airline affiliates.

Market Share and CRS Abuse

The incentive for an airline-affiliated CRS to inflict anti-competitive harm is greatest when two conditions exist. First, both the airline and the CRS must have a relatively large share of their respective markets. If either entity has only a small market share, then discriminatory or exclusionary activity would not inflict significant competitive harm, and, in fact, the affiliated entity itself could lose substantial revenue.

To illustrate, consider a dominant CRS that is affiliated with an airline that has only a small share of the air travel market. If the CRS tried to exclude or discriminate against rival airlines, the strategy could quickly backfire: no travel agent would subscribe to a system that lacked information on the most popular carriers. Similarly, consider a dominant airline whose affiliated CRS has only a small market share. If the carrier were to lower its participation level in rival CRSs in an effort to inflict competitive harm, it would likely lose significant passenger revenue, because those other CRSs would account for the bulk of the market.

Second, the anti-competitive conduct must enable the intended beneficiary (either the airline or the CRS) to maintain or expand market power. For example, consider the parent carrier of a CRS that has a large share of a particular market. The carrier would have a strong incentive to induce the CRS to discriminate against rival airlines (including new entrant airlines) if the airline could acquire additional market power by doing so. The abusive behaviour could increase the combined profits earned by the airline and the CRS, as long as the CRS did not lose significant revenue by taking the discriminatory action.

⁶⁷ The affiliated carrier might face higher booking fees from the affiliated CRS as well. But these fees would simply represent an internal transfer payment among affiliated companies and thus would not affect the companies’ pricing strategy.

Alternatively, that same airline might reduce its participation level in rival CRSs, if its own CRS affiliate saw an opportunity to expand its market power. Any improvement in profits of the dominant CRS would accrue to the affiliated airline. The airline would be better off, overall, as long as its reduced participation in other CRSs did not significantly lower passenger revenue.

In sum, the incentive for an airline-affiliated CRS to engage in “vertical” abuse is greatest when both entities have a reasonably large share of their markets and when such abuse will allow the airline or the CRS (or both) to gain or maintain market power.⁶⁸ The incentive for abuse is largely mitigated if either entity has only a small market share.

Marketing Relationships

The incentive for anti-competitive abuse exists under almost any airline-CRS vertical arrangement, not just ownership. Thus, airline divestiture of a CRS does not remove entirely the risk of competitive abuse if the two entities maintain a sufficiently strong relationship. This is particularly true if the two entities can exchange payments to redistribute profits.

A marketing agreement is the most common vertical arrangement between a carrier and a CRS short of ownership. However, marketing arrangements vary widely. In Europe, as we described in Chapter 2, flag carriers typically had an ownership stake in the national marketing company (NMC) of the most prominent CRS, although most carriers have sold their NMC stake. In the United States, by contrast, the CRS typically pays its airline partner (usually a former owner) to provide marketing support as part of a contractual agreement.

In some cases, a marketing agreement between an airline and a CRS may create the same incentive for anti-competitive abuse as an ownership relationship. First, an airline generally receives a higher share of bookings from the CRS with which it has a marketing partnership than from other CRSs. Often this reflects some residual “halo” from the time when the airline owned the CRS. This halo effect may give the airline an incentive to promote the CRS in anti-competitive ways. Second, marketing agreements typically link the dominant airline and the dominant CRS in a particular market. Thus, such agreements can be an indicator of just those market conditions (“double dominance”) that create the greatest incentive for CRS abuse.

Nevertheless, on balance, direct ownership probably poses a greater competitive concern than a marketing agreement. Ownership makes CRS abuse more attractive because the two firms share the same profit pool. By contrast, marketing agreements are inherently imprecise, and therefore do not perfectly align the interests of two firms.⁶⁹ Ownership relationships also have characterised past situations where abuse has been alleged to occur.

⁶⁸ However, if an airline had a monopoly in its market, it would not gain from inducing travel agencies to use its affiliated CRS, if that enabled the CRS to raise booking fees above competitive levels. That is so because the sale of a good or service yields only a certain level of profits, even when a single firm supplies the market—a concept we discuss below, in our analysis of the potential benefits of vertical integration. Assuming that the monopoly airline and its affiliated CRS would share any profits, supra-competitive booking fees would not bring the monopoly airline additional profits. Rather, it would force the airline to reduce its ticket prices, thus using a portion of its aviation profits to cross-subsidise the CRS.

⁶⁹ One CRS told us it signed a long-term marketing agreement with its parent carrier shortly before divestiture in part to assure potential investors that the carrier would continue to promote the CRS. The CRS is now suing its former parent for (among other things) failure to uphold its end of the marketing agreement.

Concerns about Competitive Abuse by Amadeus and its Parent Carriers

Two groups have raised concerns about the potential for competitive abuse absent the mandatory participation and non-discrimination provisions of the Code. One group consists of European airlines, including British Airways, KLM, and Alitalia. These non-parent carriers have expressed concern that parent carriers will leverage their CRS affiliation in anti-competitive ways. One concern is that the parent carriers will get preferential access to systems developments within the CRS. A second concern is that the CRS will give its parent carriers preferential booking fees. A third concern is that the CRS parent carriers will provide commissions and other incentives to induce travel agents to use their affiliated CRS, thereby gaining a marketing advantage over rival carriers.⁷⁰

These concerns focus largely on Amadeus and its three airline-owners: Air France, Iberia and Lufthansa. Concerned carriers maintain that the three owners have an incentive to engage in anti-competitive behaviour in their respective home markets (*i.e.*, France, Spain and Germany), where both Amadeus and the carrier have a large market share. However, in theory, the same concerns would extend to carriers that market a CRS, in markets where both the marketing carrier and the CRS have a large presence.

The second group of stakeholders includes Sabre and Galileo, which compete with Amadeus in Europe. Sabre and Galileo have expressed concern that CRS parent carriers will engage in one or more of the following activities, particularly in the carriers' home markets:⁷¹

- Participate at a lower level in rival CRSs;
- Withhold information or enhancements from rival CRSs;
- Refuse to accept reservations or confirm bookings from rival CRSs; and
- Offer inducements that effectively require travel agents to subscribe to Amadeus.

Sabre and Galileo also have expressed concern about the potential for joint marketing of Amadeus and its parent carriers by their respective sales forces.

While it is impossible to assess the likelihood of abuse, the stakeholders' concerns are not frivolous. In all three markets, Amadeus and its parent carriers have large market shares. These market conditions create the greatest incentive for anti-competitive behaviour.

⁷⁰ Letter to Hubert Beuve-Mery of the European Commission from representatives of British Airways, KLM, Swiss International Air Lines, Alitalia, Scandinavian Airlines System, and BMI (November 4, 2002); "British Airways/KLM Meeting with DG Tren: 10th January 2002," paper prepared by British Airways and KLM.

⁷¹ "Proposals of Sabre Inc. and Galileo International LLC to Guard Against Parent and Marketing Carrier Abuses in the European Union—March 2003."

The Potential Efficiencies of Vertical Integration

A vertical relationship between a CRS and an airline does not necessarily lead to anti-competitive results, even when both entities have large market shares. Instead, it can create significant efficiencies, which ultimately benefit consumers.

First, vertical relationships can eliminate inefficiencies and raise output. This is particularly true when the upstream firm produces a good or service and the downstream firm is involved in the retail sale of the good or service. The upstream firm's knowledge of its product and customers may allow it to be a more cost effective distributor. Thus, a merger or contractual agreement between an airline and a CRS may result in *lower distribution costs*.

Second, by vertically integrating into the retail sale of its service, an airline may obtain distribution services at a *lower price*. To explain, if the CRS market is not competitive, a CRS will be able to charge prices that exceed its cost of providing service. This in turn will raise ticket prices, which will reduce air travel and cause harm to consumers and airlines. By contrast, if an airline owns the CRS, it effectively obtains the CRS services at cost. In short, vertical integration can lower distribution costs by reducing the CRS mark-up.⁷²

Therefore, an airline might integrate with an inefficient CRS with the goal of lowering costs (scenario one above). Alternatively, it might integrate with a dominant CRS with the goal of lowering its prices (scenario two). Either of those scenarios could result in consumer benefits, as long as the airline does not use its CRS subsidiary to erect entry barriers or raise its rivals' costs.

A third efficiency rationale for vertical integration is to prevent free-riding. Consider a CRS that wants to add new participants or provide higher quality service to existing airline participants. The CRS would not undertake the necessary investment to upgrade or expand its system if it could not generate additional booking fee revenues sufficient to recover its investment. However, once the CRS makes the investment to accommodate the needs of the affected airlines, those carriers could decide to participate at a higher level in a rival CRS. Because that decision would reduce bookings to the original CRS, the carriers would be getting the benefits of the CRS's investment without paying the cost. Under circumstances such as these, a long-term contract represents a low-cost way for a CRS to ensure that the airlines benefiting from its investment do not walk away and leave it "holding the bag".⁷³

Alternatively, an airline may find that one CRS is more effective than others at selling its services. As a result, the airline may want to devote more investment and effort to marketing its services through that CRS. In return, the airline quite legitimately may want some assurance that it will get better service (or service that is no less good) than what its rivals will receive—*i.e.*, assurance that the CRS will not free-ride. The airline could achieve this result either through the appropriate provisions in its contract with the CRS, or by acquiring an ownership stake in it.

⁷² For example, if Finnair were to induce travel agencies in Finland to subscribe to the national marketing company for Amadeus, it would not necessarily imply harm to consumers. Because there is only so much profit to be made from holding a dominant position, and because Finnair (assuming it were dominant) could take that profit by setting high prices for air travel, Finnair's actions could be pro-competitive. Namely, the carrier may want travel agencies to use the Amadeus NMC because it offers better service (*e.g.*, more detailed knowledge of the Finnish market, including rail and hotel options) or operates at lower cost.

⁷³ One form such a contract could take is a parity provision. Although we argue elsewhere that these provisions facilitate CRS market power over airlines, in some circumstances they can promote efficiency.

Vertical Integration through Ownership versus Contractual Ties

As we noted above, the efficiencies from vertical integration between an airline and a CRS can be achieved either through ownership or through some type of contractual arrangement. Although examples of both forms of vertical integration remain, there is growing evidence that airlines may be able to achieve the desired efficiencies largely or entirely through contracts with a CRS—*i.e.*, without having an ownership stake. This is significant because contracts provide less incentive for competitive abuse than ownership and are easier for outsiders to monitor.

CRSs were originally airline-owned because there were economies of scope between the airline's internal reservation system and the functions needed to make the airline's schedule and fare information available to travel agents. However, many airlines now separate the two activities, and some internal reservation systems are hosted by non-CRS entities. That fact, together with airlines' voluntary divestiture of three of the four CRSs, suggests that the efficiencies from vertical integration between airlines and CRSs may no longer require airline ownership.

As for Amadeus, we have been told informally that one or two of the airline-owners would like to spin it off but are reluctant to do so unless all three owners divest simultaneously.⁷⁴ According to industry experts we interviewed, one of the three airline-owners of Amadeus is for now unwilling to divest, but not because of any vertical efficiencies that would be lost.

The trend toward airline divestiture of CRS ownership is a positive development, because, all else equal, the incentive for an airline and a CRS to engage in anti-competitive abuse is greater when they are affiliated through ownership as opposed to a contract. Although the incentive for CRS abuse will remain under any airline-CRS vertical arrangement, contractual arrangements may allow for a different and less costly form of regulation. We discuss this further in Chapter 5, where we analyse the merits of *ex ante* regulation versus *ex post* intervention by competition authorities.

Summary

Airlines that own a CRS have an incentive to use the CRS to engage in anti-competitive conduct in both the airline market and the CRS market. The incentive is greatest when both the parent carrier and the CRS have a large share of their respective markets and when one or both are in a position to maintain or expand market power. Understandably, several European airlines are concerned that the proposed elimination of certain CRS rules will allow Amadeus and its parent carriers to engage in exclusionary practices in their home markets. Sabre and Galileo have similar concerns.

The incentive to engage in CRS abuse remains even if an airline and a CRS are affiliated through a contract, rather than ownership. Nevertheless, all else equal, the incentive for an airline and a CRS to engage in anti-competitive behaviour is less when they are affiliated only through a contract.

⁷⁴ The Amadeus parent carriers that are reluctant to divest may fear that they would be subject to discriminatory practices as long as the CRS remained airline-owned. If so, this is a further indication that the concerns raised about the potential for abuse by Amadeus and its parent carriers are not frivolous.

The incentive for abuse notwithstanding, vertical relationships between airlines and CRSs—through ownership or a contract—can create significant efficiencies, even when both entities are dominant. An airline might vertically integrate with a CRS to lower retail distribution costs or to lower prices. Vertical integration also can avoid free-rider problems, encouraging investment and higher quality service.

The trend toward voluntary divestiture is a strong indication that vertical efficiencies can be captured largely or entirely through a contractual, rather than an ownership, relationship. This has implications for the type of regulatory regime needed to prevent anticompetitive abuse, as we discuss in Chapter 5.

5 IMPACT ANALYSIS

This chapter evaluates alternative policies regarding competition in the air travel distribution industry. First, we identify the appropriate goal for public policy going forward, based on our analysis of current competitive concerns in Chapters 3 and 4. Second, we identify the key choice that policymakers face: whether to deter anti-competitive abuse through *ex ante* regulation or *ex post* application of general competition law (or some combination of the two). We also describe the key criteria that policymakers should apply in making that choice. Finally, we analyse three concrete policy options which differ primarily in terms of their reliance on *ex ante* regulation versus *ex post* enforcement of competition law.

Appropriate Goal for Public Policy

The primary goal for public policy toward the air travel distribution industry, now as in the past, is to *deter anti-competitive conduct by airline-affiliated CRSs*. Although some carriers maintain that airline divestiture of CRSs has eliminated the threat of anti-competitive behaviour, the analysis in Chapter 4 makes clear that the threat remains. First, Amadeus is still majority airline-owned; so any speculation as to the impact of divestiture on Amadeus is premature. Second, contrary to carrier claims, divestiture does not eliminate the threat of anti-competitive behaviour. Under the right market conditions, any affiliation between a CRS and an airline can create an incentive for abuse of market power, although the incentive is admittedly weaker when the affiliation falls short of ownership. Finally, those conditions that provide the greatest incentive for CRS abuse exist in the home markets of Amadeus' three airline-owners (France, Germany and Spain). In all three markets, Amadeus and its respective airline-owner both have a major presence and are in a position to gain or maintain market power.

The incentives for abuse notwithstanding, vertical relationships between an airline and a CRS can create significant efficiencies, even when both entities have a large share of their respective markets. Thus a secondary policy goal is to *allow efficient airline-CRS vertical arrangements to take place*. The trend toward voluntary divestiture indicates that these vertical efficiencies can be captured largely or entirely through a contractual, rather than an ownership, relationship. As discussed below, this has implications for the type of policy needed to prevent anti-competitive abuse—*i.e.*, *ex ante* versus *ex post*.

A final policy goal is to *minimise the potential for adverse unintended consequences*. Although the CRS Code of Conduct satisfies the first two policy goals, the Code has had harmful “side effects”. Specifically, key provisions of the Code have reduced, if not eliminated, carriers’ inherent countervailing bargaining power, thereby facilitating CRSs’ ability to exercise market power in non-targeted ways. To be sure, this problem is not as serious as airlines claim, for reasons we explain at length in Chapter 3. Because CRSs are “two-sided intermediaries”, linking airlines with travel agents, profits from supra-competitive booking fees get passed on to some extent, as CRSs compete for travel agents and travel agents compete for consumers. In addition, the growth of the Internet is increasing carriers’ bargaining leverage with CRSs. Nevertheless, the non-targeted exercise of CRS market power remains a problem—and one that the Code unintentionally has fostered. Policymakers should avoid these and other unintended consequences if at all possible.

***Ex Ante* Regulation versus *Ex Post* Application of Competition Law**

The main choice for policymakers is whether to deter potential anti-competitive abuse using *ex ante* regulation or *ex post* application of general competition law (or some combination of the two). Under *ex ante* regulation, such as the CRS Code of Conduct, the law explicitly prohibits certain practices (*e.g.*, discriminatory participation in CRSs by parent carriers). By

contrast, *ex post* intervention would eschew prescriptive rules in favour of reliance on the Commission and national authorities to enforce the general competition law applicable to all industries, including (but not limited to) Articles 81 and 82 of the EC Treaty, which address anti-competitive agreements and abuse of dominant market positions, respectively.

