

Exploring The Potential of Asian Low Cost Carriers Forming Strategic Alliances

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Abstract

Strategic air alliance and Low cost carriers (LCC) are two successful operation models for airline companies over the past decades. With the hybridization of low cost carriers, our research realized that the new characteristics might enable LCC to utilize the cooperation methods traditional full service carriers used to form strategic alliances and therefore form a new alliance. We take the approach from network setting, load factor, utilization rate and frequent flyer programs to identify the potential of low cost carriers forming strategic alliances. There has been no research working to discuss such combination. In addition, with limited research in the Asian airspace, we would use research from US and EU air industry to support our theoretical setting of such implementation. By using further content analysis and web scraper for real-time data, we shall discuss such proposal within Asia region. Our results were able to provide a concrete and clear implication that LCC indeed has the capability and potential to expand and grow with a formation of LCC strategic air alliance.

1 Introduction

With economic growth and globalization over the past decades, Asia Pacific has undergone substantial growth in the airline industry, especially in the geographically fragmented South, Southeast, and Northeast Asia (O'Connell & Williams, 2005). According to The International Air Transport Association (IATA), Asia-Pacific now shares the world's largest airline market serving 1.2 billion passengers (60th edition of IATA WATS released.2016). As Low Cost Carrier (LCC) emerges and influences traditional full service carriers (FSC) in the US and Europe airline industry, we notice similar services growing in Asia. Over the past two decades, LCC has grown rapidly in Asia. According to Centre for Aviation (CAPA)¹ LCC in Southeast Asia now accounts for almost 60% of available seats in the region since the first LCC launched in 1996. Though the growth rate has relaxed over the past few years, investors also noticed that LCC only occupies 10% of seats in Northeast Asia. This allows airline companies and analysts to believe that continuous growing could be challenging yet potential lies.

Global partnership through strategic air alliances had been a great success in the airline industry. In a 2013 working paper from ICAO, it estimated the three major air alliances, One World, SkyTeam and Star Alliance accounts for 66% of ASK (Available Seat Kilometer) worldwide comparing to 28% in 2002. Various papers also pointed out that recent LCC in US

¹ CAPA, formally known as Centre for Asia Pacific Aviation, now called Centre for Aviation

and EU is undergoing some hybridization by observing their alternation to operations to improve company performances. We shall visit them completely through our analysis.

Here we see challenges and opportunities for Asian LCC in the near future. This is the major motive for us to ask, with a maturing Asian LCC, and the success of strategic air alliance, will there lie potential for Low Cost Carriers to form strategic air alliances? Though the concept of LCC air alliance has been brought up in several articles and paper, there has not been any research discussing such subject manner, especially no research of such has focused in Asian areas. The major contribution of this paper is that we would first identify the potential factors for Asian LCCs to form strategic air alliances from both the airline and customer perspective. Then, we would evaluate each of these factors to answer our question.

In the next section we shall present the literature review for air alliances and hybridization of LCC. In section 3 we would explain our methodology and selection of the four factors we would evaluate on. Section 4 would be our evaluation results. We would conclude our research with discussion and identify future research areas in section 5.

2 Literature review

2.1 Air Alliances

The concept of air alliances could be dated back to the 1930s. Researcher Oster et al. (1986) found that major airlines formed some sort of alliances with code-sharing. Since then, definition of air alliances used in studies of airline alliances has not been fully agreed upon,

Pablo in 1999 therefore consolidated it into a general definition as “any kind of agreement between independent carriers to mutually benefit from the coordination of certain activities in the provision of air transportation services.” He further defined that a strategic alliance would cooperate on an even higher management level to allow the firms to create a more sophisticated cooperation instead of merely marketing or baggage handling procedures. Today, the market has developed into three global strategic airline alliances: Star Alliance, One World Alliance and Sky Team Alliances (Bilotkach & Hüscherlath, 2012). In the following paper, we would use the term air alliances or alliances as the meaning of strategic air alliances for simplification.

According to the International Civil Aviation Organization (ICAO) and various researches, air alliances were formed between airline companies through various elements, including but not limited to code-sharing, pricing cooperation, schedules coordination, and offices and airport facilities sharing (Garg, 2016). This is to consolidate an airline’s position and visibility in the market as well as providing better services to customers and lowering corresponding costs (International Civil Aviation Organization, 2013).

Studies in the past have extensively research and arguments focus on whether forming alliances benefits a cooperation. Park et al. (1997) further pointed out that major airlines use alliances to secure access to foreign markets and provide seamless customer services by means of code-sharing. Code-sharing is defined by the US Department of Transportation (DOT) as "A common airline industry practice where, by mutual agreement between the cooperating carriers,

at least one of the airline designator codes used on a flight is different from that of the airline operating the flight."(Vogel, 2016). Many researchers had extensively focus on code-sharing between airlines within an alliance as it is to believe to bring most influences and impact to the overall operation (Bilotkach & Hüscherlath, 2012; Brueckner, 2001; Hannegan & Mulvey, 1995; M. Roelen & N. Walli, 2016; Morandi, Malighetti, Paleari, & Redondi, 2014; Oum & Park, 1997).

