The international airline industry is highly capital intensive with heightened sensitivity to business cycles, as well as conflicts, epidemics, such as SARS and threats of terrorism. The industry is characterised by an increasingly deregulated environment and thus operates within a highly competitive market. Over the past three decades the industry has proceeded along the path towards globalisation and consolidation, mainly through the proliferation of alliances and partnerships between airlines, which seek to capture revenue synergies from an expanded network and offer greater access to alliance customers. Through examining this environment, research will investigate the attributes of the “games” that are being played by airline alliances to determine what impacts various relationships will have on Australian carriers. It is hoped that through studying this, inroads will be made into the development of cooperative game theory. Outlined in this paper includes background information relevant to the research, a critique of the existing literature, a discussion of associated theory, and a justification of initial research findings.

1. Background

1.1 Problem Definition

To date there has been limited recognition of the potential of game theory to understand the dynamics of the airline industry. Game theory will provide an effective tool in both determining and understanding the reasons why airlines become involved in alliances, in turn, reasoning why the industry is moving more and more towards consolidation. By bridging this gap in the current literature, it is possible to explore more fully overlooked areas, such as the impacts of international airline alliances on Australian and to a certain extent trans-Tasman carriers and associated industries (e.g., freight forwarders).

In the late 1970s, growing concern over the uncompetitive behaviour of industry participants prompted the deregulation of the United States airline industry. Deregulation the world over was seen to be the appropriate choice as the regulatory framework of the time was not working, competition was weak and consumers were calling for a range of choices and more competitive pricing (Pryke, 1987: 100). Airline markets then became contestable, therefore opening up the floodgates for both competition, in the form of new market entrants, and cooperation within the industry.

The term ‘alliance’ refers to an agreement made between airlines to cooperate, on some level, in the provision, or operation of airline services (Nunes et al, 1997, Pels, 2001). Airlines have traditionally entered into agreements that involve the coordination of, for example, baggage checks, carriage of air cargo and the honouring of tickets between airlines (Oum, 2001:37). In the case of alliances between national flag carriers, where the identity of each is maintained separately, agreements are generally aimed at facilitating international passenger movements and network expansion. More recently airlines have increasingly sought to incorporate a wider range of ancillary operators, such as credit card providers and car rental companies, enabling the coordination of certain activities in their agreements (Wheatcroft and Lipman, 1990: 191). As a result, alliances may differ markedly depending on the range of operations that airlines choose to coordinate.

Alliances may allow airlines to:
- Code share or jointly operate flights;
- Coordinate scheduling of aircraft arrival and departure times;
- Coordinate the location of arrival and departure gates;
- Coordinate frequent flier schemes;
- Share airport lounges and other ground facilities;
- Coordinate and streamline passenger services such as baggage handling, check-in and ticketing;
- Coordinate support services including maintenance and catering; and
- Share distribution and retailing functions.

Source: Nunes et al, 1997
Alliances have emerged in response to a number of features inherent in the aviation industry. The industry cost structure, characterised by high fixed costs, has placed increasing pressure on airlines to control costs and enhance load factors (AT Kearney, 2003). Consolidation of the airline industry has pushed carriers to form cooperative alliances, with this trend leaving little room and less scope for the small independent carrier in international markets, especially as airport slots become scarcer, distribution more automated and competitors more voracious (Wheatcroft and Lipman, 1990:191, Pels, 2001). Alliances have the ability to reduce the variable and fixed costs of servicing particular routes and the indirect costs associated with operating the airline business (Doganis, 2002:75-100).

In the short period since deregulation, several other significant changes have taken place within the industry. These include the entry of new operators, expansion of the market, deep and varied discount fare offers, and rationalisation of both services offered and the structure of incumbent operators (Oum, 2001: 37).

1.2 Research Questions

The following research questions have been developed –

Using game theory, what are the effects of global airline alliances on competition in air services?
- What are the various games being played?
- How do these games evolve?
- How do inter-related games affect each other?