Economists and legal experts have devoted considerable thought to the merits of *ex ante* regulation of economic activity versus *ex post* application of general competition law. The best mix of *ex ante* regulation and *ex post* oversight in any given policy setting depends on several criteria.

One criterion is *the likelihood of anti-competitive conduct*. *Ex ante* regulation is most appropriate where the likelihood of anti-competitive conduct is high, because it can avoid lengthy, complex, and expensive adjudicative proceedings. By contrast, *ex post* enforcement through the adjudicative process makes more sense if there are no strong grounds for anticipating anti-competitive problems. In the air travel distribution industry, the risk of abuse is relatively high in markets in which the CRS and its affiliated air carrier both have a large market share—particularly if the two are linked through ownership. The risk is significantly less if those market conditions do not exist, regardless of the nature of the airline-CRS affiliation.

A second criterion—and one central to the current debate—is *the potential cost of ex ante regulation*. Overly broad or misguided regulation can stifle innovation and flexibility, and may even exacerbate competitive problems (the “law of unintended consequences”). The mandatory participation and non-discrimination provisions of the Code are classic examples of this phenomenon: while preventing targeted exercises of market power by airline-owned CRSs, these regulations have unintentionally facilitated the non-targeted exercise of CRS market power. By contrast, the prohibition on display bias has achieved its purpose with few if any side effects.

A third criterion is *the difficulty of identifying specific forms of anti-competitive conduct in advance*. The design of detailed *ex ante* regulations requires regulators to predict the behaviour of market participants and anticipate the impact on competition and consumer welfare. This is a difficult challenge, given that the effects of many types of behaviour can be either positive or negative (or both), depending on specific circumstances that are hard to describe in advance. By contrast, with *ex post* enforcement, competition authorities can refrain from action unless the behaviour proves to be anti-competitive. For example, EC competition policy uses *ex ante* regulation to proscribe price-fixing, because price-fixing typically produces anti-competitive effects, and reasonable people can agree on what constitutes price-fixing. By contrast, the EC applies an *ex post* approach to other coordinated activities among competitors because the competitive impact of those arrangements is less clear.

In the current context, display bias by an airline-owned CRS probably falls in the first category: it is typically harmful, and reasonable people can agree on what constitutes bias. By contrast, discriminatory pricing by an airline-owned CRS—at least under certain market conditions—probably falls in the second category of activities: price discrimination can be used either to achieve efficiency or to harm competitors, and it may be hard to distinguish between the two in advance.

A final criterion is *the difficulty of detecting illegal conduct*. *Ex ante* regulation is more appropriate if illegal conduct is hard to detect, as in the case of price-fixing. The more transparent the activity, the easier it is for competition authorities to monitor. Arm’s length contractual arrangements between an airline and a CRS are relatively transparent and easy to monitor. By contrast, the interaction between a CRS and an airline-owner is opaque and hard to monitor.

It is worth noting that *ex post* regulation by the Commission is set to undergo something of a revolution following the introduction of new Council Regulation 1/2003, which may reduce concerns about the expense and inadequacy of *ex post* court proceedings. The new regulation is intended to lift a large part of the regulatory burden on the Commission's competition authorities by abolishing the system of notification of agreements, under which the Commission expended resources reviewing routine and relatively innocuous agreements notified by companies under the old Regulation 17/62. Instead, the Commission will be able to focus on investigating "hard core" anti-competitive practices, using increased investigatory powers and tougher fines. *Ex post* intervention under Regulation 1/2003 would offer equivalent, and in some cases stronger, investigatory and enforcement powers than those available under current *ex ante* CRS regulation.

Policy Options

To illustrate the choice between *ex ante* regulation and *ex post* application of general competition law, we analyse three policy options.

- Option 1: Eliminate the CRS Code altogether;
- Option 2: Adopt DG TREN's December 2002 proposal, as drafted; and
- Option 3: Adopt a modified form of DG TREN's December 2002 proposal that would retain the mandatory participation requirement, and the corresponding requirement for airline-owned CRS vendors, in parent carriers' home markets; and impose one or more new "unbundling" requirements.

All three options provide for some degree of oversight of the CRS industry. However, Option 1 relies entirely on *ex post* intervention, whereas Options 2 and 3 rely on a mixture of *ex ante* regulation and *ex post* intervention.

Option 1: Eliminate the CRS Code of Conduct

Description

Under Option 1, the EC would eliminate the CRS Code of Conduct altogether. Most important, this option would terminate *ex ante* regulation in the following areas:

- No requirement for a neutral CRS display;
- No requirement that parent carriers participate equally in all CRSs;
- No prohibition on discriminatory booking fees or other forms of discrimination by CRSs;
- No restrictions on CRS contract provisions with travel agents;
- No restrictions on travel agents with respect to passive bookings; and.
- No requirement that participating carriers provide equally comprehensive information to every CRS.

Under this option, stakeholders would rely solely on *ex post* enforcement of EC and national competition law to discourage and discipline anti-competitive behaviour.

Analysis

Pro

The overall argument for this option is that the original rationale for the Code of Conduct—ownership and control of CRSs by individual airlines—no longer applies. Airlines have largely divested ownership of CRSs, and no CRS remains owned by a single airline. In addition, the growing use of the Internet to sell airline tickets means that non-affiliated airlines have an alternative to reliance on CRSs, as evidenced by Ryanair and easyJet. Thus, the Code is arguably no longer necessary.

Moreover, terminating the Code would allow market forces to operate in the air travel distribution industry, thus promoting greater price and service competition and encouraging innovation. As this report has discussed at length, the mandatory participation requirement of the Code limits airline bargaining power with CRSs because parent carriers cannot reduce (or threaten to reduce) their participation level. As a result, CRSs have less need to compete over price and service quality. The non-discrimination requirement similarly discourages CRS competition by outlawing selective CRS discounts and service enhancements to individual airlines. By terminating these requirements, this option would increase airlines' inherent leverage to negotiate with CRSs over price and service, and increase CRS vendors' incentive for efficiency and innovation.

Although Chapter 4 makes clear that airline-affiliated CRSs still have an incentive to engage in anti-competitive conduct, that behaviour could be deterred through the force of competition law. The proposed modernization regulation (Regulation 1/2003) would give the Commission stronger powers to enforce general competition laws and increase the resources dedicated to such enforcement.

Moreover, airline-affiliated CRSs have other ways to deter new entry and disadvantage existing competitors. To elaborate, CRS abuse is not *necessary* to inflict harm on competitors. For instance, rather than have an airline-affiliated CRS engage in discriminatory actions against rival airlines, the parent carrier could simply “punish” travel agents who sell too many tickets on competing airlines, regardless of which CRS they use. Alternatively, a parent carrier could devise complex incentive payments that would have the same effect.

Nor is CRS abuse a *sufficient* form of entry deterrence, because competitors can use “counter-measures” to get around it. For example, suppose that Air France were to bias the Amadeus display to reduce competition from British Airways on particular routes. British Airways has several options. It could:

- offer higher commissions to travel agencies, thereby providing incentive to remove the bias (either directly, using in-house software, or indirectly, by instructing their employees explicitly to search for British Airways flights on specific routes);
- sign specific deals with large corporate customers, who would then insist that their travel agency book them on British Airways;
- use its own position in other markets to bargain with large multi-national/global travel agencies to ensure that they offer British Airways services to clients;

- advertise its services directly to consumers via traditional and/or online media, and remind them in the advertisements that they need to ask their travel agency explicitly for British Airways; and
- threaten to cancel Amadeus's contract to host British Airways' internal reservation system.

Specifically, Option 1 goes beyond DG TREN's proposal (Option 2) in that it would eliminate the prohibition on display bias. Although elimination of display bias was the major (near-term) goal of the Code in 1989, it should not be an overriding concern in 2003 for several reasons.

First, a travel agent with an unbiased display has a competitive advantage, because it can offer better service to its customers. As a result, travel agents want, and are willing to pay more for, unbiased displays, as evidenced by travel agency expenditures on "de-biasing" technology. Thus, in sharp contrast to the situation in 1989, competition between CRSs to provide services to travel agents should limit the incentives for CRSs to engage in display bias.

Second, airlines have counter-measures available to fight bias—for example, incentive payments to travel agents. New technology provides additional ways to counteract bias, as illustrated by Orbitz, which commits contractually to provide neutral and comprehensive displays.

Third, the sale of bias need not damage competition. After all, the most efficient airline has the largest margins and can therefore afford to pay the most for bias. Moreover, when airlines pay travel agents to shift market share, much of that revenue gets returned to consumers. That happens because agents compete aggressively for passengers by offering lower prices and/or higher quality service.

Finally, strict rules on display bias are curiously inconsistent with regulation of sales in other sectors of the economy. Many other consumer products and services, of similar price and complexity, are sold without any such rules. For example, we do not require computer salespeople to provide an unbiased presentation of the relative merits of Apple, Dell, and Compaq computers. As another example, grocery stores and other retailers accept compensation for giving products prominent display space. Due to this form of competition, products that are particularly attractive to consumers usually gain the most prominent locations. This may well be an economically efficient outcome.

Option 1 also goes beyond DG TREN's December proposal in that it eliminates restrictions on CRS contract provisions with travel agents. As we showed in Chapter 3, the ability for travel agents to switch CRS vendors easily is critical to efficiency in the distribution of air travel. If a CRS were to insist on five-year contracts, for example, that could significantly raise agent switching costs and potentially facilitate CRS market power.

However, this particular risk is limited, since a travel agent would not enter voluntarily into a longer term contract with a CRS unless the CRS offered sufficient inducements. A travel agent would not sign a five-year contract unless the productivity payments and service quality offered by the CRS were sufficiently attractive to induce the travel agent to forsake a shorter-term contract, potentially one offered by a competing CRS. If the CRSs took concerted action to mandate that travel agents sign five-year contracts, this coordinated activity, if anti-competitive, could be addressed through litigation under the competition laws. Also, an individual CRS would have an incentive to deviate from that concerted action, and instead offer shorter contracts to attract travel agents that preferred shorter term deals.

Finally, restrictions on travel agent contract provisions may discourage CRSs from making investments that travel agents would value. Thus, elimination of those restrictions would allow CRSs and travel agents to strike the most efficient deals.

Con

Despite the appeal of these arguments for repeal of the Code, the European market may not yet be at a stage to benefit from sole reliance on *ex post* regulation. The key reason is that airlines are still highly dependent on CRSs to disseminate their flight and schedule information and, most importantly, to book available space on flights. Particularly given the continuing airline ownership of Amadeus, there is a real risk that exclusionary practices such as those that led to the imposition of the Code would reappear.⁷⁵

Granted, as argued above, there are ways to harm competitors besides CRS abuse, and targets of CRS abuse can take steps to counteract its effects. However, unless two conditions hold, vertical relationships between airlines and CRSs nevertheless will encourage anti-competitive behaviour. First, the parent carrier must be able to achieve the same anti-competitive results at *comparable or lower cost* through other means. Second, the target of the CRS abuse must be able to avoid or counteract the harmful effects *at no cost*.

In practice, it is doubtful that either, much less both, of these conditions holds. Display and architectural bias and other forms of CRS discrimination are a far less costly way for a parent carrier to raise rivals' costs and erect entry barriers, compared to paying or punishing travel agents to achieve the same effect. Similarly, if the targeted airlines must pay higher travel agency commissions or undertake advertising campaigns to counteract the effects of display bias and other forms of CRS abuse, then their costs are higher than they would be if these forms of discrimination were prohibited.

In sum, CRS abuse is neither necessary nor sufficient to inflict competitive harm, in theory. But, in practice, it is likely to be the parent carrier's weapon of choice, because it is inexpensive to execute, yet costly for rivals to combat.

Option 2: Adopt DG TREN's December 2002 Proposal

Description

This option consists of the changes to the Code that DG TREN proposed in December 2002. Like Option 1, Option 2 would remove *ex ante* regulation in two broad areas. It would:

- Eliminate the requirement that parent carriers participate equally in all CRSs; and
- Eliminate the prohibition on discriminatory booking fees or other forms of differential treatment of participating carriers by CRSs.

⁷⁵ In one interview, an official from one of the Amadeus parent carriers explained the benefits of eliminating mandatory participation and non-discrimination requirements. We asked him why the airline did not simply sell its ownership share so as to get out from under the burden of the mandatory participation requirement. He said his airline would never sell its share while the other Amadeus airline owners retained their share, because it would be vulnerable to discriminatory treatment.

Option 2 also would eliminate Annex II, which imposes restrictions on travel agents designed to limit speculative or fictitious bookings, and the Article 4(1) requirement that participating carriers provide equally comprehensive information to every CRS. In contrast to Option 1, Option 2 would leave in place restrictions on provisions in CRS contracts with travel agents. Also, Option 2 would retain a streamlined restriction on display bias. (We examine DG TREN’s proposed changes to the rules on sharing of MIDT in Chapter 6.)

Analysis

Pro

As with Option 1, elimination of the mandatory participation requirement for parent carriers and the non-discrimination requirements on CRS vendors would enhance market incentives, allowing parent carriers to use their natural bargaining leverage and forcing CRSs to compete more aggressively for carrier participation on the basis of price (booking fees) and service quality. This would provide benefits to consumers and airlines.

Another positive feature of Option 2 is its treatment of display bias. The basic requirement for a neutral display would remain—a plus for the reasons discussed above. Moreover, Option 2 would streamline the current requirement, effectively transforming it from a “design” standard to a “performance” standard. The latter is preferable, because it would allow the regulated entity to determine the most efficient way to meet the requisite performance metric.

Elimination of Annex II is yet another positive step. Annex II targets “passive” bookings, which are far less of a problem than they were. Moreover, by giving carriers additional bargaining leverage, other features of Option 2 would address the problem indirectly. Finally, elimination of the requirement that participating carriers provide equally comprehensive information to every CRS would enhance such carriers’ inherent bargaining leverage.

Con

As with Option 1, elimination of the mandatory participation and non-discrimination requirements raises serious concerns about the potential for anti-competitive conduct. A parent carrier could favour its CRS affiliate to the detriment of rival CRSs, and an airline-affiliated CRS could raise booking fees on, and lower the service quality offered to, airlines that competed directly with its parent carrier.

Chapter 4 highlighted the conditions that create the incentive and ability for airline-affiliated CRSs to engage in vertical abuse: high market shares in both the airline and CRS markets, and a realistic possibility to gain or maintain market power. These conditions exist in France, Germany and Spain, where Amadeus and its respective airline-owners have a market presence that approaches “double dominance”.

Granted, competition authorities could monitor the situation by closely watching for potential abuse. But CRS abuse would be difficult to detect, given that airlines and CRSs engage in millions of transactions each day. Moreover, enforcement action could take years, as when Sabre challenged Air France.

In sum, Option 2 might inject some added competitive pressure into the setting of booking fees, only to see the competitive problems that led to the CRS Code re-emerge. Thus, on balance, the costs of this option probably outweigh the benefits as long as Europe’s largest CRS remains airline-owned.

Option 3: Retain Mandatory Participation Requirement and Comparable Vendor Non-Discrimination Obligation in Parent Carriers' Home Markets

Description

Option 3 is identical to Option 2 except that it preserves Articles 3a(1)(a) and 3(4) of the Code of Conduct under certain conditions. Specifically, Option 3 would:

- Require parent carriers (including airlines that market a CRS) to abide by the mandatory participation requirement in their home markets; and
- Require airline-owned CRS vendors to provide any improvements in services to all participating carriers on an equal basis in the owner-airlines' home markets.

Finally, Option 3 would include one or more “unbundling” requirements, as described in Appendix V, to weaken the vertical links between airlines and CRSs.

As with Options 1 and 2, under Option 3, CRSs would be able to differentiate between carriers in other ways, including the fees they charge. Moreover, parent carriers could vary their participation in CRSs in markets outside of their home country. For example, Iberia could offer promotional fares to some but not all CRSs in any market outside of Spain.⁷⁶

Analysis

Pro

Option 3 addresses the major flaw in Option 2: the potential incentive for parent carriers and their CRS affiliates to engage in CRS abuse absent the mandatory participation and non-discrimination requirements. Moreover, it does so in a targeted way. First, it retains the mandatory participation requirement on parent carriers only in their home market, which is where the market conditions are most conducive to competitive abuse. Second, it retains only the limited, corresponding obligation on CRS vendors—that is, the requirement that airline-owned CRSs make any service improvements available to all participating carriers in the home market of any parent carrier. CRS discrimination with respect to service offerings could be subtle and therefore hard to detect and challenge *ex post*. Thus, *ex ante* regulation (but limited to owner-airlines' home markets) is appropriate.