Today, the three global airline alliances in the market serves roughly over 60% of international passenger (Bilotkach & Hüscherlath, 2012; Iatrou & Alamdari, 2005). Other reasons for airlines to join air alliances were cost saving and market penetration (Bissessur & Alamdari, 1998). Though there has not been solid findings from research showing strong evidence that profitability would be increased after joining air alliances possibility due to the complexity of operation and the lowering of air fare (Morrish & Hamilton, 2002; White, 1978; Youssef, 1992), major references all conclude that there is no doubt an increase in load factor and traffic(Casanueva, Gallego, Castro, & Sancho, 2014). Iatrou et al. (2005) concluded in an empirical analysis that there is no deeper integration except code-sharing.

To briefly conclude current literature, though with no significant increase in profitability, the increase of traffic is significant especially to airlines with complimentary flight routes within the same alliance. Air alliances allows airlines to reach out to far away markets and at the same time lower costs. Using these literature, this paper would discuss the implication of

air alliances for LCC in the latter section.

2.2 Low Cost Carriers and its hybridization

Low cost carriers originated from charter airlines that were designed to offer leisure holiday passengers to destinations that FSCs do not serve (Pels, 2008). Most of these charter carriers aimed to decrease their cost per seat as they lack neither horizontal or vertical integration with limited market base. As airspace deregulates in EU and US, numerous airline carriers begun to adopt low-cost strategy to survive in the airline market. Though there is not a uniform low-cost formula, major features of LCC operations (de Wit & Zuidberg, 2012; Fageda, Suau-Sanchez, & Mason, 2014; Klophaus, Conrady, & Fichert, 2012a; Wensveen & Leick, 2009; Whyte & Lohmann, 2015) includes but not limited to:

1. simplified fare structure
2. make use of secondary airports
3. point-to-point connection
4. make use of single aircraft size with single class
5. no complimentary in-flight services

The point of these implementations hope to achieve high turnaround rate, lowered airport station cost, lowered staff number, minimize extensive yield management and high seat density.

Air fare unbundling also acts as a way to decrease cost per seat for LCC (Fageda et al., 2014).

However, according to various reports, after the fast upraise of LCC markets in Europe and US, recent slowdown of growth has led to several changes and discussion in new business models (Fageda et al., 2014; Klophaus et al., 2012a; Tomová & Ramajová, 2014; Wensveen & Leick, 2009). The use of secondary airports and point to point connection has prevented LCC

in facing complicated and costly management systems. Yet, as de Wit et al. (2012) pointed out, the growth of LCC would face route density issues by which it would reach the high bound of operational complexity and vulnerability for an airport. In the same research paper, it pointed out that to attract more customers, LCC airlines in US began shifting from secondary airports to primary airports. LCC in Europe also take similar actions to enhance their business strategies. Many EU LCC hardly uses secondary airports and has alternation in network strategy (such as code-sharing and not only serving point-to-point connections) (Burghouwt & Wit, 2015; Klopheus et al., 2012a; Morandi et al., 2014). A 2005 research even show LCC code-sharing between LCC and FSC or passengers doing self-hubbing (Fageda et al., 2014; Tomová & Ramajová, 2014).

Another recent research derived that as LCC is in direct competition with FSC, the use of primary hubs would emerge and so is the development of new forms of business models such as long-haul, low-cost operators and lower-cost hub airlines within Europe (Pels, 2008). Especially in area of long-haul, researchers find that even if there are challenges for LCC such as establishing the correct network with enough demand and setting the appropriate price, there are very few competitors in the market (Morrell, 2008; Wensveen & Leick, 2009). In fact, Fageda and Flores-Fillol even suggested that LCC should dominate FSC in long-haul flight routes (2012). The research further suggested a fourth global alliance with LCC might be able to compete with legacy alliances in its conclusion. This corresponds to the results from Park's

research indicating competition between alliances instead of airlines (1997). Nevertheless, these transformations in business plans indicates that LCC in US and EU are going hybrid and is altering its operational models to fit the transformation of market. Our research will explain deeper of this hybridization in latter section to identify whether these changes would influence if a fourth alliance can be formed and what it implicates to LCC.

3 Method

3.1 Method

In this paper, we use both qualitative and quantitative approach to examine our proposed questions. We would use content-analysis for our qualitative approach (Hsieh & Shannon, 2005). We shall identify the elements for how FSC to benefited from air alliances and how it allows FSC alliances to be successful. Then we observe the changing factors in the LCC sector. By using these changes, we try to identify where these hybrid LCC fits into an alliance. By examining the past literature, CAPA reports, financial statements and news interviews conducted previously, we conclude and categorize our logic and finding through four major factors that will be explained accordingly.

A web-scraper would be used for our quantitative approach on selected factors. With limitation in funding, details of flight data are unreachable, thus, we decide to program a scrape flight information from FlightRadar24². FlightRadar24 is a Swedish internet service that

² Data retrieved from <https://www.flightradar24.com/>

records real time flight data by crowdsourcing air traffic data using ADS-B receivers. It was quoted as an “authoritative flight tracking service” by The Guardian in 2015³. We capture our data during October 28th 2016 to November 4th 2016 for all the flight data that operates by any Asian LCC airline. Our data schema provides: Airline, Operator, Aircraft type, aircraft age, Model, serial number, date of flight, Origin, Destination, Flight time, Other time information (Table 1). We merge these information and use pivot table to examine our analysis.