2. Why Research this Topic?

2.1 Gap in the literature

Although both alliance and game theory literature abound, there has been limited recognition of the potential of game theory to understand the dynamics of the airline industry. The research departs from most of the extant work on airline alliances in at least three major respects. Firstly, most research focuses on how airlines successfully join alliances (Pels, 2001; Agusdinata and Klein, 2002). Secondly, much of the existing research has focused on specific types of practice, be they influence, rhetorical, commitment inducing, or more general practices (Brander and Zhang, 1993; Iyer, 2002; Tretheway and Waters, 1998; Evans, 2001). Thirdly, much of the existing literature focuses on causal relationships in particular with regard to idiosyncratic behaviour of alliances and their various effects (Park and Cho, 1997; Fan et al, 2001). What is lacking in the literature, is the examination of how the practices of alliances work together to influence the operational efficiency of the Australian market. Thus, despite a considerable body of research on airline alliances, there has been little application of game theory to explain the strategic moves made within this industry. This research, will by contrast, go beyond simply identifying practices that lead to alliances, but will examine the subsequent ongoing behaviour of operators within this industry.

In Australia, there has been limited systematic collection of data that would enable a thorough analysis in relation to the impact of international airline alliances that is not commercial-in-confidence (Nunes et al, 1997: 60). Air travel remains a large and growing industry. It facilitates economic growth, world trade, international investment and tourism. It is therefore central to understand why strategic choices are made within this industry and whether these choices are in fact detrimental, or conducive to the operation of the Australian industry.
2.2 Rationale of the Research Project (Significance)

In understanding the nature and behaviour of the industry from a theoretical perspective, game theory provides the perfect set of parameters to determine if the “games” that are played are beneficial to the parties involved. This research will contribute to the emerging body of knowledge that has taken rise from game theory, addressing the effects of alliances on both the Australian and International industries. The research undertaken will present findings that demonstrate the implicit relationship that exists between theory and practice and whether this theory can predict the strategic moves of a volatile industry such as aviation. Therefore, the purpose of this research will be to build upon the somewhat neglected area of cooperative game theory, to illustrate the practices and processes that are involved in aligning airlines and their effects on competition in air services.

Collectively, the analysis of airline alliances will involve not only looking at airline participation, but also the synergies created by diversification into travel related areas such as loyalty programs with credit card companies, hotels, car rentals and cruise liners (Wheatcroft and Lipman, 1990). Regulation of alliances and national governments’ involvement in alliance members’ activities also plays a large part in this mix. Further, analysis will seek to provide an explanation of how each piece of the puzzle is inter-related and what effect each of these elements will have on both the operation of an alliance and Australian carriers. Essentially, the aim of this research is to apply and extend game theory in order to identify dynamics that determine competitiveness.

2.3 Objectives of the Research

This study examines the key features of the recent developments in global strategic alliances of airlines and investigates the potential roles of Australian and other trans-Tasman carriers in this increasingly competitive environment.

Key Aspects to be considered are-

- Reasons behind the formation of alliances and associated loyalty programs.
- History, status and prospects of global strategic alliance networks.
- Effects of alliances on competition (productivity, price, entry/exit barriers of airlines and effects on rivals).
- Regulatory issues concerning international alliances.
- Roles of Australian and other trans-Tasman carriers in the global alliance network and policy issues.
- Games that are played within the industry (including decisions to join an alliance).

3. Literature Review

Evans’ (2001) article on the changing world of international airline alliances called for critical development of the aforementioned research questions. The following sections outline the contributions of the literature and its impact on the research question.

3.1.1 Competition and Oligopoly Theory

Significant in the study of airline alliances is the literature associated with competition and oligopoly theory, which seeks to explain the nature of the market environment in which they typically operate. The airline industry can be characterised as an oligopoly, operating under imperfect competition. In seeking answers as to why an industry has but a few airlines (despite the multiplicity of “brands”), two key competitive factors need to be considered: cost conditions and barriers to entry.

Oligopoly theory contributes to the research question, as it explains the competitive nature of the industry in which global airline alliances operate. High fixed costs compel carriers to minimise variable expenses
and maximise capacity utilisation. Thus, they have an incentive to cut prices (fares) to increase their load factors. A significant worldwide trend that is starting to be felt in Australia is the rapid emergence of low-cost carriers, both domestically and internationally. Ryanair and EasyJet are both high-profile European examples, while SouthWest Airlines is a long-established American example (Doganis, 2002:87). Two Australasian carriers have been established in recent times to cater for this growing market, Australian Airlines and Freedom Air. Unlike some of the new low-cost international airlines in Europe, these carriers are not independent but are fully owned subsidiaries of Qantas and Air New Zealand respectively. This new phenomenon has been central in determining the cost structures which are inherent in this industry and introduce games such as “tit-for-tat”, with regard to pricing, to gain market share from rivals (Axelrod, 1984).