⁷⁶ Although parent carriers could withhold information (e.g., web fares) from CRSs selectively outside of their home market under Option 3, they may not be able to vary their level of participation in the CRSs. That is so, because CRS vendors require carriers to select a single level of functionality that applies worldwide. To illustrate, when KLM (a non-parent carrier) negotiates its contract with Amadeus, it can choose to participate at any one of a range of levels, but it cannot vary that level by region. That is, KLM cannot participate at the highest level in Europe and a slightly lower level in regions where it has fewer flights. Rather, KLM must participate in Amadeus at the highest level throughout the world in order to get that level of service in its home market. For a parent carrier—say, Iberia—the choices are even more limited. Because Iberia presumably would want to participate in Amadeus at the highest level in Spain, it must participate in the other three CRSs at the highest level in Spain as well. Under the current approach/technology that CRSs utilise, Iberia's choice of participation level for Spain would dictate its participation level everywhere else as well.

Moreover, by preserving a regulatory burden on parent carriers, Option 3 retains the current incentive in the Code for parent carriers to sell off their CRS holding. Thus, it should encourage further divestitures and discourage re-integration through ownership. Similarly, by retaining the Code's application to carriers that have a marketing relationship with CRSs, Option 3 encourages such carriers to adopt an alternative contractual arrangement that would be more transparent and less conducive to competitive abuse.

Granted, this option (like the first two options) does not explicitly prohibit a CRS parent carrier from using discriminatory booking fees to raise rivals' costs, even in its home market. However, that type of discrimination would be more transparent, and therefore easier to detect and challenge *ex post*.

In sum, Option 3 is an elegantly simple way to address the very legitimate concerns that non-parent carriers and CRSs have raised. The simplicity of the approach would make its implementation relatively straightforward.

Con

If *ex post* enforcement is not speedy and tough, CRSs would have an incentive to impose discriminatory fees on rivals in those markets where conditions are conducive to competitive abuse (*i.e.*, parent carriers' home markets). Moreover, if there are efficiencies from vertical integration that can be achieved only through an ownership or marketing arrangement, Option 3 would discourage carriers from achieving them by relying on *ex ante* regulation.

6 MARKETING INFORMATION DATA TAPES

Under Article 6 of the Code of Conduct, CRS vendors can make publicly available on a non-discriminatory basis the information derived from the bookings made through their system. CRSs sell this information, referred to as marketing information data tapes (MIDT), principally to the larger participating airlines for use in marketing, route planning, yield management and other activities. Because the information is highly detailed, it allows an airline to monitor the demand for travel on rival carriers, track corporate customers' air travel choices, and maintain tight control over individual travel agents.

MIDT are one of the most controversial elements of the CRS debate, pitting smaller carriers, business travellers and travel agents against large network carriers. Although some smaller airlines complain that the prices that CRSs charge for MIDT are prohibitive, most stakeholder concerns focus on airlines' alleged anti-competitive use of the tapes.

In response to complaints that MIDT are prohibitively expensive, DG TREN proposed:

- to clarify language allowing “groups” of carriers and travel agents to purchase MIDT collectively, reducing the cost to individual carriers and agents.

To address the broader concerns about possible anti-competitive use of MIDT, DG TREN proposed the following:

- to require CRSs to remove information on MIDT that would identify individual travel agents; and
- to consider requiring CRSs to delay the release of MIDT, and/or to restrict further the level of detail available in the MIDT.

Many small carriers want to go beyond these proposed changes and bar the release of data on any carrier that does not give its consent. Still other stakeholders want to prohibit release of the booking data altogether.

Below, we examine whether the alleged high cost of MIDT reflects *CRS market power* over airlines. As with our analysis of booking fees in Chapter 3, we focus ultimately on whether there is harm to consumers. We also evaluate DG TREN's proposal to clarify the definition of “group” in the Code so as to allow for collective purchase of MIDT. Second, with an eye toward *airline market power*, we examine both the legitimate and the problematic ways in which participating carriers use MIDT. Along the lines of our analysis of vertical integration in Chapter 4, we ask whether, on balance, exchange of information through MIDT as authorised by the Code is pro-competitive or anti-competitive. We then evaluate several options that would restrict the booking information that CRSs could make available.

Background

Each CRS compiles its own MIDT showing:

- the number of bookings by each travel agency using that system on each airline in individual city-pair markets;
- the actual flight booked by each passenger (including date and time of travel, point of origin, and itinerary routing);

- the fare basis used for each booking; and
- the date of purchase.⁷⁷

Although MIDT do not include the passenger's name, they have traditionally identified corporate purchasers. (Sabre says it no longer includes corporate identifiers, however.) The tapes are compiled within three days of the date on which the booking occurs, and distributed on a daily basis.⁷⁸ Thus, carriers often get information about bookings well in advance of the flight.

Because each CRS compiles data only on its own bookings, carriers must purchase MIDT from all four CRS vendors to get a comprehensive set of information. According to a 1999 report by the US Department of Transportation's Inspector General, Sabre, the largest US CRS, charges about \$60,000 per month for its domestic market data.⁷⁹ Worldspan, a smaller system, charges about \$17,000 per month. Moreover, the carriers must spend additional resources to make the data usable. According to Sabre, processing costs for MIDT add another \$10,000 to \$20,000 per month to its basic price.⁸⁰ One small airline told DOT that the annual cost of buying and processing data on the US domestic market from the four CRS vendors is about \$1.5 million.⁸¹

European carriers, many of whom must buy MIDT on both domestic and international markets, spend as much as, if not more than, US carriers. Martinair pays each CRS vendor \$20,000 to \$35,000 per month for MIDT data.⁸² Since most large carriers buy MIDT (Galileo sells tapes to about 45 carriers), the CRSs generate significant revenue from selling the data.⁸³

According to large carriers in Europe, Asia and the United States, MIDT represent an indispensable tool. Among other things, carriers use the data tapes to:

- monitor customer demand based on flight schedules, and adjust the timing of schedules to match consumer demand;
- track and document booking trends in order to develop advance booking and revenue projections;
- identify, develop and market new routes; and
- implement travel agent commission override and corporate discount fare programs.

⁷⁷ Comments of the Air Carrier Association of America on DOT NPRM (March 18, 2003): 6-7.

⁷⁸ *Ibid.*

⁷⁹ Office of Inspector General, US Department of Transportation, *Report on Travel Agent Commission Overrides* (March 2, 1999): 8.

⁸⁰ *Ibid.*

⁸¹ DOT NPRM, 69402.

⁸² Telephone interview with Martinair officials, March 4, 2003.

⁸³ DOT NPRM, 69402, 69404.

CRS Market Power and the Price of MIDT

Are Consumers Hurt?

Historically, the cost of obtaining MIDT has been beyond the reach of many small and medium-sized carriers in Europe and the United States. A few of the smaller carriers have recommended that transportation regulators cap the price of MIDT. Notably, several of the large network carriers have chimed in, saying that the real problem is the lack of affordable access to MIDT by smaller carriers. For example, according to one large international carrier:

The price structure is set by the CRSs and is far from being cost-related and can be prohibitive—with the effect that only very few carriers can afford to purchase MIDT. Making MIDT affordable to all carriers would respond to the concerns raised by the Air Carrier Association of America [representing US low-cost carriers] and other small carriers. All carriers competing in a market would be able to function with equal information.⁸⁴

To determine whether this is a problem, it is useful to ask the same questions about MIDT that we asked about booking fees in Chapter 3. One, does the high cost of MIDT reflect potential CRS market power over airlines? Two, even if the answer is yes, are consumers harmed?

Does the High Cost of MIDT Reflect CRS Market Power?

We concluded in Chapter 3 that CRSs have potential market power over airlines, but that airlines nevertheless have some leverage to negotiate booking fees (and that they would have more in the absence of the mandatory participation and non-discrimination provisions). Similarly, with MIDT data, CRSs have potential market power over airlines, because the carriers need to buy MIDT from all four CRSs in order to have a comprehensive set of data. But carriers appear to have as much if not more leverage to negotiate the price of MIDT compared to booking fees. As one indication, the large carriers do not complain that the CRSs are overcharging them for MIDT.

Are Consumers Harmed?

We also concluded in Chapter 3 that, although CRSs do have market power over airlines, it causes less harm than carriers claim, because of the offsetting competition downstream. That analysis applies here as well. That is, because CRSs compete with one another to recruit travel agents, some of the excess profits they make from MIDT get passed through to agents in the form of “signing bonuses” and incentive payments. And because travel agents compete with one another for passengers, most of any excess profits they receive get passed through to consumers in the form of lower prices or better service.

Price of MIDT is Not the Issue

Although small carriers may have been priced out of the MIDT market in the past, CRS vendors have an incentive to make the data available to them in a form that is affordable, and there is evidence that is happening. Amadeus officials told us that they are developing more tailored products (e.g., data on individual routes) so that small carriers need not buy the entire

⁸⁴ Comments of Lufthansa on DOT NPRM (March 16, 2003): 6.

MIDT set.⁸⁵ DOT confirms that the CRSs are reshaping MIDT to increase sales, including providing data in smaller packages that will be attractive to airlines that do not have worldwide operations.⁸⁶

Moreover, lower-priced MIDT is not the goal for most small carriers. The Air Carrier Association of America (ACAA), the organisation that represents US low-cost (no-frills) carriers, has not proposed that DOT regulate the price of MIDT or in other ways make them more accessible. According to ACAA President Ed Faberman, even if the tapes were significantly less expensive, low-cost carriers would not have the resources to take advantage of the data.⁸⁷

In short, the goal of most low-cost carriers is to restrict access to MIDT data, not to lower the price. Although large carriers maintain that the response to the concerns of small and low-cost carriers is to give them equal access to the data, this may reflect a strategy to divert attention from allegations that the large carriers use the data anti-competitively.

Group Purchase of MIDT Data

The issue of group purchase of MIDT may be one of the “unintended consequences” of the existing regulation. In part because of non-discrimination rules that apply to their pricing, CRSs have been slow to identify ways to sell the same data at lower prices to small airlines than to large airlines. Martinair told us that, although the CRSs have transitioned from offering global to more market-based MIDT, MIDT prices remain too high and the product still has too much information for smaller airlines.⁸⁸ However, as discussed above, there is evidence that CRS vendors are finally responding to the market demand by smaller carriers.

In normal markets, data providers naturally and efficiently price discriminate on the basis of size. For example, if *The Brattle Group* wants to subscribe to a trade publication that provides price data in UK energy markets, the pricing it faces is typically a function of company size (or some similar measure such as number of users). The data provider therefore sells the same data to *The Brattle Group* at a much lower price than it would charge to a larger consulting firm (e.g., one of the large accounting firms).

If the only alternative were a “group purchase” approach, then *The Brattle Group* would have to find a number of other small consultancies to form a group that met the appropriate rules, agree on an internal cost-sharing rule among the group to cover the cost of the data purchase, and then take out a single subscription. The potential for wasteful delays, conflict and inefficiency is only too apparent.

This simple example should serve to illustrate that the “group purchase of MIDT” should be regarded as a non-issue. It is one of the best examples of the “law of unintended consequences” in relation to the CRS code. Elimination of the non-discrimination rule should suffice to solve the problem altogether. But even without that, the market appears to be solving the problem.

⁸⁵ Telephone interview with Amadeus officials, March 13, 2003.

⁸⁶ DOT NPRM, 69402.

⁸⁷ Telephone interview with Ed Faberman, Air Carrier Association of America, March 14, 2003.

⁸⁸ Martinair interview.

Airline Market Power and MIDT

Allegations

According to stakeholder groups, major airlines use the information they get from MIDT to coerce travel agents and corporate customers. America West recently submitted comments to DOT describing how carriers put pressure on travel agents to reduce the number of bookings they make for competitors. According to the Arizona-based airline, major carriers typically withhold services that travel agencies need, for example, by denying access to the airline's agency help desk, or by refusing to release discounted fares that an agency can use to win or keep corporate accounts.⁸⁹

In the United States, so-called "new entrants"—the small, low-cost carriers that challenge major carriers on point-to-point routes—have been a particular focus of these techniques. Officials from Legend, the defunct start-up airline, told DOT officials that American Airlines used MIDT to target travel agencies selling tickets on Legend, thereby undermining Legend's ability to get agency bookings.⁹⁰ (Legend was based in American Airline's home town of Dallas, Texas.) In his 1999 report on travel agent commission overrides, the DOT Inspector General cited a number of instances in which major carriers offered travel agents short-term overrides in specific markets to counter new service by a small carrier.⁹¹

This situation is exacerbated in the European market, where incumbent flag carriers often have a very strong commercial presence in their home markets. In its decision on *Virgin/British Airways*, the Commission found British Airways to be "an obligatory trading partner for travel agents wishing to offer a full service to their customers", and it concluded that British Airways had abused its dominant position in the UK market for travel agency services.⁹²

In that case, British Airways was able to use the knowledge of travel agent activities that it acquired by purchasing MIDT to offer "exclusory" commission schemes to specific travel agents. These schemes rewarded agents for increasing the number of British Airways tickets they sold compared to the previous year, rather than on the basis of number of sales made. This encouraged travel agents to sell British Airways tickets in preference to those of other airlines.

Like travel agents, corporate customers have been a target of pressure from major carriers. According to ACAA's Faberman, companies located in a hub city typically book most of their travel on the dominant carrier, but also like to take advantage of low-cost carriers. Given the speed with which MIDT are made available, the major carrier knows almost immediately when that happens, and often sends a representative to visit the firm. The representative offers the firm a carrot (typically, the major carrier offers to match the low-cost carrier's price in the short run) or hints at the potential for a stick (e.g., no more complimentary upgrades on international flights). Companies frequently back down, according to Faberman, in part because if the major carrier matches the low-cost carrier's price, it costs the company nothing in the short run.⁹³

⁸⁹ Comments of America West Airlines on DOT NPRM (March 17, 2003): 29.

⁹⁰ DOT NPRM, 69403.

⁹¹ *Report on Travel Commission Overrides*, 6.

⁹² Commission Decision of 14 July 1999, IV/D-2/34.780, 2000/74/EC, paragraph 47 (iv).

⁹³ Faberman interview.

Carriers' Response

Major carriers respond that the use of MIDT is pro-competitive because the knowledge they gain about their rivals serves to intensify competition. For example, if Lufthansa agrees to match a low-cost carrier's price in order to keep a corporate customer happy, the company is better off (at least in the short run) because it gets the advantages of service from a network carrier but at a discount fare.

Major carriers also maintain that the MIDT information is necessary to improve the efficiency of their relationships with travel agents. Any airline prefers to compensate travel agents in a way that gives the agent an incentive to be partial to that airline. To implement these commission override programs, a carrier needs to know how many seats an agent booked on the flights of rival carriers.

Carriers also point to the value of MIDT for route planning and development. For example, the Association of Asia Pacific Airlines (AAPA) cites Singapore Airline's recent decision to establish direct service from Singapore to Brussels. According to AAPA, Singapore Airline used MIDT to calculate the number of potential passengers—based on demand for current, indirect service—and to identify the travel agencies to target in marketing that service.⁹⁴

Analysis

In fundamental ways, the exchange of detailed MIDT appears harmful to competition. By knowing how many seats are being sold and the fare basis for each one, a large carrier can determine its rival's pricing strategy, and the success of that strategy, with considerable precision. The Commission has previously identified precise sales and market share data as the market information that is most difficult to obtain, most sensitive, and most likely to cause competitive concerns.⁹⁵

In few (if any) other industries do firms have immediate access to the sales data of their competitors.⁹⁶ Most businesses base their marketing strategies on their own proprietary data plus estimates and assumptions concerning their competition. When a business has to guess what its competitors are doing, consumers are generally better off.

Secrecy can be extremely important to competition in an oligopoly, as Cornell University economist Alfred Kahn, who is generally considered to be the "father" of US airline deregulation, explained in another context:

[T]here is the familiar fact that in an oligopolistic industry, the negotiation of special, preferably secret deals with large buyers or distributors in a position to threaten to supply their own needs or take their business elsewhere is a particularly effective form of competition, reflecting an exercise of countervailing power on the buying side of the market, in an oligopoly whose members will

⁹⁴ Telephone interview with AAPA officials, March 10, 2003.

⁹⁵ See *Tractor Case*, 92/157/EEC: Commission Decision of 17 February 1992 relating to a proceeding pursuant to Article 85 of the EEC Treaty IV/31.370 and 31.446 (UK Agricultural Tractor Registration Exchange) *Official Journal L 068*, 13/03/1992, 0019 – 0033.