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Jeju Air	Jeju Air	Boeing 737-83N	B738	30673	31-Oct	Jeju(CJU)	Daegu(TAE)	7C708	0:35
Jeju Air	Jeju Air	Boeing 737-83N	B738	30673	31-Oct	Daegu(TAE)	Jeju(CJU)	7C707	1:03
Jetstar Airways	Jetstar Airways	Airbus A320-232	A320	2169	7-Nov	Melbourne(MEL)	Launceston(LST)	JQ743	0:45
Jetstar Airways	Jetstar Airways	Airbus A320-232	A320	2169	7-Nov	Launceston(LST)	Melbourne(MEL)	JQ742	0:56
Jetstar Airways	Jetstar Airways	Airbus A320-232	A320	2169	7-Nov	Sydney(SYD)	Launceston(LST)	JQ749	1:24
...

Table 1. Snippet of Raw data collected

3.2 Key Factors

To define potential, we referred to Oxford Dictionary as “having or showing the capacity to develop into something in the future.”(Oxford english dictionary online.2001). For airline companies, this capacity would be either creating demand or lowering cost with leads to growth in efficiency and effectiveness. On the other hand, more benefits in price and better choices for consumers means capacity to improve their benefits. By using content-analysis, we identify the capacity for growth and development by four major areas: network, load factor, frequent flyer

³ Siddique, H., & Luhn, A. (2015, -11-01). Russian plane 'broke up in air' before sinai crash. The Guardian Retrieved from https://www.theguardian.com/world/2015/nov/01/metrojet-ordered-suspend-all-flights-egypt-air-crash-russia-sinai

program and utilization rate.

4 Results

4.1 Network

A strategic alliance, or international coalitions is where two or more firms agree upon sharing resources to mutually benefit from each other while remain independent operations to pursue a common objective as described in the literature review. Most often, it includes some sort of exchange in assets and expertise within the cooperation. These shared resources often allow cooperation to perform economics of scale.

4.1.1 FSC incentives. In order for us to identify the potential for LCC in forming a strategic air alliance, we must first trace back and understand the key factors for FSC to join air alliances. Ohmae (1989) believes that because of globalization, an airline company needs to handle customer preferences of destination from across the world. This is also supported by various researches that to improve market penetration, airline companies trend to globalize and industrialize it's operation (Pablo Eduardo Fernandez de la Torre, 1999; Thurow, 1996). Yet, when air travel requires expensive investment and cutting edge technology to fulfill that such abundant amount of requests, most companies are not able to maintain the operation itself. Therefore, it is essential for airlines companies to join alliances which therefore allows them to share fixed costs. "This new logic forces managers to amortize their fixed costs over a much larger market base [...] this logic mandates alliances that both enable and facilitate global,

contribution-based, strategies.” (Ohmae, 1989). In the paper by Burton (1994), he further points out that these costs often refer to marketing and management fee. Burton further emphasizes that for an airline company to reduce cost, it is essential to operate both economies of scale and scope. Large economies of scope allows the same investment of marketing and facilitate fees for more customers on different marketing routes, thus decreasing costs per seat. FSC uses a hub-and-spoke network system to maintain its network operation. Hub-and-spoke system allows an airport hub to collect its passengers from numerous locations and shuffle them by grouping passengers according to their destination (Bilotkach & Hüscherlath, 2012; Bissessur & Alamdari, 1998). Hub-and-spoke together with complementary code-sharing expands this phenomenon as now the hub airport collects not only the airline itself, but passengers from another alliance airline (Pablo Eduardo Fernandez de la Torre, 1999). This magnifies the hub-and-spoke process allowing airline companies to reach markets then was not operated and also gathered passengers they it does not flew from. This therefore created an economies of scope. At the same time, it also assures a high route traffic density, or economies of route, since all the routes now carry passengers from the collective passengers of two airlines (Bailey, Graham, & Kaplan, 1989; Bissessur & Alamdari, 1998). This phenomenon can also allow airline to use larger planes to carry more people thus decreases the cost-per seat. It also assists in removing double marginalization by airline companies (Bilotkach & Hüscherlath, 2012). Finally, airline companies also diluted the risk when opening a new market as customers

can be attracted through other allied companies (Casanueva et al., 2014). Together, alliances act as a platform to encourage airline companies to consolidate and cooperate on different flight routes to achieve both economies of scale and scope.

Besides operational benefits, because international law allows a state “complete and exclusive” sovereignty of their own air space, airline companies often face traffic restrictions when entering an airspace beyond its home country (Weber & Dinwoodie, 2000). Thus, air alliances act as a key role to extend an airline’s destination and market beyond its home country. (Havel 1997) As said in the previous part, through the operation of hub-and-spoke system and code-sharing, a FSC can use code-shared flights within the alliance as a channel to enter external markets and avoid investments in legal, political and other constraints (Whitaker, 1998). Many researches have similar results that led to the same conclusion in which air alliances help extend an airline’s serving network beyond current markets (Iatrou & Alamdari, 2005).

We can briefly conclude that because of hub-and-spoke system and code-sharing, air alliances helps airline expand its market legally and strategically. This explanation echoes the conclusion of some major reasons for airlines to choose alliances over merge and acquisition: risk sharing, market-segment access, technology gaps and geographic access (Freidheim & Abramson, 1999). This increase in market and demand allows them to achieve economies of scale and scope (Garg, 2016). With that, airline can see tickets at a much lower cost benefiting

itself, customers or both. It also allows passengers flying different airlines to share a broader choice of origin-destination pairs (Hannegan & Mulvey, 1995).