Coupled with cost conditions are barriers to entry (Samuelson, 1992: 331, Hill and Jones, 2003). As addressed previously, de-regulation has opened up the airline industry to competition. However, some barriers to entry continue to exist, such as the decision by governments to determine how many airlines may be licensed to operate in individual countries and landing rights of other national airlines (Doganis, 2002). According to the literature some existing firms may be able to exclude would-be entrants by using ruthless business tactics such as predatory pricing. The absence of a large number of producers in an industry is usually explained by one of two reasons. Either potential entrants realise that the economies of scale are so great, that a firm must capture a significant proportion of the market to achieve competitive costs and prices, or the potential entrant faces formidable barriers created by governments, or by existing firms, so that it cannot compete on even terms. In terms of the airline industry, the latter appears to be the more likely of the explanations offered.

3.1.2 Airline Cost Structure

The airline industry worldwide is notorious for its high fixed costs. Industry participants have suffered in the past as the industry is sensitive to soaring fuel prices, acts of terrorism, recession, fluctuating money markets and war. Since deregulation, the industry has been more susceptible to competitive pressures, with governments no longer propping up their flag carriers through subsidies and protectionist measures in the form of high tariffs. The cost structure of this industry is largely dependent upon exogenous variables. For instance, in the 1980/1990s the impact of liberalisation had a twofold effect with increased and open competition creating pressures to reduce costs leading to the gradual removal of tariff controls, which in turn facilitated price competition (Doganis, 2002:87).

Table 1 shows the costs incurred by airlines in their day-to-day operations. For international airlines direct operating costs account for over fifty percent of total operating costs (Doganis, 2002:87). What cannot escape attention is the fact that, with the increased prevalence of low cost airlines, there are marked differences in cost structure and composition. Low cost airline’s direct operating costs usually surpass sixty percent of total operating costs, with this being due mainly to the fact they make most of their cost savings in the area of indirect costs (see table 1).

One of the most significant factors affecting the overall cost structure of airlines during the last two decades has been the fluctuation in the price of aviation fuel. Price hikes in fuel throughout this period have had major impacts on costs, ultimately placing pressure on the amount of direct operating costs incurred by incumbent airlines. Two significant events in the early 1990s, the Kuwait crisis and the Gulf War, caused an upward shift in the prices of fuel, thus forcing up the costs structure. By 1998 fuel prices had fallen to such a low extreme, that the achievement of record profits was in part attributable to this cost movement. However, in 1999 and 2000 fuel prices rose steadily, reaching a peak in October 2000, as a result of OPEC’s decision to limit oil production (Doganis, 2002). At present fuel is again a point of contention, with the threat of high direct operating costs being exacerbated by increasing demand for cheaper flights for both business and recreational travel (Creedy, 2004, 3; Creedy, 2004:28).
Another variable outlined in table 1 is airport and en-route charges, which have shown a tendency to increase over time. As a general trend airports have increasingly become more independent of government involvement as a result of privatisation. Therefore, there are more profits for the airport operators, but at the expense of the airlines (Doganis, 2002). The same holds true for air traffic services. What this means to the industry is that because airport charges have remained high, with the expectation that they will continue to climb, the overall high cost structure of the industry will be maintained.

Table 1 Cost Structure of Fixed and Variable Direct Operating Costs

<table>
<thead>
<tr>
<th>Direct Operating Costs</th>
<th>Fixed/Standing Direct Operating Costs</th>
<th>Indirect Operating Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fuel</td>
<td>• Depreciation of lease rentals</td>
<td></td>
</tr>
<tr>
<td>• Oil Consumed</td>
<td>• Aircraft insurance</td>
<td></td>
</tr>
<tr>
<td>• Water Methanol (if any)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Variable flight crew costs:</td>
<td>8. Annual flight crew costs:</td>
<td></td>
</tr>
<tr>
<td>• Flight crew subsistence and bonuses</td>
<td>• Fixed salaries and other expenses unrelated to amount of flying done</td>
<td></td>
</tr>
<tr>
<td>3. Variable cabin crew costs:</td>
<td>9. Annual cabin crew costs:</td>
<td></td>
</tr>
<tr>
<td>• Cabin crew subsistence and bonuses</td>
<td>• Fixed salaries and other expenses unrelated to amount of flying done</td>
<td></td>
</tr>
<tr>
<td>4. Direct engineering costs:</td>
<td>10. Engineering Overheads:</td>
<td></td>
</tr>
<tr>
<td>• Related to number of flight cycles</td>
<td>• Fixed engineering staff costs unrelated to number of flying hours</td>
<td></td>
</tr>
<tr>
<td>• Aircraft utilisation</td>
<td>• Maintenance administration and other overheads</td>
<td></td>
</tr>
<tr>
<td>5. Airport and en-route charges:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Landing fees and other airport charges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Passenger service costs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Passenger meals/hotel expenses</td>
<td></td>
<td></td>
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<tr>
<td>• Handling fees paid to others</td>
<td></td>
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</tr>
</tbody>
</table>