⁹⁶ *Report on Travel Agent Commission Overrides*, 8.

typically be reluctant to cut prices openly and across the board; and that the prohibition of any such special deals or a requirement of their full disclosure and equal availability, in advance, to all comers, will discourage it.⁹⁷

Consistent with Alfred Kahn's analysis, business travellers have expressed scepticism that transparency promotes competition in this setting. In an effort to recreate MIDT outside of the CRS, several US airlines have refused to enter into or renew discount agreements with corporate customers unless the corporation agrees to provide the carrier with detailed data concerning its air travel transactions with that carrier and all other carriers. Corporations that are agreeable provide the information to a third-party data consolidator selected by the carrier. According to the US National Business Travel Association:

The airlines have stated that by having this data they may offer more competitive discounts if they desire to pursue the business. However, history suggests that allowing competitors to see the discounts that each is offering works to discourage price competition. The airlines can see quickly whether competing airlines have offered a deeper discount than others. This can lead to implicit agreements on discounts and... have a chilling impact on any airline's willingness to offer discounts.⁹⁸

As further evidence that secrecy promotes competition, consider that Ryanair and easyJet choose not to participate in any CRS. Their decision almost certainly reflects a desire to keep their booking data confidential, among other considerations. Southwest follows a similar strategy in the United States. Southwest participates in only one CRS (Sabre), and it does so in a very limited way. Two years ago, when Southwest declined to participate in Orbitz, the online travel agency tried to list Southwest flight and schedule information as a convenience to its customers. Southwest blocked Orbitz, however, reportedly in part so that Worldspan, the booking engine for Orbitz, would not have access to its internal data.

As discussed above, major carriers maintain that the response to the concerns of small and low-cost carriers is to give them equal access to the data. But with few exceptions, low-cost carriers are not seeking affordable access to the data because they lack the ability to use it. A DOT economist who has studied the issue explains why:

It isn't just that the small guys can't afford the data, because CRSs are responding to that problem. The overhead is as big a problem as price. The big carriers have huge marketing departments to analyse the data. The smaller low-cost carriers don't and never will.⁹⁹

In addition to making transparent certain competitive data, MIDT may harm competition by facilitating travel agent commission override programs. As noted earlier, the Commission ruled that British Airways, as a dominant carrier, erred in using commission schemes that encouraged agents to favour British Airways over other airlines. Similarly, DOT's Inspector General concluded that commission overrides influence consumers' travel options and decisions in detrimental ways:

⁹⁷ Quoted in DOT NPRM, 69403.

⁹⁸ Comments of the National Business Travel Association on DOT NPRM (March 14, 2003): 21.

⁹⁹ Telephone interview with Mark Dayton, DOT, March 21, 2003.

Overrides or other financial incentives, such as free tickets, transform the role of travel agents from that of neutral seller's agents toward one of a direct distribution agent for a particular airline—a relationship of which passengers are likely to be unaware.¹⁰⁰

The Inspector General recommended that travel agents be required to advise customers of their override arrangements. Although DOT declined to impose such a requirement, it is considering whether to end the airlines' access to the MIDT information used to implement commission override programs.

To be sure, large carriers use MIDT for legitimate, pro-competitive purposes. And for one such purpose, there is no alternative: MIDT are the only source of data on the international air services market, and thus they are critical to carriers' route planning and development activities at an international level.

But for most other activities, there are alternative sources of data that carriers might be able to use. For example, in the United States, carriers have access to DOT's T-100 and DB-1A data, which provides much of the same information on passenger traffic. In Europe, there are extensive data sources as well.

US and European carriers have commented at length on recent DOT proposals (similar to those of DG TREN) to restrict sharing of some of the data on the MIDT. Although the carriers list the pro-competitive uses of the MIDT, it is telling that they consistently fail to specify which activities could not be carried out (or carried out as well) using other, existing data sources. The one exception is travel agent commission override programs, where the carriers make clear that the market share data that MIDT provide are critical. As discussed above, however, override programs detract from rather than promote competition.

But while there is reason to doubt large carriers' claim that MIDT are a boon to competition, one also must question whether restrictions on the use of MIDT would have the intended salutary effect. In particular, it is important to consider whether alternative sources exist for some or all of the controversial data. As we noted earlier, some US carriers are pressing their corporate customers to provide detailed, MIDT-like data. Travel agencies are yet another possible source of such data. Thus, if the EC prohibited the sharing of CRS data, carriers might begin buying it from large travel agencies.

Moreover, changing technology may make MIDT sharing less of a problem over time. As more and more travellers book their tickets directly, CRS vendors will become a less complete source of information.

Policy Options

Below, we compare three policy options that would limit the MIDT information that CRS vendors could make available. DG TREN's proposal to remove information on MIDT that would identify individual travel agents is one option (Option 1). The other two options would go further to restrict the sharing of MIDT.

¹⁰⁰ *Report on Travel Agent Commission Overrides*, 3.

Option 1: Require CRS vendors to remove information on MIDT that would identify individual travel agents

Pro

- Would make it harder for carriers to pressure travel agents to reduce rival bookings.
- Would make it difficult for carriers to implement travel agent commission overrides.

Con

- Carriers might be able to get some or much of the missing information from other sources.

Option 2: Prohibit CRS vendors from releasing data on any carrier that does not give its consent (“opt in”)

Pro

- Would make it more difficult for dominant carriers to challenge smaller rivals, thus improving climate for new entrants—an increasingly important consideration as large European carriers undergo consolidation.
- Some carriers that currently eschew CRS participation (*e.g.*, Ryanair) might participate if they could keep their booking data confidential.
- As with Option 1, the lack of comprehensive data would make it harder for carriers to implement commission override programs and pressure travel agents to reduce rival bookings.

Con

- MIDT might lose some of its value for pro-competitive purposes. But carriers have not identified a pro-competitive purpose for which MIDT are uniquely suited.
- Alternatively, in some markets, dominant carriers might be able to piece together the missing information.

Option 3: Prohibit sharing of MIDT on domestic markets altogether

Pro

- The clear danger of abuse of MIDT, coupled with carriers’ failure to identify a pro-competitive purpose for which MIDT are uniquely suited, suggests that this is an appropriate area for *ex ante* regulation. Precedent in other industries would appear to provide support.
- Would improve the climate for new entrants, which will be increasingly important as European carriers undergo consolidation.

- Would encourage CRS participation by some carriers that currently eschew it for confidentiality reasons.
- Would make it much more difficult for carriers to use commission override programs and to pressure travel agents to reduce rival bookings.

Con

- Carriers likely would be able to get some of the information from other sources (large travel agents, corporations).
- May not be a good use of the resources it would require to enforce prohibition, particularly if growing use of the Internet reduces value of MIDT.

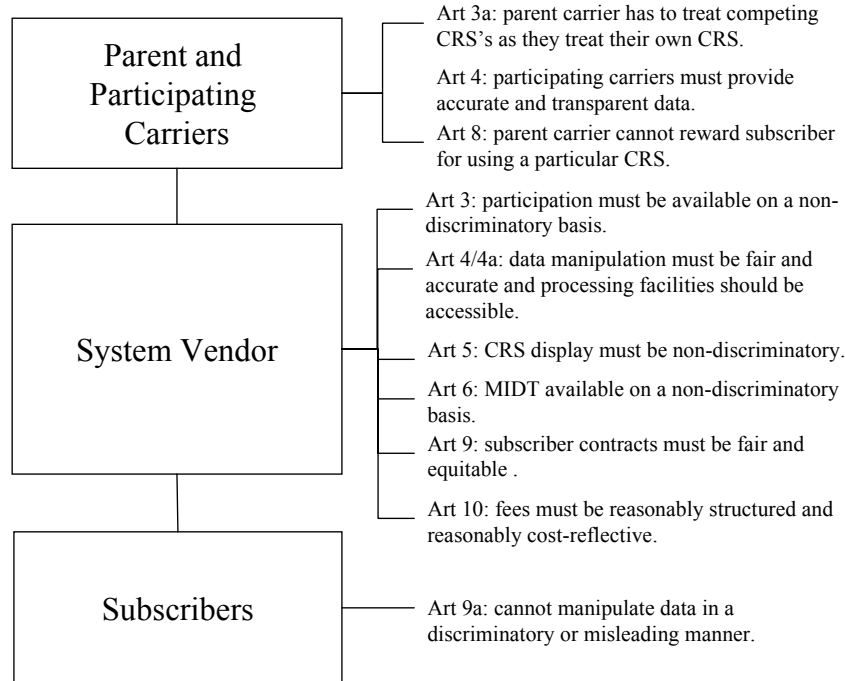
APPENDIX I: PROPOSED REVISIONS TO AND OVERVIEW OF CURRENT CRS CODE

This appendix 1) summarises the provisions in the current CRS Code of Conduct; and 2) review DG TREN’s proposed revisions to the Code in terms of whether they effectuate the stated goals.

Overview of the Current CRS Code

We summarise below the key articles of the current CRS regulation.¹⁰¹ Figure I.1 briefly lists the relevant CRS articles and the affected party. Each article is discussed in detail below.

**Figure Appendix I.1
Summary of CRS Code of Conduct**



Applicability of the CRS Regulation

Article 1: The regulation affects all CRSs, regardless of the status, nationality, source of information used, location of relevant data, and geographical location of the airports between which flights occur. Article 2 defines a CRS as a system containing information about air carriers’ schedules, fares, and availability, and that offers services to subscribers.

¹⁰¹ No. 2299/89 as amended by 3089/93 as amended by 323/99.

Parent Carrier Obligations: CRS Participation and Costs

Article 3a:

(1)(a) A parent carrier may not discriminate against a competing CRS by refusing to provide the competing CRS the same information on an equal basis. The parent carrier must accept and confirm only those bookings that are in conformity with its fares and conditions.

(1)(b) A parent carrier does not have to accept any costs associated with (1)(a) except for those costs associated with reproducing the required information. The booking fee payable to a CRS shall not exceed the fee charged by the same CRS to participating carriers for an equivalent transaction.

Parent Carrier Obligations: Commissions and Incentives

Article 8:

(1) A parent carrier shall neither directly or indirectly link the use of any specific CRS by a subscriber with the receipt of any commission or other incentive or disincentive for the sale of air transport products available on its flight.

(2) A parent carrier shall neither directly nor indirectly require use of any specific CRS by a subscriber for sale or issue of tickets for any air transport products provided either directly or indirectly by itself.

(3) Any condition which an air carrier may require of a travel agent when authorising it to sell and issue tickets for its air transport products shall be without prejudice to (1) and (2), above.

Participating Carrier Obligations

Article 4: Participating carriers and other data providers shall ensure that the data they provide is accurate and transparent and no less comprehensive than the data they provide for a competing CRS.

System Vendor Obligations: Participation

Article 3:

(2) A system vendor responsible for a CRS shall allow any air carrier to participate in its system on an equal and non-discriminatory basis.

(3)(a) A system vendor shall not: 1) attach unreasonable conditions to any contract with an air carrier, 2) attach supplementary conditions that have no connection with participation in the CRS, 3) vary conditions for the same level of service.

(3)(b) A system vendor shall not make it a condition of participation in its CRS that a carrier may not simultaneously participate in another CRS.

(4) A system vendor must offer information on and access to any improvements made for a particular carrier to all participating carriers on an equal timeline and at the same terms, excluding any technical constraints outside the control of the vendor.

System Vendor Obligations: Data Loading and Processing

Article 4:

(2) A system vendor shall not manipulate data that is provided by participating carriers and other data sources in a manner that would result in inaccurate or discriminatory information.

(3) A system vendor shall load and process data provided on an equal basis.

Article 4a:

(1) A system vendor shall offer all loading and processing facilities to parent and participating carriers without discrimination.

(3) A system vendor shall ensure that loading, processing, and distribution facilities are separated from any carrier's private inventory and management and marketing facilities.

System Vendor Obligations: CRS Display

Article 5:

(1)(a) CRS displays shall be clear and non-discriminatory,

(1)(b) A system vendor shall not intentionally or negligently display inaccurate information in its CRS.

(2)(a) A system vendor shall provide a principal display or displays for each individual transaction through its CRS that presents information in a clear, comprehensive, non-discriminatory manner, with particular regard to the order of the information.

(2)(b) A customer shall be entitled to request a principal display limited to scheduled or non-scheduled services only.

(2)(c) No discrimination on the basis of airports serving the same city shall occur when selecting flights for a given city-pair for inclusion in the principal display.

(2)(d) Ranking of flight options in a principal display must be in the following order unless requested otherwise: i) all non-stop direct flights between city-pairs concerned, ii) all other direct flights, not involving a change of aircraft or train, and iii) connecting flights.¹⁰²

(2)(e) Criteria used for ranking cannot be based on any factor directly or indirectly related to carrier identity and shall be applied on a non-discriminatory basis.

(3) Where a system vendor provides information on fares, the display shall be neutral and shall contain at least the fares provided for all flights of participating carriers. The source of the information shall be acceptable to the system vendor and participating carrier.

¹⁰² These criteria are specified in Annex I. Annex I also applies other rules for displaying flight information. These rules affect consumer's rights to particular display options as well as rules for handling situations where participating carriers have joint ventures or more than two carriers are involved.

(4) Information on bundled products regarding who is organising the tour, availability and prices, shall not be featured in the principal display.

System Vendor Obligations: Statistical Information

Article 6

(1)(a) Information concerning identifiable bookings shall be provided on an equal basis and only to the carrier or carriers and subscribers involved in the booking.

(1)(b) Marketing, booking and sales data: i) shall be offered with equal timeliness and on a non-discriminatory basis to all participating carriers, including parent carriers, ii) shall cover all participating carriers and/or subscribers but shall include no identification either directly or indirectly of personal information on a passenger or a corporate user, iii) all requests for such shall be treated with equal care and timeliness, iv) shall be made available both globally and selectively with regard to the market in which the participating carriers and subscribers operate, v) can be purchased by a group of airlines and/or subscribers for common processing.

(2) A system vendor shall not make personal information concerning a passenger available to others not involved in the transaction without the consent of the passenger.

System Vendor Obligations: Subscriber Contracts

Article 9: Requires system vendors to offer their distribution facilities on a non-discriminatory basis and prohibits exclusive contracts that would prevent a subscriber from subscribing to another CRS. Additionally, the subscriber contract ensures the subscriber's access to a principal display that conforms with this Regulation and prevents the subscriber from manipulating CRS information in a manner which would lead to inaccurate or discriminatory presentation to consumers. Finally, Article 9 prevents a system vendor from obligating a subscriber to accept technical equipment or software but allows a system vendor to require the chosen hardware and software to be compatible with its CRS.

System Vendor Obligations: Fees

Article 10: Any fees charged to a participating carrier by a system vendor shall be non-discriminatory, reasonably structured and reasonably related to the cost of the service provided and used. Fees shall be the same for the same level of service.

Subscriber Obligations

Article 9a: Prevents subscribers from manipulating the information provided by the CRS in a discriminatory or misleading manner and requires the subscriber to issue tickets in conformity with the information contained in the CRS. Annex II of this Regulation details additional requirements regarding subscribers' use of the CRS distribution system.

Other

Article 7: Waives system vendor obligations in respect of a parent carrier of a third country to the extent that its CRS outside the territory of the Community does not offer Community air carriers equivalent treatment to that provided by this Regulation. Additionally, it waives parent carrier obligations in respect of a CRS controlled by an air carrier(s) of one or more third countries to the extent that outside the territory of the Community the parent or participating

carrier(s) is not accorded equivalent treatment under this Regulation. Finally, Article 7 requires any party proposing to avail itself of particular provisions to contact the Commission.

Review of the DG TREN's Proposed Revisions to the CRS Code of Conduct

DG TREN Objectives

In its invitation to the industry-wide consultation meeting of 16 December 2002, DG TREN stated that its proposed revisions of the Code of Conduct were intended to accomplish the following technical objectives:

- Remove all provisions requiring non-discrimination among industry participants, including between system vendors and participating carriers, between system vendors and subscribers, and between parent carriers and system vendors;
- Remove information concerning travel agent identity from MIDT;
- Redefine the term “group” for the purposes of the sale and purchase of MIDT;
- Simplify the display bias requirements; and
- Simplify the requirements imposed on travel agents.

Norton Rose Evaluation of the Drafting of the Proposed Revisions to the Code

As part of its study undertaken in conjunction with *The Brattle Group*, Norton Rose was asked to review DG TREN's proposed revisions to the Code, to determine whether they effectuate the stated technical objectives, and whether there would be any unintended consequences of the proposed revisions as drafted.