4.1.2 LCC hybridization. Yet, with so many benefits, LCC have been preventing itself from adopting a hub-and-spoke manner as well as avoiding much code-sharing strategies. One of the key reasons is the increasing complexity that would increase operational cost (Pablo Eduardo Fernandez de la Torre, 1999). It also adds additional time since hubbing requires waiting that further increases turnaround time. However, as mentioned in the literature review, LCC has begun some change in operations due to increasing traffic and slowdown growth.

One of the key features in LCC transformation is the recent change in using primary airports instead of secondary airports (Burghouwt & Wit, 2015; Dobruszkes, Givoni, & Vowles, 2017). We conclude from literature that this is resulted by two reasons: to improve demand and increase market. Low cost carriers used to benefit from short turnaround time and also cut cost by using secondary airports. Even though this captures non time-sensitive passengers, or leisure travelers, it sacrifices some potential traffic. With the growth of LCC, only by changing their base to major airports can they start capturing both non time-sensitive passengers and time sensitive passengers (de Wit & Zuidberg, 2012; Dobruszkes, 2006; Dobruszkes et al., 2017; Pels, 2008) and thus expand its growth (Garg, 2016). Since LCC use to serve secondary airports, it often indicates serving medium or smaller cities while to maintain turn-around time, it flies only with short to mid-haul flights. The translation to primary airports enables LCC to seek

potential demands in big cities and larger markets. Especially when, according to research, large cities do not always provide secondary airports for LCC (Dobruszkes et al., 2017). Taking this advantage, it pushes LCC to develop more medium routes and even long haul routes (Burghouwt & Wit, 2015). In this same research, Dobruszkes also observed that LCC today has grown strong enough to compete against FSCs, thus leading to a conclusion that primary airports no longer only serve FSC today.

Here we should also mention that another reason for Asian LCC to use primary airports particularly is the limited development of secondary airports. This is resulted from Southeast and Northeast Asia's fragmented geography setting and each nation's respective air regulations. Thus, many Asian LCC operates already in major hubs (Zhang, Hanaoka, Inamura, & Ishikura, 2008).

4.1.3 Long-haul LCC. Since LCC began to move into major hubs, we decide to investigate the possible or on-going models for LCC to expand their markets. Many research focused in understanding the possibility of long-haul low cost carriers (Klophaus, Conrady, & Fichert, 2012b; Morrell, 2008; Pels, 2008; Wensveen & Leick, 2009; Whyte & Lohmann, 2015). Though in the past several of these operations had led to failure. Long haul flights have to operate in fewer frequency while maximizing the utilization rate for large aircrafts carrying as much passengers they can to utilize economics of scale. Not only does this have to do with the fixed cost for each flight taken, it also is due to the increase in fuel burn, maintenance, crew

and other services for long-haul flights (Whyte & Lohmann, 2015). However, FSC long haul carriers have already been operating high density long haul flights leaving limited space for long-haul LCC to enter the market especially when there is only limited demand for long haul point to point routes (Wensveen & Leick, 2009). Further, comparing long haul LCC with long haul FSC, it is trivial to see that there are only little cost LCC can avoid. Essential security measures and additional crew members were limited and LCC can only avoid so limited airport operation fees since aircraft are most likely in the air. There are no factors for LCC to cut prices when comparing to FSC in a long-haul setting. The only way to minimize cost would be the removal of on-plane services which its removal would likely alienate customers. This is why most research and operations discourage the potential for low-cost long haul operations (Morrell, 2008; Wensveen & Leick, 2009; Whyte & Lohmann, 2015).

Recent years, though with the previous arguments, Asia has still developed several mid and long haul airlines such as AirAsia X, scoot and Jetstar. However, if we look closely, these flights still operate regionally within Asia without crossing the Pacific. Some believe their success is likely due to an operation strategy with sister airlines that operate under the same parent umbrella that help secure and feed passengers within the same network (Morrell, 2008). We shall discuss that more in the next subsection.

4.1.4 New model for LCC alliance. To surpass the challenges of low-cost long haul LCC, we suggest a model to utilize the use of primary airports by LCC as well as leveraging the

characteristics for air alliances to allow airline companies to expand their markets. We know that air alliances benefit airline to join forces to extend market through hubs. We also know that hybrid LCC operates in primary airports. Therefore, our model enables passengers to utilize two regional short to mid haul LCC to travel to longer distanced destinations (Figure 1).