Taken from Source: Doganis, 2002: 95

3.1.3 Theory of Alliances

Deregulation has engendered many innovations in the airline industry, including hub-and-spoke networks and frequent flier programs. A major recent innovation sweeping the industry is international airline alliances, which link the route networks of two or more airlines via a cooperative arrangement (Pels, 2001). Alliance theory provides an important layer to the research framework, as the theoretical focus is concerned with inter-organisational cooperative structures, formed to achieve strategic objectives of partnering firms. Formally, they are relatively enduring inter-firm cooperative arrangements, involving flows and linkages that use resources and/or governance structures from autonomous organisations, for the joint accomplishment of individual goals linked to the corporate mission of each sponsoring firm (Parkhe, 1993: 794).

The number of airline alliances has rapidly expanded during the last few years. More importantly, although the scope and nature of these alliances differ, there is the tendency towards deeper alliances involving cooperation on all aspects of airline business, amounting, in some cases, to systemic quasi-integration of some alliance members’ activities. Airline alliances, therefore, raise fundamental questions about their effect on competition in air services (Oum, 2001: 37, Gudmundsson and Rhoades, 2001).
3.1.4 Game theory

To obtain a deep understanding of the dynamics of airline alliances, the study of game theory will explain how the “games” played, impact on the domestic and international industry as a whole. A useful way of viewing this theory is as a strategic game played between companies, which are continuously using moves and tactics, be it cooperative or competitive, to compete effectively within a given industry (Hill and Jones, 2004:179, Samuelson, 1992:331, Miller, 2003). Companies that understand the nature of the games they are playing can often make better strategic moves that increase the profitability, efficiency and effectiveness of their strategies.

This paradigm complements the oligopolistic market structure in which airlines typically operate and will be an important tool in ascertaining the fundamental games that airlines play and if gaming leads to sustainable competitive advantage. Economic life is filled with situations in which two or more companies jockey for dominance. For instance, in Australia in 1990-91 Compass Airlines sought to lure customers from its bigger rivals, by offering fares under prevailing levels and the larger airlines, Qantas and Ansett, had to decide how to react and how Compass would react, in response and so forth (Samuelson et al, 1992: 331). Game theory will essentially be used to describe the interrelated behaviour of multiple agents acting rationally. This allows for the exploration of many interesting and important features of competition and collaboration in the context of airlines and their decision to collectively cooperate, as they have now advanced well beyond the reach of the prisoner’s dilemma and into a new domain.

What is hard to fathom is the limited and somewhat confusing nature of the rationale for n-person cooperative games as most of the existing literature concentrates on non-cooperative games. Currently, much of the cooperative game theory literature has a focus on how deviation possibilities of coalition members define a set of outcomes which are unobjectionable and how payoffs will be divided among alliance members (Monet and Serra, 2003:256). Developed further, cooperative game theory can offer explanations of the process of airline alliance formation, the stability of these alliances facing the entry or exit of players and the sharing of surplus from cooperation between players into each coalition via the disbursement of payoffs (Monet and Serra, 2003:256). What is complex in studying cooperative game theory and the coalitional game, in the context of the airline industry, is that many of the relationships are not mutually exclusive and can be inter-twined in some way.

The present research suggests that what we may call “inter-related cooperative games” are useful in analysing the airline industry. This type of gaming scenario has been overlooked by the literature. As diversification becomes more widespread, airlines will seek new ways to cushion themselves against falls in the business cycle. This trend indicates that there will be an increasing number of new games being played. Through further investigating inter-related cooperative games, the evolution of existing and mature games will be explored indicating whether the various relationships and games are either causal or entwined within one another. Furthermore, this theory will provide analysis as to whether these inter-related games are occurring sequentially, or simultaneously.