On the basis of the background information available, an understanding of the stated technical objectives, and an analysis of the text of the proposed revisions themselves as of December 2002, and subject to the further comments contained below, *Norton Rose* is satisfied that the proposed revisions effectuate their stated objectives, and that no unintended or unforeseen consequences would flow from the proposed revisions. An analysis of the specific proposals follows below. Please note that this evaluation concerns the technical objectives of the proposed revisions, not the policy objectives. An evaluation of DG TREN's policy objectives is contained elsewhere in this report.

Analysis of DG TREN's Proposals

Norton Rose identifies 15 primary changes to the current Code as proposed by the DG TREN. They are examined in detail below.

1. Articles 3(2) and 3(3)(a): elimination of the phrases, “on an equal and non-discriminatory basis”, and “shall apply the same conditions for the same level of service”, in respect of the obligations of a CRS toward participating carriers. These changes effectuate the objective of removing from the Code all provisions imposing obligations of non-discrimination among industry participants, in these cases between CRSs and airlines.

2. Article 3(4): elimination of the obligation on CRSs to provide any improvements in services to all participating carriers on an equal basis. This change effectuates the objective of removing from the Code all provisions imposing obligations of non-discrimination among industry participants, in this case between CRSs and airlines.
3. Article 3a: elimination of article 3(a), which provides that parent carriers may not discriminate against competing CRSs. This change effectuates the objective of removing from the Code all provisions imposing obligations of non-discrimination among industry participants, in this case between airlines and CRSs.
4. Article 4(1): elimination of the phrase, “and no less comprehensive than for any other CRS . . .” in respect of the provision of airline information to CRSs. This change effectuates the objective of removing from the Code all provisions imposing obligations of non-discrimination among industry participants, in this case between airlines and CRSs.
5. Article 4a(1): elimination of the phrase, “loading and/or processing facilities provided by a system vendor (CRS) shall be offered to all parent and participating carriers without discrimination . . .” This change effectuates the objective of removing from the Code all provisions imposing obligations of non-discrimination among industry participants, in this case between CRSs and airlines.
6. Article 4a(3): elimination of the phrase, “on a non-discriminatory basis and shall provide equality of treatment in respect of procedures, protocols, inputs and outputs”, in respect of CRS provision of services to participating airlines. This change effectuates the objective of removing from the Code all provisions imposing obligations of non-discrimination among industry participants, in this case between CRSs and airlines.
7. Article 5(2)(d): addition of text concerning the ranking of flight options in principle displays, and elimination of the reference to Annex I. These changes simplify the display-ranking provisions of the Code, while maintaining the basic principles which govern display-ranking criteria.
8. Article 5(5): addition of text concerning the obligations of CRSs to provide display rankings sufficient to allow travel agents to be able to carry out their responsibilities under Article 9a. This addition ensures that travel agents will be able to comply with their neutral display obligations under the Code following the elimination of Annex I.
9. Articles 6(1)(b)(ii) and (iii): addition of text concerning the information available to purchasers of MIDT data, in particular, the prohibition of the sale of information concerning individual passengers, their corporate affiliation, and the identity of the travel agent. These changes protect personal, corporate and travel agent information from disclosure through the sale of MIDT data.
10. Articles 6(1)(b)(vi) and (vii): addition of text redefining a group of airlines that may jointly purchase MIDT data. These changes redefine groups of airlines that may jointly purchase MIDT data. In particular, where a concentration has deemed to arise between two or more airlines under the EC Merger Regulation and that concentration is subsequently declared compatible with the common market, those airlines may jointly purchase MIDT data.

It has been pointed out that concentrations among airlines may arise that should in principle be allowed to take advantage of this group purchasing provision, but that

nevertheless would not technically meet the jurisdictional thresholds of the EC Merger Regulation. It was suggested, therefore, that this provision should be broadened to cover such cases. *Norton Rose* therefore suggests the following language for Article 6(1)(a)(vii):

“where a concentration has been deemed to arise according to either the definition set out in Council Regulation (EEC) 4064/89, or the definitions contained in the national merger control laws of the relevant Member States, and where that concentration has been declared compatible with either the EC common market or the relevant Member State markets, the parties shall be permitted to purchase data jointly.”

11. Articles 9(1), (3) and (4): elimination of non-discrimination requirements imposed on CRSs in relation to travel agents, and the simplification of certain other conditions. These changes effectuate the objective of removing from the Code all provisions imposing obligations of non-discrimination among industry participants, in these cases between CRSs and travel agents.
12. Article 9a(2): elimination of the reference to Annex II.
13. Articles 10(1)(a) and (b), and Article 10(3): elimination of the non-discrimination requirements imposed on CRSs in relation to participating carriers. These changes effectuate the objective of removing from the Code all provisions imposing obligations of non-discrimination among industry participants, in these cases between CRSs and airlines.
14. Annex I: elimination of Annex I, concerning detailed display ranking criteria. The general principles underlying these criteria are preserved in Article 5 of the Code.
15. Annex II: elimination of Annex II, concerning certain obligations imposed on travel agents by the Code.

Further Observations

Norton Rose is satisfied that there are no instances where DG TREN would have been advised to propose further changes to the Code in order to effectuate its stated technical objectives, but failed to do so. *Norton Rose* is also satisfied that none of the proposed changes to the Code would result in unintended consequences beyond the stated technical objectives.

APPENDIX II: INTERVIEWS

As part of this study we interviewed officials from the following organizations:

Airlines: Air France, American Airlines, British Airways, British Midland Airways, Iberia, Lufthansa, Martinair, SAS, and Virgin Atlantic.

CRSs: Amadeus, Galileo, Sabre, and Worldspan.

Associations: Air Carrier Association of America (ACAA), Association of Asia Pacific Airlines (AAPA), Association of British Travel Agents (ABTA), Association of Corporate Travel Executives (ACTE), Association of European Airlines (AEA), European Travel Agents' and Tour Operators' Association (ECTAA), Guild of Business Travel Agents (GBTA), International Air Transport Association (IACA), and National Association of Independent Travel Agents (NAITA).

APPENDIX III: ANALYSIS OF CRS RETURNS ON EQUITY

Airlines routinely point to CRS profits as an indication that booking fees are “excessive”. Specifically, they cite returns on equity (ROEs), which for several CRS vendors have significantly exceeded stock returns on the FTSE 100 index. Likewise, several studies of air travel distribution have concluded that CRSs earn excessive profits, by comparing their ROEs to the average market and to returns for other industry players.¹⁰³

However, ROEs can seriously overstate profitability in industries characterised by high research and development (R&D) expenditures or large capital investments. That is so because balance sheets typically fail to reflect the financial risk borne by investors who must tolerate negative cash flows for several years before business in such industries mature.

In an effort to correct for this understatement of risk, we analysed returns on equity for Sabre. Applying alternative techniques to address the “bias” inherent in accounting measures of ROE, we conclude that Sabre’s actual returns have been reasonable. Although our analysis is limited to Sabre, it illustrates a general bias that likely affects the accounting returns of all CRSs.

Misleading Nature of Accounting ROEs

Richard Brealey and Stewart Myers, authors of the world’s best-selling corporate finance textbook, recognise that ROEs can seriously overstate profitability in industries that involve ongoing R&D costs or large capital investments.¹⁰⁴ In their textbook, Brealey and Myers argue that, in industries with large initial investments, accounting ROEs tend to be misleadingly low during the years that investments are made, and misleadingly high as businesses mature.

For example, the accounts of pharmaceutical companies tend to overstate ROEs because pharmaceutical companies typically treat R&D costs as an expense. However, from a business perspective, pharmaceutical R&D is an investment with a long useful life. To understand the profitability of such companies, it is illuminating to take the amount of equity on the balance sheet, and add a measure of the value of historical R&D. After doing so, the measured return on equity falls dramatically.¹⁰⁵

¹⁰³ See, e.g., OXERA and GPC International, *Economic and Political Analysis of Computer Reservation Systems*; and Global Aviation Associates, *The History and Outlook for Travel Distribution in the PC-Based Internet Environment*.

¹⁰⁴ See Richard Brealey and Stewart C. Myers, *Principles of Corporate Finance* (McGraw-Hill, 2000): 330-335.

¹⁰⁵ A natural instinct is to point out that expensing R&D, as opposed to capitalising it, will reduce a firm’s perceived income. Some observers question whether expensing R&D may depress income by a higher percentage than it depresses equity, possibly producing too low an ROE instead of a misleadingly high ROE. However, detailed analyses of pharmaceutical investments reject this hypothesis. Expensing R&D tends to understate equity by a much larger percentage than income, because equity should properly include capitalised R&D from many previous years, while the bias on reported income for a particular year only involves that year’s R&D. The net bias has been confirmed by Myers and Howe in the pharmaceutical industry. Stewart C. Myers and Christopher D. Howe, *A Life-Cycle Financial Model of Pharmaceutical R&D*, Massachusetts Institute of Technology (April 1997). In addition, Lapuerta and Myers have confirmed the net bias in a report on the credit card industry that was presented to the US Department of Justice. Carlos Lapuerta and Stewart C. Myers, *Measuring Profitability in the Credit Card Business* (January 1997).

Similarly, in businesses characterised by large capital investments, balance sheets fail to reflect the financial risk borne by investors who tolerate negative cash flows for several years before such businesses mature. Financial techniques permit us to quantify the cost of tolerating negative cash flows over an extended period of time. The measurement technique involves accumulating the cash flow losses over time, and applying the cost of capital to the outlays of each previous year. (The technical term for this technique is “rolling forward the cash flow losses at the cost of capital”.) This technique can easily produce a measure of investment costs that far exceeds the equity reported on a typical balance sheet.

Sabre’s “Book” Return

In this appendix, we analyse the accounting ROEs of Sabre, to determine whether the phenomenon that Brealey and Myers describe could explain the seemingly high returns on equity of CRS vendors. We attempt to measure the amount of intangible equity that is not reported on Sabre’s balance sheet, and the impact on Sabre’s ROE. We also measure the profitability of Sabre’s stock on the stock market, and the profitability that we would expect of Sabre under competitive conditions, given the risks of the business.

First, we calculate Sabre’s accounting ROE from 1997 through 2002, as shown in Table III.1. The annual return is determined as the ratio of net income to average equity for the year. The seven-year average is 21 percent. All calculations shown in Table III.1 derive from accounting data directly on Sabre’s annual balance sheets.

**Table Appendix III.1
Sabre’s ROE**

	BOY Equity (million)	Net Income (million)	Additional Equity Issued (million)	Dividends Paid (million)	Change in Treasury Stock (million)	EOY Equity (million)	ROE (%)
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
1997	570	188	2		-2	758	28%
1998	758	232	5		-40	954	27%
1999	954	331	8		-31	1,262	30%
2000	1,262	144	54	675	6	791	14%
2001	791	34	158		58	1,042	4%
2002	1,042	284	439		-57	1,709	21%
Average (1997-2002)	896	202	111			1086	21%

Notes and Sources:

- [1]: Sabre 10-K, Total Stockholders' Equity, Balance Sheet.
- [2]: Sabre 10-K, Difference between Retained Earnings, Balance Sheet.
- [3]: Sabre 10-K, Difference between Additional Paid-In Capital, Balance Sheet, 2002 data was available for 9 months and is multiplied by 12/9 to account for full year.
- [4]: Sabre 10-K, Statement of Cash Flows.
- [5]: Sabre 10-K, Difference between Treasury Stock, Balance Sheet.
- [6]: [1]+[2]+[3]-[4]+[5].
- [7]: [2]/([1]+[6])/2.

Internal Rate of Return on Sabre Stock

Next we examine the profitability of holding Sabre stock over an extended period. We look at Sabre stock on a company-wide basis, and examine the cash that stockowners as a whole either take out of the company as dividends, or plough into the company when new shares are issued. We measure the initial investment value of Sabre by reference to the total shares outstanding and the price of the stock at or near the initial public offering at the end of 1996 (the “market capitalisation”). The market price reflects the amount of value that shareholders dedicate to the business, since by holding on to stock, a shareholder voluntarily sacrifices the ability to “cash out” and deploy the resulting funds elsewhere.

Table III.2 summarises information on Sabre’s stock return for each year from 1997 through 2002. We calculate a return on the stock for each year, based on a) the appreciation or loss in stock value over the course of the year, and b) any cash that shareholders may have received or contributed to the company. Table III.2 shows two key components of the equity return over time: shareholders received one large dividend payment in 2000, and had mixed results with fluctuations in the price of the stock. In some years the share price went up, in some years it went down, but as of 2002, the total value of the stock was about \$700 million less than in 1997.

**Table Appendix III.2
Sabre’s Stock Returns**

	BOY Outstanding Shares (million)	BOY Price (\$)	BOY Market Cap (million)	EOY Outstand ing Shares (million)	EOY Price (\$)	EOY Market Cap (million)	Annual Market Cap Difference (million)	Additional Equity Issued (million)	Dividends Paid (million)	Change in Treasury Stock (million)	Total Return (million)
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
1997	131	28.00	3,662	131	28.88	3,779	118	2	0	-2	113
1998	131	29.06	3,803	131	44.50	5,833	2,030	5	0	-40	1,985
1999	131	44.50	5,833	131	51.25	6,733	900	8	0	-31	860
2000	131	51.06	6,708	132	43.12	5,676	-1,032	54	675	6	-405
2001	132	40.69	5,356	134	42.35	5,655	299	158	0	58	198
2002	134	41.50	5,541	143	18.11	2,584	-2,957	439	0	-57	-3,453
Total											-700

Notes and Sources:

[1]: Sabre 10-K, Total Stockholders' Equity, Balance Sheet.

[2]: Yahoo Historical Prices, First Day of January.

[3]: [1]x[2]

[4]: Sabre 10-K, Total Stockholders' Equity, Balance Sheet.

[5]: Yahoo Historical Prices, Last Day of December.

[6]: [4]x[5]

[7]: [6]-[3]

[8]: Sabre 10-K, Difference between Additional Paid-In Capital, Balance Sheet, 2002 data was available for 9 months and is multiplied by 12/9 to account for full year.

[9]: Sabre 10-K, Statement of Cash Flows.

[10]: Sabre 10-K, Difference between Treasury Stock, Balance Sheet.

[11]: [7]-[8]+[9]+[10]

Table III.3 shows our calculation of internal rate of return (IRR) over a five-year, six-year and seven-year period. The IRR is a standard financial calculation, which indicates the discount rate that would produce a zero net present value out of a time series of cash flows. We calculate the IRR using the 1997 market capitalisation as a negative cash outlay at the beginning of each period. This coincides with our description of the aggregate share value as an investment by shareholders, who held shares in the company when they could have cashed out and deployed their funds elsewhere. The IRR tells us the percentage return on investment that these investors received in exchange for holding on to the stock. The cash flows in each year of our calculation are the dividends received minus the value of any additional sums that shareholders contributed to the company when new shares were issued. At the end of the relevant period we also treat the

aggregate value of the stock as a positive cash flow: it is what shareholders could anticipate if they cashed out at the end of our reference investment period.

Table III.3 shows that the highest IRR was 11 percent, which is what an investor would have realised by cashing out of the stock in 2000. Looking at longer investment periods only depresses the IRR calculation, because the stock has since performed poorly.

**Table Appendix III.3
Sabre's IRR**

	Hypothetical Investment & Cash Flow		Hypothetical Investment Cash Flow		Hypothetical 6-Year Investment Cash Flow		Hypothetical 5-Year Investment Cash Flow	
	[1]	[2]	[3]	[4]	[5]	[6]		
	-3,662	-3%	-3,662	11%	-3,662	11%		
1997	-4		-4		-4			
1998	-46		-46		-46			
1999	-39		-39		-39			
2000	627		627		627			
2001	-100		5,655					
2002	2,584							

Notes and Sources:

[1]: Cash flows assuming initial investment equals 1997 BOY Market Cap and Cash Flows equal to dividends minus additional equity issued plus change in treasury stock.

[2]: IRR of 1997-2002 Cash Flows.

[3]: See [1].

[4]: IRR of 1997-2001 Cash Flows.

[5]: See [1].

[6]: IRR of 1997-2000 Cash Flows.

Sabre's Cost of Equity

Table III.3 suggests that Sabre's true return on investment is much less than the average 21 percent indicated by its ROE. However, an important question remains: What return would be reasonable for a company like Sabre? In Table III.4 we calculate a reasonable return for Sabre using a standard financial technique, the capital asset pricing model, which focuses on the risk of its business relative to the risk of the average publicly traded stock.¹⁰⁶ Our answer: a return of about 15 percent, higher than the IRRs derived above, would be reasonable. Thus, our analysis indicates that the return on Sabre's stock has not been excessive.