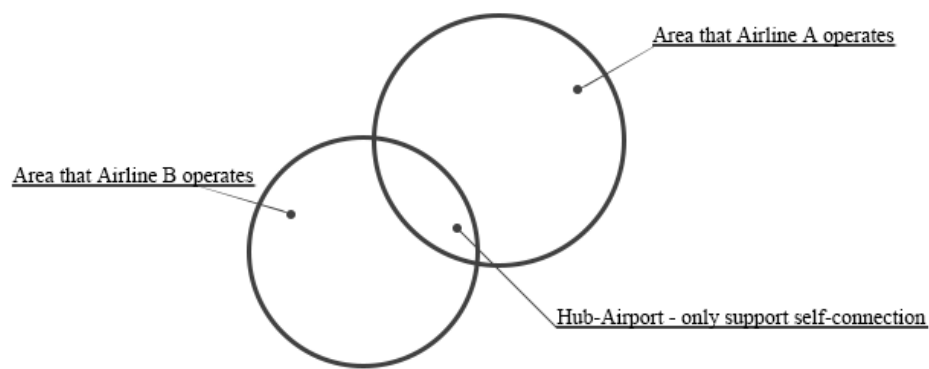


Figure 1. Our proposed model

4.1.5 LCC alliance code-sharing. In the past, similar concepts have been operated between cooperation of LCC and FSC. Researches revealed that one-third of LCC has involves in some kind of code-sharing arrangements in 2011 alone (Morandi et al., 2014). Research suggested that code-sharing between LCC and FSC has helped improve load factor and decreases airfare for FSC carriers leading to additional consumer and producer surplus overall (Du, McMullen, & Kerkvliet, 2008). This echoes with the key role for alliances to feed in passengers, which in this case is for LCC to feed demand into FSC. Research also pointed out that LCC today tends to code-share with FSC as an ongoing hybridization trend (Morandi et al., 2014).

With this result, we can boldly suggest that there is a potential for Low Cost Carriers to

form air alliances among themselves that can assist them joining forces in creating a network for the capacity of serving more passengers to further destinations. This alliance would offer economics of scope to lower costs, economics of scale to boost load factor for air alliances and satisfy customers with more destination choices.

4.1.6 Self-hubbing. Some might argue that LCC has been avoiding code-sharing would highly complicate the operations leading to higher cost in airfare. Therefore, we analyze an on-going trend observed for consumers for self-connection (M. Roelen & N. Walli, 2016). Self-connection, or self hubbing, was first exploit by Paolo Malighetti, Stefano Paleari and Renato Redondi in 2008 when the author realized that two third of Europe's indirect connection flight with minimal waiting time were offered from a different alliance in 2007. Self-connection allows customers to buy separate tickets and connect the latter flight themselves without any forms of cooperation between the two airline companies of the separate ticket in advance. The two airlines would not have agreements such as code-sharing, facility sharing and baggage handling. Grimme further suggest that the risk of missing a connection flight due to self-hubbing could be resolved by paying an insurance fee (2008). In fact, 25% of Oasis passengers, a long-haul Hong Kong based LCC, self-connect to other flights showing high willingness of similar models (Morrell, 2008).

Similar trends can be found from online for LCC as well. Since LCC does not offer connection flights and it operates on a point-to-point basis, a growing amount of passengers

has already begun to self-connect by using online booking services such as Kiwi.com, Hellowings, Expedia and Skyscanner. These services assist users to look for self-connectable LCC flights. Maertens in a research paper in 2016 also believes that a proper implantation of self-connecting LCC flight within an airport, such as check-in counters in restricted areas of the airport, can increase the possibility for LCC to compete in the market (M. Roelen & N. Walli, 2016). The additional services encourage additional transferring passenger from LCC that allows LCC to perform economics of density. These incoming LCC also act as a feeder to the airport hub for both LCC and FSC. Airports would also generate more revenue through better slot productivity and non-aviation consumer revenues (Suau-Sanchez, Voltes-Dorta, & Rodríguez-Déniz, 2016).

4.1.7 Case simulation. With the theoretical analysis from our content-analysis, studies mostly based in Europe and US, we shall provide a case example and our analysis focusing in Northeast and Southeast Asia to provide its feasibility and a clearer picture. As mentioned previously, self-connecting together with air alliances acts as a feeder to different airline companies. Thus, we could view Asian airlines with two possible combinations under the model we proposed: Regional LCC + Regional LCC and Long Haul LCC + Regional LCC. The former allows passengers to utilize two regional LCC operating in each individual airspace to provide a far destination in a low cost manner. The latter would be to use a regional LCC as a feeder toward long-haul LCC. If we look at flying from Osaka to Singapore under both two

combination setting, the former could involve in airline companies such as flying using Peach and Tiger Air. Passengers could travel from Osaka to Singapore by self-connecting in Taipei. The latter might be traveling on Peach from Osaka to Tokyo and self-connect in Tokyo then fly to Singapore via Scoot.

To support our setting, we first have to assure demand for such route. According to CAPA, Singapore airline, a Singapore based FSC, has North East Asia as their most served region in 2011⁴. The financial report for Singapore airline also indicates a growth of 8 percent in East Asia in load factor leading to 81% in 2016 April. This indicates a demand of travel in the two regions. To understand the willingness of passengers taking LCC in Northeast Asia, we found that around one-third of seats in the domestic market are attended by LCC in Korea and Japan according to report in 2016 from CAPA. This would mean that northeast Asian customers does not reject flying low cost. Since, during our content analysis, we noticed that Northeast Asia only have 11% share of available seats in northeast Asia⁵. We believe that insufficient demand had lead the growth of FSC. Continuing that, we tried searching for tickets from Hellowings.com and Skyscanner.com to look for possible self-connectable flights. We identify that the biggest issue for self-connecting between the two regions would be the excessive wait-time between two regional LCC. In summary, difficult low cost LCC and long wait time for self-connect regional LCC has led to limited producer for this demand. This further supports

⁴ Data retrieved from CAPA, <https://goo.gl/ANcJzz>

⁵ Data retrieved from CAPA, <https://goo.gl/VfvCdE>

the essentialness for LCC companies to propose certain amount of cooperation in time schedule by utilizing air alliances which can assist in time scheduling and alternation (Bilotkach & Hüscherlath, 2012).