Largely, what distinguishes cooperative from non-cooperative games is that coalitions are able to commit to a course of action once an agreement has been reached (Montet and Serra, 2003:251). Therefore, this study will use the game theory model, to explore further the strategic actions of alliances within the airline industry. Incorporating this will allow for an analysis of future situations where an alliance is competing against a limited number of rivals and where there is a considerable level of interdependence in the industry (Samuelson et al, 1992: 332, Vega-Redondo, 2003). This theory offers formal theoretical apparatus, which can be used to understand real world events, deduce the effects of changes in governmental policy and to understand the many facets of airline alliances.
3.2 Contributions to Theory and Practical Implications

Alliances may be abundant, but their popularity does not guarantee that they will always be a corporate success story. This study has the objective of making a number of theoretical and practical contributions by endeavouring to explicate the constructs that are embedded within the literature, thus evaluating the importance of the key aspects of global strategic airline alliances and their various impacts. This research will contribute to the emerging body of knowledge that is game theory, helping in its evolution from a mathematical model to a more frequently used decision-making support tool, providing links to alliance theory and that of competition (Bruinderink et al, 2003:109). Alliance Theory may then be extended into a multidisciplinary perspective, for instance institutional economics or international business.

Coupled with the contributions to theory will be an extension of the understanding of game theory in the context of an oligopolistic market. This will provide a practical opportunity for Australian airlines and policy-makers to exploit findings in order to better understand and modify strategic decision making in an international context. By understanding what has happened and what will happen in the foreseeable future in the airline industry, policy makers and government bodies can promote airline travel and free up the market to attract new competitors. Also inherent in this are the internationalisation and globalisation elements respectively, which have the ability to add to the field of international business studies, offering an alternative way to view large alliances proving that game theory has moved beyond being solely a mathematical and economic analysis tool. Therefore, the goal of this study is to develop a body of knowledge for understanding the development, growth and competitive advantage in this industry, which is perhaps, one of the most diverse and dynamic in the world.

4. What has Research Indicated so Far?

When considering the nature of airline alliances, they may be simply, coordinating just one element of operations, alternatively they may enter into more complex global alliances whereby partners code share on a large number of routes, so as to strategically link their flight networks (Nunes et al, 1997). Global airline alliances often involve high integration and coordination of flights, scheduling, advertising and frequent flier programs. These alliances have the ability to cast a wide net over operational capacity, thus aligning many activities, which include coordination of flight scheduling, baggage handling, catering, ground services, aircraft maintenance, frequent flier and loyalty programs and airport lounges. In some cases, alliances include equity holding arrangements, which seek to further strengthen the relationship between the partnering airlines, creating an enduring cooperative relationship (Nunes et al, 1997).

Through investigating airline alliances using game theory, it must first be determined what game is in fact being played. From this, the legitimacy of the game may then be investigated as to the impacts on competition and the Australian industry. Identifying what game is being played has not been an easy feat, as cooperative games are complex in nature indicating that this situation may not be limited exclusively to one game. Causing a point of confusion, are the features of the games being played. Characteristically, the airline industry can be described as being both cooperative and non-cooperative, with some airlines still operating independently of a large alliance, yet still cooperating on some level of the airlines business, but not for the long term. Therefore, it can be concluded that sub-games are being generated from the parent game. What also becomes evident, is the fact that the industry has moved well beyond the prisoner’s dilemma, collectively deciding that cooperation is to the mutual benefit of parties involved. The complexity of this relationship then comes under scrutiny, as some airlines operating within the major alliances still maintain autonomy with regard to monetary profit, which may cause related problems in the form of competition within alliances (Axelrod, 1984: 4). However, as stated before, some do share a portion of equity.

Cooperation based upon reciprocity can evolve and sustain itself even among egoists provided there is sufficient prospect of a long-term interaction. There is much more to cooperation than could be captured by any single model, no matter how broad its applications or how rich its strategic implications (Axelrod,
Therefore, research suggests that Australian airlines (for the purposes of this paper Qantas will be used) are involved in a complex web of inter-related games providing both complementary and competitive effects. Using the conventional game theoretic approach to carry out and analyse alliance operations is especially difficult, because the payoffs for each member depend upon choices made by all other members. This leads to an interesting development, being the evolutionary nature of the games that are being played, which become evident through aligning the theory with practice. Each of the respective games do not have a distinct conclusion, rather they are developing into an enduring relationship over time, through the advancement of the industry, therefore adding to the complexity of these cooperative relationships.