¹⁰⁶ For a detailed description of the capital asset pricing model, see Brealey and Myers, *Principles of Corporate Finance*, 195.

**Table Appendix III.4
Sabre's Cost of Capital**

1991 Risk-free Rate	[1]	5.5%
1992 Risk-free Rate	[2]	3.5%
1993 Risk-free Rate	[3]	3.1%
1994 Risk-free Rate	[4]	4.4%
1995 Risk-free Rate	[5]	5.7%
1996 Risk-free Rate	[6]	5.2%
Market Premium	[7]	7.0%
Sabre's Beta	[8]	1.5
1991 After-tax Cost of Equity	[9]	16%
1992 After-tax Cost of Equity	[10]	14%
1993 After-tax Cost of Equity	[11]	14%
1994 After-tax Cost of Equity	[12]	15%
1995 After-tax Cost of Equity	[13]	16%
1996 After-tax Cost of Equity	[14]	16%
Average Cost of Equity	[15]	15%

Notes and Sources:

[1]-[6]: 3-month bond rate, Federal Reserve Historical Rates.

[7]: Richard Brealey and Stewart C. Myers, *Principles of Corporate Finance*, 6th ed., Irwin/McGraw-Hill Book Co. (2000): 160.

[8]: Bloomberg.

[9]-[14]: [8]x[7]+[1] The calculation is repeated for [2]-[5].

[15]: Average of [9]-[14].

One potential criticism of our results is that Sabre's share price in 1997 reflected investor anticipations of monopoly profits. If so, perhaps the return on shares is artificially depressed because the initial share price was so high. To evaluate this criticism, we return to the ROE calculation and ask the following two questions:

1. How much intangible equity investment would have to be "missing" from the balance sheet before one would conclude that the true ROE is reasonable? By "reasonable", we mean something in the neighbourhood of 15 percent, as indicated in Table III.4.
2. Is it reasonable to believe that the balance sheet is understating the true intangible equity investment in Sabre by this amount or more?

Our answers are as follows:

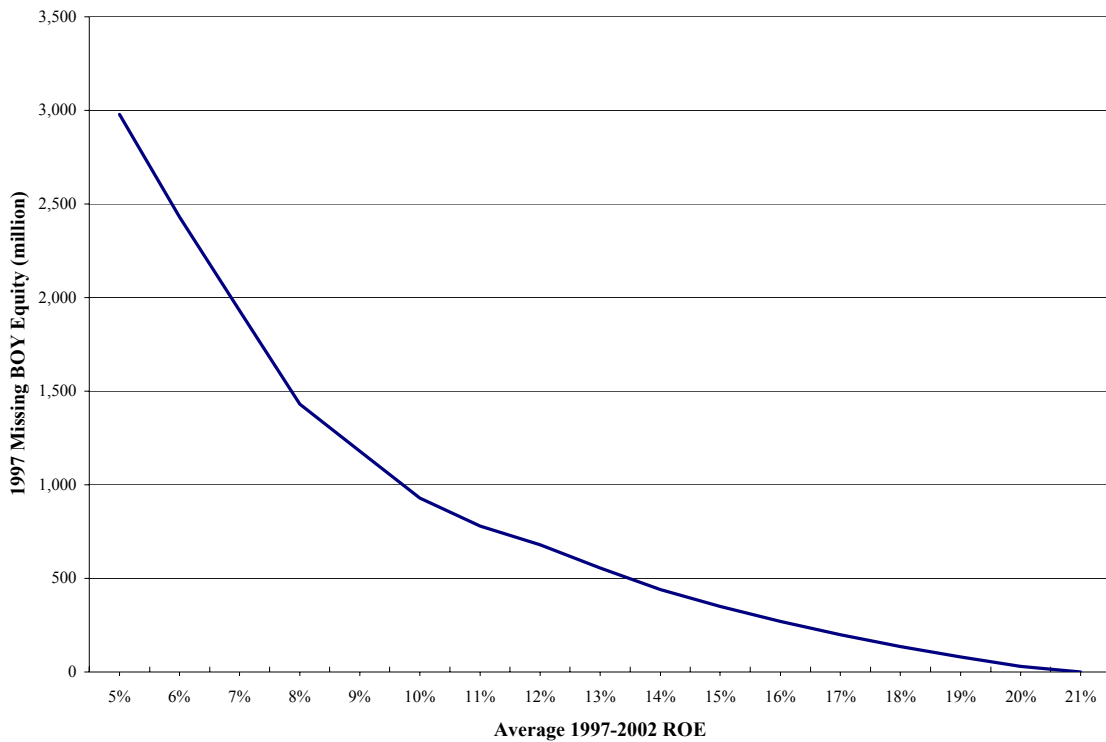
1. The balance sheet would have to be missing only about \$350 million in intangible equity investment, in order to conclude that the true return is about 15 percent. Sabre's accounts showed total equity of about \$600 million at the beginning of 1997. We note that in most industries, where no questions of monopoly profits arise, the competitive market value of equity tends to exceed the book value by a much higher ratio.¹⁰⁷

¹⁰⁷ The figures of \$350 million "missing equity" and \$600 million book equity imply a "price-to-book" ratio of 1.6, calculated as $(\$600 + \$350)/\$600$, while a ratio of 2.5 or higher is more typical. As of January 2003, the S&P 500 Index had a price to book ratio of 2.59.

2. Prior to Sabre’s IPO, American Airlines ploughed large amounts of cash into the company. At the time of the IPO, Sabre owed American Airlines a debenture payment of \$850 million. According to Sabre, “the fair market value of such businesses [Sabre] is at least equal to the Debenture”.¹⁰⁸ We therefore conclude that \$350 million is not an unreasonable estimate for the amount of intangible equity investment “missing” from Sabre’s 1996 balance sheet.

Figure III.1 shows how different assumptions concerning the amount of intangible equity investment missing from the 1997 balance sheet yield different ROE calculations. Most importantly, Figure III.1 shows that it only takes a small amount of missing equity to reduce the book return of 21 percent to 15 percent.

Figure III.1
1997 Equity vs. ROE



¹⁰⁸ Sabre’s 1996 S1-A, Amendment No. 4, “Use of Proceeds”, 18.

Table III.5 summarises our calculations and highlights the misleading nature of Sabre’s accounting ROEs.

**Table Appendix III.5
Summary of Calculations**

	10-K ROE	1997-2002 Year IRR	1997-2001 Year IRR	1997-2000 Year IRR	Sabre CoC
	[1]	[2]	[3]	[4]	[5]
1997	28%	-3%	11%	11%	
1998	27%				
1999	30%				
2000	14%				
2001	4%				
2002	21%				
Average	21%	-3%	11%	11%	15%

Summary

We used different financial techniques to correct for the natural “bias” in Sabre’s accounting ROEs. These techniques all indicate that Sabre’s actual returns have been reasonable. Although we limited our analysis to Sabre, the analysis points up a general bias that likely affects the accounting returns of all of the CRSs.

Our analysis of Sabre returns is not definitive by any means. For example, it cannot detect whether Sabre is using profits from its CRS business to subsidise other lines of business. But our analysis suffices to raise questions about claims that aggregate CRS equity returns are necessarily excessive.

APPENDIX IV: PROFESSOR MARK ARMSTRONG'S MODEL OF INDUSTRY PAYMENT FLOWS

Professor Mark Armstrong of Oxford University is an expert in two-sided markets, and has advanced a widely accepted economic theory describing competition in the mobile phone and newspaper markets, among others. Below, Professor Armstrong develops a formal economic model of the payment flows in the air travel distribution industry. Professor Armstrong uses his model to analyse the impact of CRS market power over airlines.

First, Professor Armstrong presents a “benchmark model” that assumes perfect competition between CRSs and between travel agencies but imperfect competition between airlines. Additionally, Professor Armstrong assumes that consumers are perfectly informed about the deals offered by travel agencies, implying zero search costs. In the “benchmark model” CRSs cause no distortion in the market, even if each travel agency relies on only one CRS. Payments between airlines, CRSs, and travel agencies are competed down to cost and the final ticket price is determined by the oligopolistic interaction between airlines. The commissions paid by airlines to travel agencies “unravel” any attempt by CRSs to attract travel agencies through lower subscription fees (or higher incentive payments).

Professor Armstrong then expands his “benchmark model” to consider the cases where 1) each travel agency holds a monopoly over its consumers; 2) travel agencies compete imperfectly; and 3) airlines compete imperfectly, as do travel agencies. In each of these cases, Professor Armstrong concludes that there is a strong argument for regulation from the perspective of consumer welfare.

Professor Armstrong's Benchmark Model

There are four layers of market participants: airlines, computerised reservation systems (CRSs), travel agents, and final consumers. Assume that CRSs are essential for supplying tickets to customers. The cost to an airline of providing one ticket is c_1 , the cost to a CRS when linking airlines to travel agents is c_2 per ticket sold, and the cost for a travel agent selling a ticket to a consumer is c_3 .

Assume there is imperfect competition between airlines (perhaps due to consumer preferences over departure times, and so on), but there is perfect competition between CRSs and perfect competition between travel agents. In particular, suppose consumers are perfectly informed about the deals offered by the various travel agents, which implies that consumers have zero search costs. Then there is no consumer “loyalty” to a particular travel agent, and airlines do not need to worry about gaining access to any travel agent's “captive consumers”.

In this model, imagine that market participants act in the following order:

1. CRSs move first, with a CRS setting a charge α to airlines and a charge β to travel agents per booking.
2. Travel agents then select a CRS.
3. Next, airlines set their final ticket prices and select travel agents (and associated CRSs). Airlines might offer commissions to these travel agents.
4. Finally, consumers choose which travel agent to use and which airline to use.

The fact that CRSs are perfectly homogenous and competitive means that their combined per-transaction charge $\alpha + \beta$ will be driven down to their cost, c_2 . Conceptually, we can think that any combination of charges (α, β) such that $\alpha + \beta = c_2$ is available as an option to travel agents.

Assume that direct payments, or “commissions”, between airlines and travel agents are possible. If a travel agent deals with a CRS with a specific contract (α, β) (where $\alpha + \beta = c_2$), then the airlines would pay a commission $\beta + c_3$ to this travel agent when it sells one of its tickets. This implies that the travel agent’s total costs are just covered. If a travel agent refuses to sell a ticket under this arrangement, then an airline will use another travel agent. (In this benchmark model, airlines view one travel agent as a perfect substitute for another.) The total costs for an airline of supplying a ticket to a consumer is therefore $c_1 + P + c_3 = c_1 + c_2 + c_3$. The equilibrium price(s) offered by airlines will then be determined by the oligopolistic interaction between the airlines, based on the actual total cost of providing tickets to consumers.

Conclusion: In this framework, CRSs cause no distortion in the market, even if each travel agent deals with only a single CRS. In particular, there is no benefit in controlling the charge α that airlines pay to CRSs. The equilibrium balance between CRS charges to airlines and CRS charges to travel agents is indeterminate in this model, and only the aggregate charge matters (and this aggregate charge is competed down to cost). Thus the balance of charges offered by CRSs is “neutral” to the outcome, and this feature is reminiscent of theoretical models of credit card markets (when there is no “no surcharge” rule imposed by credit card networks on merchants).¹⁰⁹

Note: The use of commissions from airlines to travel agents acts to “unravel” any attempt by CRSs to attract travel agents by offering travel agents a low charge β . If direct payments from airlines to CRSs are not allowed, then the equilibrium is straightforward. The equilibrium CRS charge to travel agents would be negative and the subsidy would just cover the latter’s cost, c_3 . The charge to airlines would then just cover the CRSs’ costs (including payments to travel agents). In sum:

$$\alpha = c_2 + c_3; -\beta = c_3 \quad (1)$$

The net outcome is the same as when commissions are used.

Simple Numerical Example of the Benchmark Model

The following example illustrates the equilibrium that would occur given the assumptions in Professor Armstrong’s benchmark model.

1. Competitive forces in the travel agency business are such that a travel agent must earn a fixed amount per transaction (*i.e.*, Total Distribution Revenue) equal to, say, 5.¹¹⁰

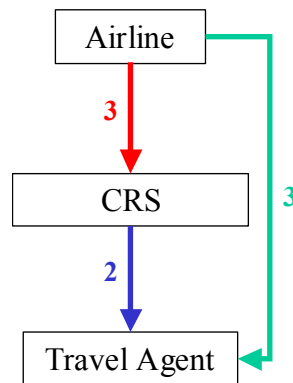
¹⁰⁹ For instance, see Jean Charles Rochet and Jean Tirole, “Cooperation Among Competitors: Some Economics of Payment Card Associates,” *Rand Journal of Economics*, 33(4) (2000): 549-570.

¹¹⁰ We can think of X as being the travel agent’s average cost plus some mark-up reflecting the degree of competition among agents. If the business is highly competitive, as we assume in the benchmark model, X will equal the travel agent’s average cost. That is, agents will earn just enough, including a return on capital employed, to stay in business.

As noted above, an agent does not care how much of this revenue comes from commissions versus productivity payments.

2. Suppose that, for each transaction, CRSs charge a booking fee of 3, and have operating costs of 1. Because CRSs compete vigorously to recruit/retain travel agents, CRSs will pass on their excess earnings of 2 per transaction to travel agents
3. Thus, to get its required Total Distribution Revenue of 5 per transaction, the travel agent must receive another $5 - 2 = 3$ from the airline, as shown in Figure IV.1.

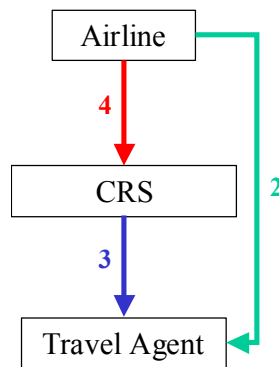
Figure Appendix IV.1
Example of Circularity (Initial Scenario)



Below we describe the effect on this scenario of an increase in the CRS booking fee:

1. Suppose that the CRS raises its booking fee to 4.
2. Because of the vigorous competition among CRSs for travel agents, the CRS will use the additional 1 to win more travel agents. Thus, the CRS will raise its incentive payments from 2 to 3.
3. The travel agent now receives Total Distribution Revenues of 6, which is 1 more than it requires under the competitive conditions in its industry.
4. Observing this change, airlines recognize that travel agents can now provide the same service for a lower commission; thus, (imperfect) competition among carriers drives travel agent commissions from 3 down to 2. Alternatively, travel agents compete more aggressively for airlines' business by offering to accept lower commissions. In either case, all parties are left in the same position as before, as shown in Figure IV.2. CRSs still just cover their operating costs, airlines pay the same Total Distribution Cost, and travel agents receive the same Total Distribution Revenue.

Figure Appendix IV.2
Example of Circularity (Revised Scenario)



In sum, this simple example of a two-sided market shows that the components of an airline’s distribution costs are not independent. Because the CRS acts as an intermediary between carriers and travel agents, carrier payments to CRSs and agents exhibit circularity. Thus, even if CRSs raise booking fees to supra-competitive levels, competition among CRS vendors to recruit/retain travel agents (as well as competition among agents for passengers) will dissipate or “negate” excess CRS profits.

Stated differently, despite the ability of CRSs to exploit monopoly power over airlines, competition on the other side of the two-sided market ensures that payments between airlines, CRSs and travel agencies equal underlying costs. Thus an increase in booking fees has no effect on prices paid by final consumers.¹¹¹ Nor does it harm airlines.

Model with “Lazy” Consumers

The first alternative model considered by Professor Armstrong is an extreme model where each consumer randomly buys a ticket from a single travel agent as long as the ticket sale leaves the customer with some surplus. Thus, the costs of searching for a second fare quote are assumed to be prohibitive. In effect, each travel agency holds a monopoly over the consumers who come to it. For simplicity, suppose now that the airline market is perfectly competitive, and any ticket gives the same surplus v to all consumers. Suppose that each consumer wants exactly one ticket and that $v > c_1 + c_2 + c_3$.

If there are η travel agents, then each travel agent has a fraction $1/\eta$ of the consumers, all of whom are “captive” to that travel agent.¹¹² Recall that airlines, not travel agents, set the ticket price to consumers. Suppose that each travel agent deals with a single CRS, the CRS that delivers the agent the highest profits. Market participants again act in the same order as described above. As with the previous model, the use of commissions plays no real role in the outcome (although their use might render any attempt to regulate CRS charges meaningless), and so we assume that there are no direct payments from airlines to travel agents.

¹¹¹ In this model, the final ticket price would be determined by the imperfect competition (“oligopolistic interaction”) among airlines.

¹¹² It would be straightforward to extend this model to allow for free entry for travel agents.