4.1.8 AirAsia Model. As mentioned earlier, sister and brother airlines such as Scoot with TigerAir or the AirAsia family has supported the low-cost long haul model to survive. TigerAir often acts as a feeder toward Scoot in a domestic and short-range level. Similar strategies can also be found in AirAsia family (Fageda et al., 2014). In fact, AirAsia, one of the most successful airline in southeast Asia had already started similar model as mentioned above. Its expansion in different regions including Thai AirAsia, Indonesia AirAsia, AirAsia India, AirAsia Japan, Philippines AirAsia, AirAsia X, Thai AirAsia X, Indonesia AirAsia X allows a better schedule coordination. Additionally, because of being under the same AirAsia parent, AirAsia provides “Fly-thru” services by assisting baggage handling and check-in counter in the restricted area for selected airports. TigerAir also offers similar facilities (M. Roelen & N. Walli, 2016). CAPA observed an increasing number of 7 percent to 34 percent from 2011 to 2014 using AirAsia fly-thru services when traveling two different AirAsia flights and a growth of 27% of 51% of passengers in the same period of time is doing either fly-thru or self-connecting using at least one AirAsia flight⁶. In 2014 alone, 30% of passengers are using an AirAsia regional flight to connect to an AirAsia X long-haul flight⁷. AirAsia has demonstrated

⁶ Data retrieved from CAPA, <https://goo.gl/flvWl8>

⁷ Data retrieved from CAPA, <https://goo.gl/CpzfVw>

a clear example of customers using LCC self-hubbing to achieve a longer destination. Its implementation of extra baggage handling fee also covers additional operation costs (Morrell, 2008). Because of being in the same operation family, it also provides a better time schedule and assist in connection services. This supports the proposal of a strategic air alliance for LCC.

4.1.9 Network conclusion. In summary, we believe that from the network factor perspective, LCC is highly capable of excelling more destinations for customers and better services while minimizing costs by utilizing air alliances. LCC air alliances preserves the strong characteristics of LCC's short turnaround time and regional low cost operation. Together with self-connecting, LCC can benefit from the hubbing characteristic of alliances by providing more destination choices with higher traffic density and better utilization altogether, while preventing additional costs from code-sharing and operational complexity. Customers would also benefit from the additional variety of choices, shorter waiting time and low air fare which ultimately created a win-win situation for consumers and producers.

4.2 Load Factor and Utilization Rate

Understanding the potential demand and the implication of network factor under a LCC strategic alliances, we have to also assure that LCC in Asia is capable of handling these additional demand. We want to focus on the two questions: "How full is their plane from current operations" and "Are the planes fully utilized?" Therefore, we focus on the load factor and fleet utilization rate for current LCC.

As we know that load factor is one of the major numbers we could observe when identifying the amount of passenger flying on a plane, it identifies how full a particular flight is (Iatrou & Alamdari, 2005). On the other hand, according to Quantitative Problem Solving Methods in The Airline Industry, “the efficient utilization of expensive resources is an objective of any profitable airline” makes it essential to identify the utilization rate of airlines (Barnhart, 2012). Similarly, a research report from Boeing, “10 minutes’ increase of turn-time for an aircraft improves 8.1 % of utilization allowing carriers to increase load and serve more customers” (Mansoor Mirza) strengthens the stance that both utilization rate and load factor are quantitatively meaningful measurements of much or how efficient is an aircraft used.

4.2.1 Load factor. With limited data sources, we can only rely on the financial reports of each Asian LCC to provide us the load factor for their flights. During the collection of the data, we identified 51 LCC in Asia and was able to retrieve 39 of their load factor through their most recent financial reports. We use LCC in United States, FSC in United States and Cathay Pacific as benchmark for the comparison. These benchmark data were provided by MIT Global Airline Industry Program⁸. The results can be found in Figure 2. Here we can see that Asian LCC has an average load factor just above 80%, about 4% less than the benchmark. Keeping in mind that Southeast Asia LCC fleet has already grown by 13% in 2015 and a total of 1,137 orders of planes were placed just within South East Asia. This additional amount is almost double from

⁸ Data retrieved from <http://web.mit.edu/airlinedata/www/Revenue&Related.html>

the current fleet of 609 in the areas according to CAPA. This growth indicates willingness and the potential for LCC in Asia to grow in both capacity and services.