The following conceptualisation shows the various inter-related games in which Qantas must engage with alliances –

Recently, the proposed alliance between Qantas and Air New Zealand can be conceived of as a prisoner’s dilemma game, in which both airlines decided that to cooperate on the Trans-Tasman routes would lead to mutual benefits. The two players in the game had the choice between two moves, either "cooperate" or "defect". The idea being that each player would gain when both cooperated, but if only one of them cooperates, the other one, who defects, will gain more. If both defect, both lose (or gain very little) but not as much as the cheated cooperator whose cooperation is not returned. Both Qantas and Air New Zealand felt that the benefits of an alliance would combat the threat made by new operators within the region, thus increasing market share, to approximately 80-90% for both airlines. The alliance is expected to benefit Australia alone by about $680 million, with $337 million in cost savings, an unsurmountable amount should Qantas keep acting alone in this growth market. However, the Qantas- Air New Zealand alliance has made little headway as it is deemed to be anti-competitive by both the Australian Competition and Consumer Commission and the New Zealand Commerce Commission, thus causing an inter-related game to be played out with regulators.

Another example, shown in figure 1, of an interrelated game is between Qantas/Boeing and Qantas/Airbus, Airbus and Boeing have then engaged in a tit-for-tat game to make the most desirable aircraft with optimal capacity. The result of each game is interconnected in some way and will ultimately have an affect on the strategic choices that the other will make. What is unclear at this stage from this relationship, is whether Qantas is in a cooperative game with both companies, or rather a non-cooperative game, in which a contract has been signed for a period of time. This problem warrants further investigation, however it does provide a basic example of the inter-related relationships that are being dealt with.
Overall, airline alliances have been playing a coalitional game with a domination approach. What becomes evident through examining this approach is that the solution concepts explain different parts of alliance formation and development. For instance, investigation of “the core” will enable the identification of likely bargaining outcomes for alliance members. For those games played that have an empty core, stable set theory can be used for analysing alliance formation, competition and distribution of power. The stable set hints at taking into account alliances that might form, but such an interpretation is only implicit. In contrast to this, the use of another solution concept, the bargaining set, is concerned with the actual coalitions that might form, because an outcome is defined in relation to a particular division of players. The next step in this study will be to apply these solution concepts to actual alliances, to understand how payoffs will be shared given existing and newly formed relationships, thus providing an explanation of the inter-related nature of games played.

Wars are made by alliances - coalitions of several players. The exciting part of history is often the process of forming the coalitions - the diplomatic games, the deals, the intrigue. Coalitional game theory goes far beyond the payoffs for various coalitions. However, the complexity of these coalitions and the possible payoffs can form a major difficulty. When the members of a coalition allocate different amounts to different members, the coalitional game is complicated, as every possible coalition involves a bargaining game. Therefore, at this point it can be assumed that overall, a coalitional game with a dominant approach is being played and intertwined with a number of inter-related games.

Summary

International airline alliances have experienced significant worldwide growth in recent years. This trend has also been prevalent in Australia, with Australia’s major international carriers operating a number of alliances with other international airlines. The rapid growth in this phenomenon is a reflection of the benefits that airlines perceive as achievable through closer cooperation, providing airlines with the opportunity to increase their own efficiency.

This paper placed emphasis on the need to develop further cooperative game theory and associated publicly available literature, to aid in analysing the long-term effect of alliances on the Australian industry, thus making it easier to conduct an industry analysis of this nature. The recent growth in airline alliances and the likely continuation of this trend makes it imperative that there should be more clearly defined processes in place for monitoring the effects of such arrangements. This paper has sought to bring to light the purpose of this research and provide both theoretical and practical contributions for future analysis.

The outlook for the air travel industry is one of growth and change. For airlines, the future holds many challenges. Successful airlines will be those that continue to tackle their costs and improve their products, thereby securing a strong presence in the key world aviation markets.

References


1 “An allocation refers to a split of the total payoff available to all players. An allocation is ‘blocked’ if some individual or subgroup is better off separating and going their own way. Therefore an allocation is in the core if it cannot be blocked by any individual or coalition” (Cooperative Game Theory Applied to Goods; www.economics.unimelb.edu.au/subject_pages/2004/semester1/316-202/L15.ppt)