One might imagine that it is an issue whether or not it is more profitable for a CRS to deal with a single airline (which then has a monopoly on the CRS and can charge high ticket prices) or to have several airlines on its system (who then compete prices down to their net costs). However, a CRS can achieve the same result under either scenario by means of its charge α . To see this, suppose that a CRS decided to give access to its system to a single airline. Since there is then no competition between airlines on the system, the ticket price will be at the maximum level $\rho = v$, and the CRS can therefore set the high charge $\alpha = v - c_1$ to extract the monopoly profit. On the other hand, if it has several airlines on its system, and charges these airlines α per ticket sale, the ticket price will be competed down to $c_1 + \alpha$. By choosing $\alpha = v - c_1$ the CRS can implement the monopoly price and extract the monopoly profit, even when there are competing airlines on the system.

In either case, we see that the CRS sets the airlines charge $\alpha = v - c_1$ and the resulting retail ticket price is the monopoly price $v = \rho$. Competition between CRSs for travel agents implies that CRSs just break even, and so:

$$\alpha = v - c_1 ; -\beta = v - (c_1 + c_2) \quad (2)$$

Therefore, compared to expression (1), we see that the booking fee for airlines is increased and the corresponding subsidy to travel agents has also increased.

Conclusion: The prediction is that CRSs will offer travel agents a subsidy over-and-above the costs they incur. Of course, travel agents make profits in this framework since they have market power. Airline ticket prices are at the monopoly level, although the monopoly profit is extracted from airlines by travel agents via the CRSs. This causes no deadweight losses in this “unit demand” model, but there would be welfare losses if consumers had elastic demand (*i.e.*, if they purchased more tickets, or were more likely to purchase a ticket, if the ticket price were lower). From the point of view of the customer welfare, there is a clear rationale for policy intervention in this model, to counteract market power of travel agents. Specifically, if regulation reduced the CRS airline charge from $a = v - c_1$ to $a = c_2 + c_3$ then the retail price of a ticket would be reduced to the level of total cost ($c_1 + c_2 + c_3$). However, the effect of this regulation would be undone if direct payments from airlines to travel agents were allowed (a travel agent would simply demand a high payment from an airline for access to its captive customers).

Imperfect Competition Between Travel Agents

The previous model was extreme because it assumed that travel agents were monopolies. One way to soften this assumption is to assume that only a fraction of consumers are lazy and the remaining consumers are perfectly informed.¹¹³ An alternative approach is to assume a degree of product differentiation between travel agents, so that each travel agent has consumers who are, to some degree, “loyal” to it.

In this section, we modify the previous model using the second approach. In particular, the airline sector is assumed to be perfectly competitive—all tickets are viewed as perfect substitutes by consumers—and there are no direct payments from airlines to travel agents. There are two travel agents, *A* and *B*, located at the ends of a unit interval. Consumers are uniformly

¹¹³ For example, see Hal Varian, “A Model of Sales,” *American Economic Review*, 70 (1980): 651-659. A model such as Varian’s could be extended to investigate this case.

located along this line, with a per-unit transport cost t . If the price of a ticket from travel agent i is P^i , then i will attract a share of consumers.

$$1/2 + (P^j - P^i)/2t$$

If the agent's CRS charges airlines a fee α^i per booking, the equilibrium ticket price at travel agent i will be $P^i = c_1 + \alpha^i$. Competition between CRSs implies that all CRS profits are offered to travel agents (*i.e.*, that the travel agent charge is $\beta^i = c_2 - \alpha^i$). Given the CRS contract chosen by the rival travel agent, it follows that the profits of travel agent i will be

$$\Pi^i = [1/2 + (P^j - P^i)/2t] (-\beta^i - c_2) = [1/2 + (\alpha^j - \alpha^i)/2t] (\alpha^i - c_2 - c_3)$$

The symmetric equilibrium choice of airline booking fee, α , and subsidy paid to a travel agent, $-\beta$, is then given by

$$\alpha = c_2 + c_3 + t; -\beta = c_3 + t \quad (3)$$

Thus, a travel agent is given a subsidy of t over-and-above the agent's direct cost of operation, c_3 . The equilibrium retail price for tickets is

$$\rho = c_1 + c_2 + c_3 + t \quad (4)$$

which is above the associated cost. There is then some rationale for public intervention in the CRS market: if α were reduced from $c_2 + c_3 + t$ to $c_2 + c_3$ then the price of tickets would come down to the associated cost.

Just as with the previous model with monopoly travel agents, the fact that airlines choose the retail price for their tickets implies that the travel agents cannot exploit their market power directly. Rather, CRSs offer travel agents the service of "softening competition" between airlines by imposing a high transactions charge α on ticket costs, and then passing the resulting profit over to travel agents.

Note: Regulation that imposes "non-discrimination" rules on airlines is likely to have perverse effects in this model. For instance, suppose that public policy requires an airline, if it deals with any CRS at all, to offer its tickets on all CRSs and to set the same ticket price on each CRS. The effect of this regulation is to stop any competition between travel agents (since ticket prices are the same at all travel agents), and so a travel agent will not suffer any loss of market share if it chooses a CRS that requires a high charge from airlines. The equilibrium outcome could be for all CRSs to set a very high charge to airlines that implement the monopoly airline price: $\alpha = v - c_1$. (If one CRS sets an even higher charge then airlines would not be able to break even, and the market would simply shut down. This is not in the interests of the CRSs.) The outcome is then the same as in the previous model with lazy consumers, except that the monopoly power of travel agents is here a result of regulation. The effect of the non-discrimination

regulation is that airlines must base their ticket prices on the *average* charge levied by CRSs. This has the effect of drastically reducing an individual CRS’s elasticity of demand by airlines, and so greatly boosts a CRS’s incentive to raise its charges.¹¹⁴

Imperfect Competition Between Travel Agents and Between Airlines

The previous model can be modified to allow for imperfect competition between travel agents and between airlines. As before, there are two travel agents, *A* and *B*, on the unit interval, and consumers face per-unit-of-distance transport cost *t* for travel to the travel agents. There are now two airlines, 1 and 2, also on a unit interval, and consumers face a per-unit-of-distance transport cost *s* for “travel” to an airline. Assuming a customer has preferences defined by the pair of locations (*x*, *y*), a consumer’s utility if he buys a ticket from airline 1 from travel agent *A* at price P_1^A is

$$u = v - xt - ys - P_1^A$$

(and similarly for the other three configurations). If P_j^i is a price of a ticket from airline *j* at travel agent *i*, then the set of consumers who buy the four options is illustrated in Figure IV.3.

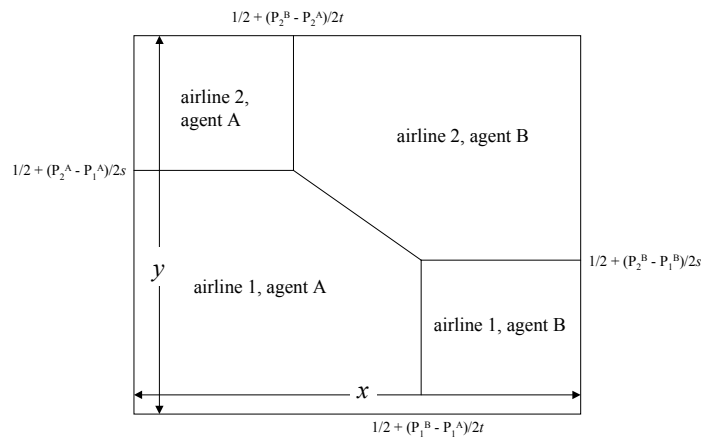
Figure IV.3 illustrates the case:

$$P_2^B - P_1^B \leq P_2^A - P_1^A;$$

The reverse configuration is also easily derived.

Figure IV.3
Purchase Decisions When

$$P_2^B - P_1^B \leq P_2^A - P_1^A$$



¹¹⁴ Joshua S. Gans and Stephen P. King analyse a similar effect in the context of mobile telephony. Gans and King, “Mobile Network Competition, Customer Ignorance and Fixed-to-Mobile Call Prices,” *Information Economics and Policy*, 12(4) (2000): 301-328. Specifically, the authors consider what happens when the price for calling a subscriber depends on the average termination charged levied by mobile networks.

Suppose that travel agent i 's CRS requires a booking fee α^i from each airline. (We suppose that a given CRS does not discriminate between airlines in its booking fee.) Each airline's cost of supplying a ticket via travel agent i is therefore $c_1 + \alpha^i$. For simplicity, denote this total cost by $C^i = c_1 + \alpha^i$. Given the (possibly different) booking fees on the two CRSs, we need to derive the airlines' equilibrium ticket prices at the two travel agents. Even though there are different booking fees at the two CRSs, the two airlines are symmetrically placed, and the equilibrium prices at each travel agent will be the same for the two airlines. Suppose, given C^A and C^B , that the equilibrium ticket prices offered by airlines at the two travel agents are P^A and P^B . Assuming that consumers are uniformly distributed on the unit square, using Figure IV.3 one can show that the first-order effect on one airline's profits from increasing its ticket price at agent B by ε is:

$$\begin{array}{c}
 - \varepsilon/2s[1/2 + (P^A - P^B)/2t] (P^B - C^B) - \varepsilon/4t[(P^B - C^B) - (P^A - C^A)] + \varepsilon/2[1/2 + (P^A - P^B)/2t] \\
 \underbrace{\hspace{10em}}_{\text{lost business to rival airline}} \quad \underbrace{\hspace{10em}}_{\text{cannibalisation effect}} \quad \underbrace{\hspace{10em}}_{\text{boost to profits on sales at agent B}}
 \end{array}$$

(The first term in the above equation is the profit lost when consumers using travel agent B decide to switch to the rival airline. The second term is the profit lost when consumers change travel agents but continue to buy the same airline's ticket, a "cannibalisation" effect. The third term is the extra revenue the airline gets when customers continue buy its ticket from travel agent B.)

Similarly, if the airline reduces its price at agent A by ε , the effect on its profit is:

$$\varepsilon/2s[1/2 + (P^B - P^A)/2t] (P^A - C^A) + \varepsilon/4t[(P^A - C^A) - (P^B - C^B)] - \varepsilon/2[1/2 + (P^B - P^A)/2t]$$

For the prices P^A and P^B to be an equilibrium, the two terms above must be equal to zero, *i.e.*,

$$\begin{aligned}
 [1/2 + (P^A - P^B)/2t][1 - (P^B - C^B)/s] - 1/2t[(P^B - C^B) - (P^A - C^A)] &= 0 ; \\
 [1/2 + (P^B - P^A)/2t][1 - (P^A - C^A)/s] - 1/2t[(P^A - C^A) - (P^B - C^B)] &= 0
 \end{aligned}$$

A solution to this pair of equations is surprisingly simple:¹¹⁵

$$P^A = C^A + s; \quad P^B = C^B + s$$

The airline charges the increase s above their total cost at both outlets. (When the increase is the same at the two travel agents, then there is no relevant "cannibalisation" effect, since airlines are indifferent about which outlet their tickets are sold through. This means that, at the margin, airlines treat the two outlets as "independent markets", and so we derive the usual formula for equilibrium prices in Hotelling models.)

¹¹⁵ This result is closely related to the "efficient two-part tariffs" result (Proposition 5) in Mark Armstrong and John Vickers, "Competitive Price Discrimination," *Rand Journal of Economics*, 32(4) (2001): 579-605.

The equilibrium number of consumers at travel agent i is then given by

$$1/2 + (P^j - P^i)/2t = 1/2 + (C^j - C^i)/2t$$

Since competition between CRSs implies that their profits are passed over to the travel agents, so that $\beta^i = c_2 - a_i$, it follows that the profit of travel agent i , given the CRS contract chosen by travel agent j , is:

$$\Pi^i = [1/2 + (C^j - C^i)/2t] (-\beta^i - c_3) = [1/2 + (\alpha^j - \alpha^i)/2t] (\alpha^i - c_2 - c_3)$$

It follows that the equilibrium choice of booking fee and subsidy paid to travel agents is exactly as in expression (3) above:

$$\alpha = c_2 + c_3 + t ; -\beta = c_3 + t.$$

Thus, the introduction of market power in the airline segment has no effect on the equilibrium CRS charges in this model. The equilibrium ticket price is:

$$P = c_1 + c_2 + c_3 + t + s$$

This is higher than in expression (4) since there are now two sources of market power, arranged in a vertical chain. Again, there is a public policy rationale for intervention; tickets are above the associated cost, and a reduction in α would result in a lower ticket price. However, the model predicts that, in equilibrium, airlines would not benefit from a reduction in α , since they are able to increase their prices by s over their total cost.

APPENDIX V: “UNBUNDLING” VERTICAL INTEGRATION IN THE AIR TRAVEL DISTRIBUTION INDUSTRY

Introduction

Vertical integration in the airline distribution industry remains a topical issue from a competition law and economic policy perspective, despite the fact that three of the four major CRS systems have now been wholly divested by their former parent carriers. For example, the Amadeus CRS remains majority-owned and controlled by its airline-owners Lufthansa, Air France and Iberia, and is further integrated into the airline distribution chain, with a 16.7 per cent equity stake in European online travel agency Opodo, which itself is owned by a consortium of major European airlines, including Lufthansa, Air France and Iberia.

In the course of our interactions with the Commission and various industry participants, the authors of this report have discussed a wide range of measures which would attempt to sever or at least weaken the vertical links in the airline distribution chain as described, in part, above.

The dynamics of this vertical integration, the current and proposed regulatory environment, and the resulting impacts on the CRS, airline and travel agency markets are examined in detail in the main body of this report. In addition, the authors of this report consider that it would be useful to compile in a single, supplemental narrative, the full range of measures that have been discussed which would sever or weaken the vertical links in the airline distribution chain, also referred to as “unbundling” measures. These range from relatively mild behavioural measures that would not actually require any structural unbundling on the part of the regulated entities, such as voluntary commitments not to abuse vertical integration in the air transport and CRS markets and simple disclosure requirements, to more severe structural measures which would require the partial dismantling of vertically integrated entities.

This narrative begins by introducing the concept of unbundling, primarily in the context of the electricity and gas industries. Although the electricity and gas industries provide particularly clear examples of nearly the full range of possible unbundling measures, it is important to note at the outset that unbundling measures already form a part of EC regulation of the airline distribution industry. As discussed more fully below, the current EC CRS Code of Conduct (the “Code”) requires the legal separation of a CRS system from its parent airline or airlines. This form of “legal” unbundling is an important part of the current Code, and is expected to be retained and even enhanced in the proposed Code reforms.

EC Precedents for “Unbundling”

Four types of “unbundling” of vertically integrated entities are common in EC law: accounting unbundling; management unbundling; legal unbundling; and ownership unbundling. These are examined below in the context of the electricity and gas industries.

Traditionally, the electricity and gas industries have been characterised by public ownership, vertically integrated companies, public monopolies and exclusive rights. In order to open the EC electricity and gas markets, the Electricity Directive¹¹⁶ was adopted in 1996 and the

¹¹⁶ Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity.

Gas Directive¹¹⁷ in 1998. These Directives aim to stimulate a gradual liberalisation of these markets, and to “*unbundle*” the generation, transmission and distribution activities of an integrated electricity/gas¹¹⁸ undertaking.

Accounting Unbundling

The Commission Electricity Directive requires separate accounting for the generation, transmission and distribution activities of an integrated electricity undertaking, as they would be required to do if the activities in question were carried out by separate undertakings. This provision is supplemented by giving the competent authorities the right to access to companies’ internal accounts.

The effect of such accounting unbundling measures is to make transparent the financial relationship of each of the separate activities undertaken by an integrated undertaking, and thereby discourage cross-subsidisation and discrimination that might otherwise pass undetected or occur even inadvertently absent the requirement of separate accounts for each function/activity.

Management Unbundling

The initial Commission proposal for the Electricity Directive would have required separate management units to be established for the various activities undertaken by an integrated electricity undertaking, *i.e.*, electricity generation, transmission and distribution. No cross over or sharing of management responsibilities would be permitted. Although this proposal was not ultimately implemented, certain forms of management unbundling did make their way into the final directive. With regard to transmission, Member States can choose a single buyer who is responsible for the unified management of a transmission system and/or for centralised electricity purchasing and selling. However, if the single buyer is a vertically integrated electricity undertaking or part of a vertically integrated electricity undertaking, it must operate separately from the generation and distribution activities of the integrated undertaking. Moreover, the Member States must ensure that there is no flow of information between the single buyer activities of vertically integrated electricity undertakings and their generation and distribution activities (Chinese walls), except for the information necessary to conduct the single buyer responsibilities.