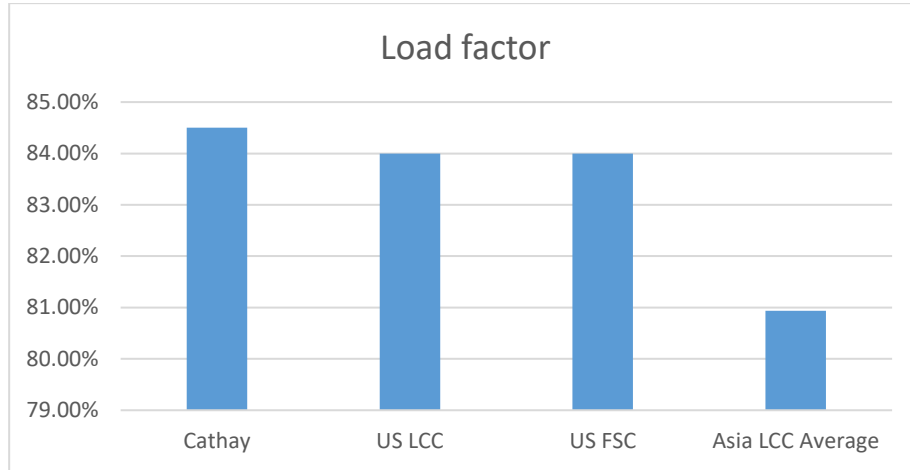


Figure 2. Load Factor comparing Asian LCC with benchmarks

4.2.2 Utilization Rate. On the other hand, we must also see if current operating planes are in its full use within the area by examining the utilization rate. By using the data, we retrieved and organized from the web, we sort them via the unique serial number for each recorded plane. We understand that some routes might be only flown once or twice within a week, thus we capture a whole week of data for our analysis. Throughout this time, we focus in calculating the time a plane is in the air by obtaining the flying time from takeoff to landing. We then calculate the average of fly time for each day throughout the observed week from October 28th 2016 to November 4th 2016 shown in Figure 3. Then we take an average for all the plane of a particular company as the utilization rate of planes for this Asian LCC. The utilization rate would be $\frac{\text{Average hour in air per day}}{24 \text{ hour}} \times 100\%$.

Again, we use LCC in United States, FSC in United States and Cathay Pacific as our benchmark and the results are shown in appendix A and summarized in Figure 2. First of all,

we can observe that there is a higher utilization rate comparing US LCC to US FSC. US LCC has higher utilization rate comparing US FSC since IATA reported airline cost performance in 2006. From the understanding of LCC and FSC operations as mentioned previously, LCC can perform a shorter and faster turnaround time to assure most of its plane is constantly in the air because of its point to point model. Comparably, FSC uses hub-and-spoke system causes waiting time for aircrafts on the ground for hubs to collect the passengers. However, if we observe the figure below, the average utilization rate for Asian LCC is still far behind from US LCC or even FSC by almost 3 hours of usage, almost equivalent to a short haul flight time. Over 80% of all Asian LCC has a utilization rate lower than average US LCC. The only two airlines that surpasses Cathay Pacific's utilization rate are long-haul low cost AirAsia X which is very reasonable. Flying long haul allows their aircraft to maintain in the air most of the time despite any turnaround time.

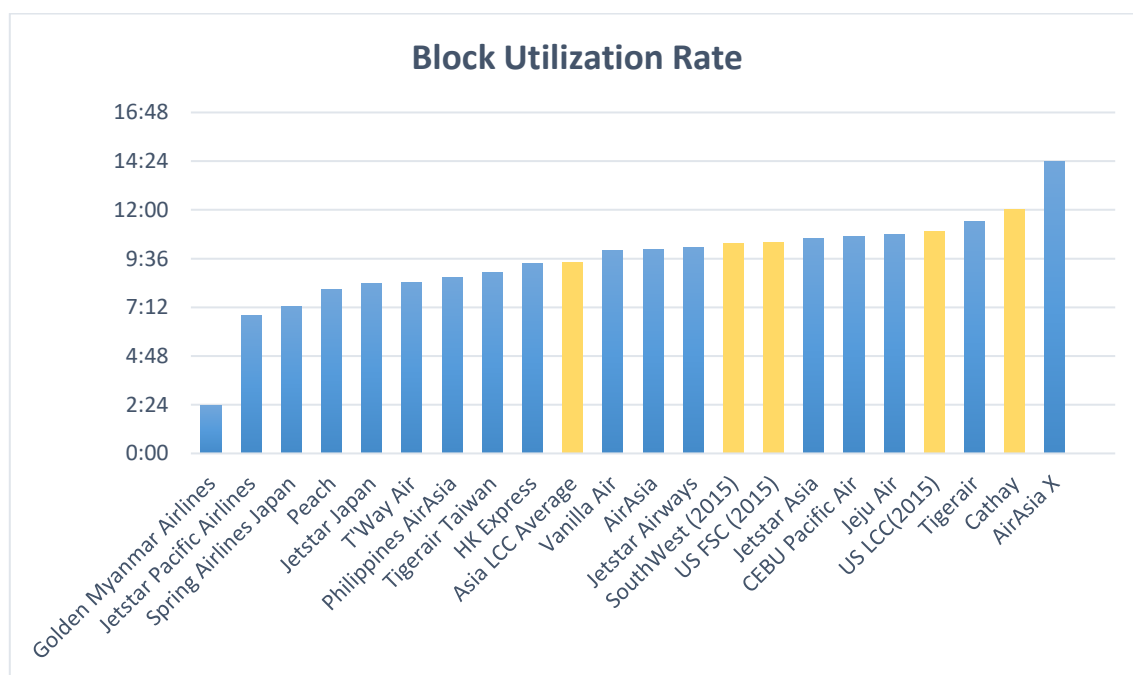


Figure 3. Summarized result for utilization rate comparing Asian LCC with benchmarks

4.2.3 Available growth space. Here we can see a clear picture that there are still room for Asian LCC to improve the aircraft utilization and load factor to better utilize their costs and perform economics of scope and scale in the long run. This also means that by forming an alliance for LCC adopting the previously mentioned “hopping” model, LCC can focus more on the regional point to point services, minimize turnaround time and increase flight frequency. This increase in flight frequency would better allow customers to fly to various destinations in a more efficient manner.