Legal Unbundling

The Commission in its Proposal for a Directive concerning the amendment of the Electricity and Gas Directives¹¹⁹ goes a step further and proposes *legal unbundling*. This Proposal demands that energy suppliers organise their energy transport business (transmission) and energy sales activities in independent companies with an independent management.

¹¹⁷ Directive 98/30 of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas.

¹¹⁸ In the following electricity refers to electricity and gas.

¹¹⁹ Proposal for a Directive of the European Parliament and of the Council amending Directives 96/92/EC and 98/30/EC concerning common rules for the internal market in electricity and natural gas, COM(2001) 125 final.

In other words, energy transmission must be carried out via a subsidiary company that is legally and functionally separate *vis-à-vis* its day to day operations from generation and sales activities of its parent company (an independent transmission system operator).

In this respect, a number of measures are specified in order to ensure that the transmission subsidiary company is able to operate in legal and functional terms independently of the other commercial interests of the group to which it belongs. The minimum requirements in terms of functional separation proposed by the Commission are as follows:

- those responsible for the management of the transmission system may not participate in company structures responsible, directly or indirectly, for the day-to-day running of the generation/production, and supply functions of the integrated group;
- appropriate measures must be taken to ensure that the personal interests of the management of the transmission system company are taken into account in a manner that ensures that they are capable of acting independently;
- the transmission system operator must exercise full control over all assets necessary to operate, maintain and develop the network;
- the transmission system operator must establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded. The programme must set out the specific obligations of employees to meet this objective. It must be drawn up and its observance monitored by a compliance officer appointed by and reporting to the President/Chief Executive of the integrated company to which the transmission system operator belongs. An annual report, setting out the measures taken, must be submitted by the compliance officer to the national regulatory authority and published.

Ownership Unbundling

The strongest form of unbundling is *ownership unbundling*, *i.e.*, a complete divestiture of ownership among formerly vertically integrated companies. As of yet, there is no precedent in EC law where complete ownership unbundling has been required of a regulated entity.

Unbundling Proposals in the Context of the Air Travel Distribution Industry

The various types of unbundling mentioned above may all be applied with relative ease to the airline distribution industry, and in fact some important unbundling measures are already applicable to the airline distribution industry though the current EC CRS Code of Conduct. As mentioned above, Article 3 of the current Code already requires the legal separation of a CRS system from its parent airline or airlines.

The discussion below recounts the various unbundling measures as might be applied to the airline distribution industries that have been discussed in the process of preparing the accompanying report. The first measure, voluntary agreements, would not actually structurally “unbundle” the vertically integrated entities to which they would apply, but would instead require behavioural commitments on the part of the vertically integrated entities. The remaining measures escalate from there, and range from disclosure requirements to structural measures, such as management, accounting and legal unbundling requirements.

Voluntary Agreements

Voluntary agreements are increasingly used as a policy tool in the EC, particularly in the agriculture and environmental (pollution control) sectors. The total number of voluntary agreements (VAs) in the EC has been calculated at more than 300.

In the context of the reform of the current CRS Code of Conduct (Code), it was proposed early in the process that VAs might play an important policy role, in conjunction with other regulatory reforms. The advantage, it was thought, would be the mildness of this form of voluntary regulation, and the resulting simplicity it would help to achieve in the proposed Code reforms.

In particular, it was proposed that parent carriers and CRSs would voluntarily commit not to abuse the combination of a dominant position in their respective national aviation markets and CRS ownership to create barriers to entry or otherwise exacerbate competition problems in air transport and CRS markets. In this manner, the current Code provision requiring mandatory participation of parent carriers in all CRS systems could have been eliminated, in acknowledgement of the limited and diminishing scope of this problem, while retaining certain, albeit voluntary, safeguards and protections in those cases in which airlines retained an ownership stake in CRSs.

This proposal was ultimately rejected by the Commission in the face of reluctance among the affected airlines to agree to the proposal. It was also noted that it would not be clear on what legal basis such agreements would stand.

Disclosure Requirements

As mentioned above, there remain several instances of vertical integration in the airline distribution industry. The existence and extent of these vertical relationships are known to the investing and travelling public to varying degrees. In cases involving public companies with public reporting requirements, more information may be available, while less information is likely to be available in cases involving privately held companies. Nevertheless, even in the case of publicly held companies, it may still be difficult to ascertain the nature and extent of vertical integration in the travel distribution industry.

In other contexts and other industries, simple public disclosure requirements have served as an important policy tool, often with resulting normative effects on the behaviour of the regulated entities. The regulatory requirement to disclose certain information and relationships is a mild form of regulation, and yet it may prove a powerful catalyst for change. In some cases, companies may choose to alter their behaviours or relationships rather than disclose them publicly, and in other cases, companies may find that public pressure mounted as a result of these disclosures may force them to change. Importantly, disclosure allows customers and other integrated parties to make more informed and knowledgeable decisions in their dealings with affected companies. Thus, simple “daylight” and the enhanced public knowledge and awareness that it creates may offer a deceptively simple, and yet effective, regulatory policy.

Specifically with respect to the airline distribution industry, regulations which provide for a series of mandatory disclosures in the travel distribution industry, could include the following:

- The requirement to disclose publicly and prominently the existence and extent of equity ownership stakes in other companies involved in the airline distribution chain. An example would be parent airline ownership stakes in the Amadeus CRS, and in turn, Amadeus’ stake in the online travel agent

Omodo. Also required to be disclosed would be any agreements among vertically integrated shareholders which would govern their voting behaviours;

- The requirement to disclose the existence and extent of all instruments of managerial control of other companies involved in the airline distribution chain, such as, but not limited to, overlapping directors or managers, along with any relevant rights or obligations associated with board membership, including the methods for selecting new board members, special voting, quorum and majority requirements, *etc*;
- The existence and extent of relationships among the managers of various companies involved in the airline distribution chain, such as a pattern or history of employment among vertically integrated companies, including consecutive employment patterns or management swaps;
- The existence and extent of all marketing relationships among companies involved in the airline distribution industry.

These disclosure requirements would be designed to be indicative, not inclusive, meaning the burden would be on the disclosing party to act to discover and disclose all activities and relationships that would reasonably fall within the general requirements. The requirements would be of an ongoing nature, meaning that the disclosing party would be obliged to continually update its disclosures in the case of material changes. Finally, the disclosures would be required in a legally binding document, such as annual reports and accounts, and in addition, easily accessible to the public, *i.e.*, prominently displayed on consumer websites.

The types of regulations described above, *i.e.*, voluntary commitments and disclosures requirements, are generally considered to be milder forms of regulation and may appropriately be described as “behavioural” regulation. That is, they require the regulated entities to whom they apply to alter their behaviours in some specified way. Such regulation stops short of requiring structural changes to the regulated entity. “Structural” requirements, such as those described below, may be described as a more severe type of regulation, and more active or interventionist from the point of view of the regulated entity.

Management Unbundling and Accounting Unbundling in the Air Travel Distribution Industry

As described above, management unbundling requires that distinct management and accounting units be established for each different function or level within a vertically integrated entity. Often accompanying separate management and accounting unbundling is the obligation to stanch the flow of information across the separate management units so that they function as more or less separate entities, albeit still within the overall framework of a single undertaking. These constraints are often referred to as “Chinese walls”.

The concepts of management and accounting unbundling are not particularly relevant to the current state of the airline distribution industry, because the industry has, for the most part, long ago evolved past the point where the functions of airline distribution were undertaken by a single entity. For example, while CRS systems were originally developed by airlines and functioned as in-house departments, they have long since been legally separated from their airline-owners and established as separate legal entities, in some cases in response to regulatory pressure.

Nevertheless, even though there would be no point from a policy perspective to consider regulating for the separation of management functions in the travel distribution industry, there may be some concepts worth borrowing, such as certain prohibitions on information flows (Chinese walls), as discussed below.

Legal Unbundling in the Air Travel Distribution Industry

As described above, Article 3 of the current Code already requires legal separation between airlines and CRSs. Although CRSs were originally developed by airlines and functioned as in-house departments, in response to regulatory pressure as well as economic realities CRS systems are now uniformly separate legal entities from the airlines that developed them.

Whilst legal separation between airlines and CRSs is already a fact, the Code could go further to ensure a starker boundary between vertically integrated entities, in line with other precedents in EC law. In particular, the current Code could require the following:

- A strict prohibition on management sharing or management crossover between and integrated entities;
- The elimination of any formal or informal reporting requirements between the integrated entities;
- The establishment of an environment whereby individual professional success and achievement is measured without influence or reference, either direct or indirect, to the results of integrated entities; and
- A strict prohibition on the sharing of information between integrated entities (outside the context of MIDT purchase which would be addressed directly the reformed Code).

The above requirements may be required to be documented in an *audit or compliance program*. As part of such a program, the above requirements would be established as company policy. Specific procedures and duties required to achieve the policy would be implemented and the company's success in achieving the policy would be measured. A compliance officer would be designated with the responsibility for implementing the policy. Importantly, a public report would be required to be prepared, and the company MD or CEO would be required to attest to the accuracy of the report. The report would be required to be disclosed in annual reports and accounts, and on the company's website.

The above proposals would ensure that the legal separation already mandated by the Code would be supported by well-defined boundaries between the integrated entities as well.

As a corollary to legal unbundling, another type of unbundling that may be applied to the airline distribution industry is "transactional unbundling". Transactional unbundling assumes that CRSs and parent carriers are already separate legal entities, and further requires that any transactions conducted between parent carriers and CRSs be according to the terms of arms length contracts, and that such contracts be in writing and disclosed or disclosable to the public. Thus, transactional unbundling does not require that CRSs and their parent carriers abstain from business relations with one another, only that such relations be transparent and at arms length. Transactional unbundling has the advantage of permitting efficient economic relations between parent carriers and CRSs, but at the same time guards against the abuse of such relations. The transparency requirement is critical to safeguarding against abuse, as it at once provides a

mechanism for detecting whether such abuse has occurred, and for deterring the parties from entering into such abuse in the first place.

Ownership Unbundling in the Air Travel Distribution Industry

Complete ownership unbundling in the airline distribution industry would require the total divestiture of ownership stakes among the many participants in the airline distribution chain. In effect, complete ownership unbundling would sever the remaining vertical links in the airline distribution industry.

In fact, the CRS industry has already largely evolved to a point where few upward ownership links remain. The major exception to this general rule is Amadeus, which remains 60 per cent owned by Lufthansa, Air France and Iberia.

As described elsewhere in this report, mandatory divestiture of these remaining links, particularly between CRSs and airlines, would go a long way toward ameliorating the competition law and economic policy-based problems examined in greater detail in the accompanying report. However, such an approach would raise a variety of legal concerns, such as the proportionality of the regulatory remedy as compared to the policy concern, and the legality of such a remedy under the EC Human Rights Act (HRA) without financial compensation.

Nevertheless, it would be useful and constructive to examine various types of ownership unbundling which fall short of mandatory divestiture.

Implicit in the concept of ownership is the concept of control, *i.e.*, the power to direct the commercial strategy of the owned entity, including, among other things, the formulation of a business plan, the appointment of senior managers and the ability to control the board of directors.

While mandatory divestiture would sever all formal ownership and control links among vertically integrated entities, it may be possible and indeed desirable for the reasons mentioned above, to regulate only the control relationships that are typically associated with ownership. In other words, to break the link between ownership and control, leaving ownership relationships unregulated, but enacting various regulatory provisions concerning the control that vertically integrated entities in the airline distribution industry may exercise over one another. Perhaps the simplest way to imagine such a regulatory policy would be to suggest that companies in the airline distribution industry would be free to invest in any other company, including others in the airline distribution industry, but as passive investors only.

In order to implement this regulatory policy, it would be necessary to prescribe certain regulations which left ownership relationships intact, but eliminated the possibility for the owning entity to exercise control over the owned entity. Regulatory possibilities designed to achieve this objective would include, but would not be limited to, the following:

- The prohibition of directors or officers of one company in the airline distribution industry from serving as a director or officer in another, vertically-integrated entity in the airline distribution industry; or
- The requirement that any shareholder or board voting rights exercisable by one entity in the airline distribution sector over another vertically-integrated entity be exercised by an independent proxy, unaccountable to the owning entity.

Such proposals would transform ownership interests among vertically related entities in the travel distribution industry into passive investments only. In fact, most vertically integrated entities in the travel distribution sector claim that, in practice, these investments are already regarded as simple passive investments, and therefore such proposals should not meet with objection. Nevertheless, it should be noted that even a passive investment with no possibility of influencing the behaviour of the owned entity may still affect the behaviour of the owning entity. This is because the *owning* entity, such as a parent carrier, would in most cases take the value and significance of its investments into consideration in determining its *own* behaviour. Strong commercial ties, such as a large volume of business transacted between two companies, or commercial marketing ties, may have similar effects.

A Menu of Possible Provisions

The authors of this report consider that a separate section in the reformed Code could be created to deal comprehensively with unbundling issues. This section would be built around Section 1 of Article 3 of the current Code, which contains the current legal unbundling provision described above. This provision and others would be grouped together in a new Article 2(a). The remaining unbundling provisions listed below may be viewed as a menu of possible measures, which may be selected and combined in any way that makes sense, depending on the policy objectives of the Commission. Due to the overlapping nature of some of the proposals, it would not be sensible to include all of the proposals listed below in the reformed Code.

Item 1 is the former Article 3(1) from the current Code. Items 2-4 are derived from the discussion above concerning ownership unbundling, and the possibility of separating the elements of control from legal ownership. These items may be considered as alternatives to one another, as there would be little point to including more than one. Items 5-6 are derived from the discussion concerning management unbundling, and the importance of maintaining independent management influences and motivations. The remaining provisions concern the softer forms of regulation pertaining to disclosure and compliance audits.

1. A system vendor shall have the capacity, in its own name as a separate entity from the parent carrier, to have rights and obligations of all kinds, to make contracts, *inter alia* with parent carriers, participating carriers and subscribers, or to accomplish other legal acts and to sue and be sued.
2. A system vendor may transact business with its parent carrier or carriers, provided that such business occurs through the vehicle of a written contract negotiated at arms length, and that the terms of such contract are disclosed to the public.
3. No director, officer or other employee of a parent carrier may serve as a director or officer of a system vendor. To the extent that such terms are so defined, the terms "director" and "officer" shall have the meaning accorded to them in the relevant national law of the Member State in which the company is established. Where such terms are not so defined, and for the avoidance of doubt, this article shall apply to the following two groups of individuals: individuals elected or appointed by the shareholders of a company and with a responsibility to them, who are entrusted with the major strategic decisions of the company and who play a supervisory role over the management of the company. Such individuals are often referred to as "supervisory directors" or "directors" in two-tiered corporate law systems, and "non-executive" directors in a one-tier corporate law system; and, to senior managers entrusted with the day-to-day operations of the company, authorised to act on behalf of it, and who are remunerated as employees of the company. Such individuals are often referred to as "managers" or "officers" in a two-tier corporate law system, and "executive" or "salaried" directors in one-tier corporate law systems.

4. A majority of the board of directors of a system vendor shall be independent of the system vendor's parent carrier or carriers. Furthermore, non-independent board members of a system vendor shall not exercise control over a system vendor through minority voting rights, veto rights or other forms of control.
5. Non-independent board members of a system vendor shall allocate their rights and obligations, including voting rights, to an independent proxy, who shall exercise such rights and obligations without influence from the entity which has granted the proxy.
6. No director, officer or employee of a system vendor shall be required to report, whether directly or indirectly, formally or informally, to a director, officer or employee of a parent carrier.
7. The professional performance of a director, officer or employee of a system vendor shall be evaluated without reference to input or influence, whether formal or informal, direct or indirect, of a parent carrier.
8. Compliance with the requirements of this section [items 5 to 7] shall be documented in a compliance audit, attested to and affirmed by the MD or CEO of the affected system vendor and its parent carrier or carriers. Such audit shall form part of a compliance program, the responsibility of a compliance officer.
9. The existence and extent of an equity ownership stake of an airline in a system vendor, of a system vendor in a travel agent, or of an airline in a travel agent, shall be disclosed publicly and prominently. Agreements among such equity shareholders shall similarly be disclosed.
10. Airlines, system vendors and travel agents shall publicly and prominently disclose the employment status and history of directors, officers and employees who are currently or who have previously been employed with other vertically integrated entities in the airline distribution industry.
11. Overlapping directors, officers and other employees among vertically integrated entities in the airline distribution industry shall be disclosed publicly and prominently.