4.3 Frequent Flyer and Loyalty program

FFP are loyalty programs for passengers to redeem some sort of rewards such as but not limited to air travel tickets when they have accumulated certain amount of flight mileages. Implementation of Frequent Flyer program (FFP) is one of the key characteristics that use to only be found in FSC. However, FFP and other loyalty programs has already started to emerge in LCC over the past decade as a key factor to determine the hybridization of LCC (Tomová & Ramajová, 2014). Studies of how FFP impacts airline is clear. Research by Martin in 2011 and Park in 2010 all indicates that FFP would likely increases a customer’s willingness to pay and alongside affect the service quality, satisfaction and airline image when presented to a passenger. It also “locks in” regular flyers toward the alliance (Whyte & Lohmann, 2015). This is not surprising when we went through all 51 Asian LCC, more than half of them has already implemented some loyalty program or FFP (Figure 4).

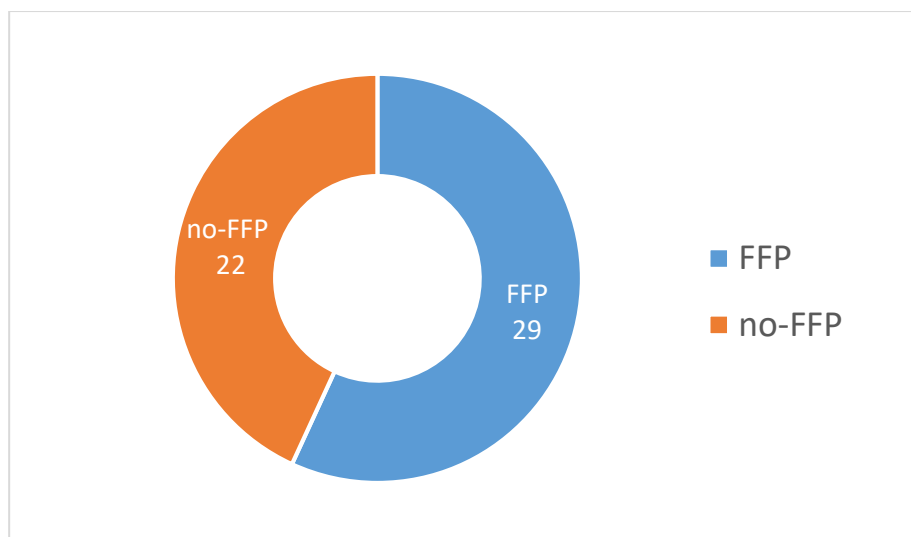


Figure 4. Frequent Flyer Program for Asian LCC

As a formed alliance, FFP program would likely encourage make passengers with slightly higher willingness to pay when choosing between low cost carriers. Therefore, there lies potentials for LCC alliance to use FFP as an incentive to increase more demands in general.

4 Discussion and Conclusion

From the above content analysis, we can conclude that air alliances are beneficial for airline companies to perform economics of scale and scope by cooperating investments. By sharing resources, alliances use hubs or major airports to reach markets of other airline companies through code-sharing and other methods. Alliances also uses FFP programs to attract and conceal customers within the operating companies.

With the hybridization of LCC, one major factor is the increasing use of primary airports from secondary airports allows LCC to access large markets. Without having high risk in maintaining long-haul low cost business models, LCC can adapt a “hopping” model to allow customers to self-connect through major airports of one another. This method suggests that

under a LCC alliance setting, passengers utilize self-hubbing to travel to far away destinations using two or more LCC. This will remove the burden for airline companies to manage regulations in relative airspaces. It can also boost demand and retrieve large market without integrating code sharing also minimized the additional cost of such cooperation.

Throughout the investigation, we also looked into the load factor and utilization rate to reconfirm that Asian LCC is still in its developing age compared to the US and EU markets with high growing potentials.

During this research, we are very limited with up to date data and precise flight information. Also, in May 2016, Value Alliance was announced as the world's second LCC alliance⁹. Value alliances comprises eight different Asian LCC including: Cebu Pacific, Jeju Air, Nok Air, NokScoot, Scoot, Tigerair, Tigerair Australia and Vanilla Air. The combined fleet and flight would allow it to rank as the fourth largest airline alliance. However, no operation has been observed since then. Together with our current understanding, we believe that several future research areas could be incorporated. Firstly, observing the performance of Value alliances would be a major evaluation of low cost carriers formed air alliance performed. It is essential, with sufficient data, to understand if alliance has improved the utilization rate and load factor for the respective eight LCC. Further, it is worth understanding the operation group of AirAsia and how it might compete with an air alliance operating in the same region.

⁹ The first LCC alliance was U-FLY, yet the four operating LCC are all affiliated with the HNA Group, thus it is harder to evaluate the performance and effectiveness of LCC air alliances.

In this paper, we also did not investigate the relationship and the possible influence for LCC and FSC cooperation. As said the section 4.1.3, one third of code-sharing were operated between LCC and FSC while the majority of both are from the same operating group. Deeper investigation of similar “airline within airline” phenomenon is also observable during our investigation and is worth understanding it’s impacts to air alliances (Pearson & Merkert, 2014).

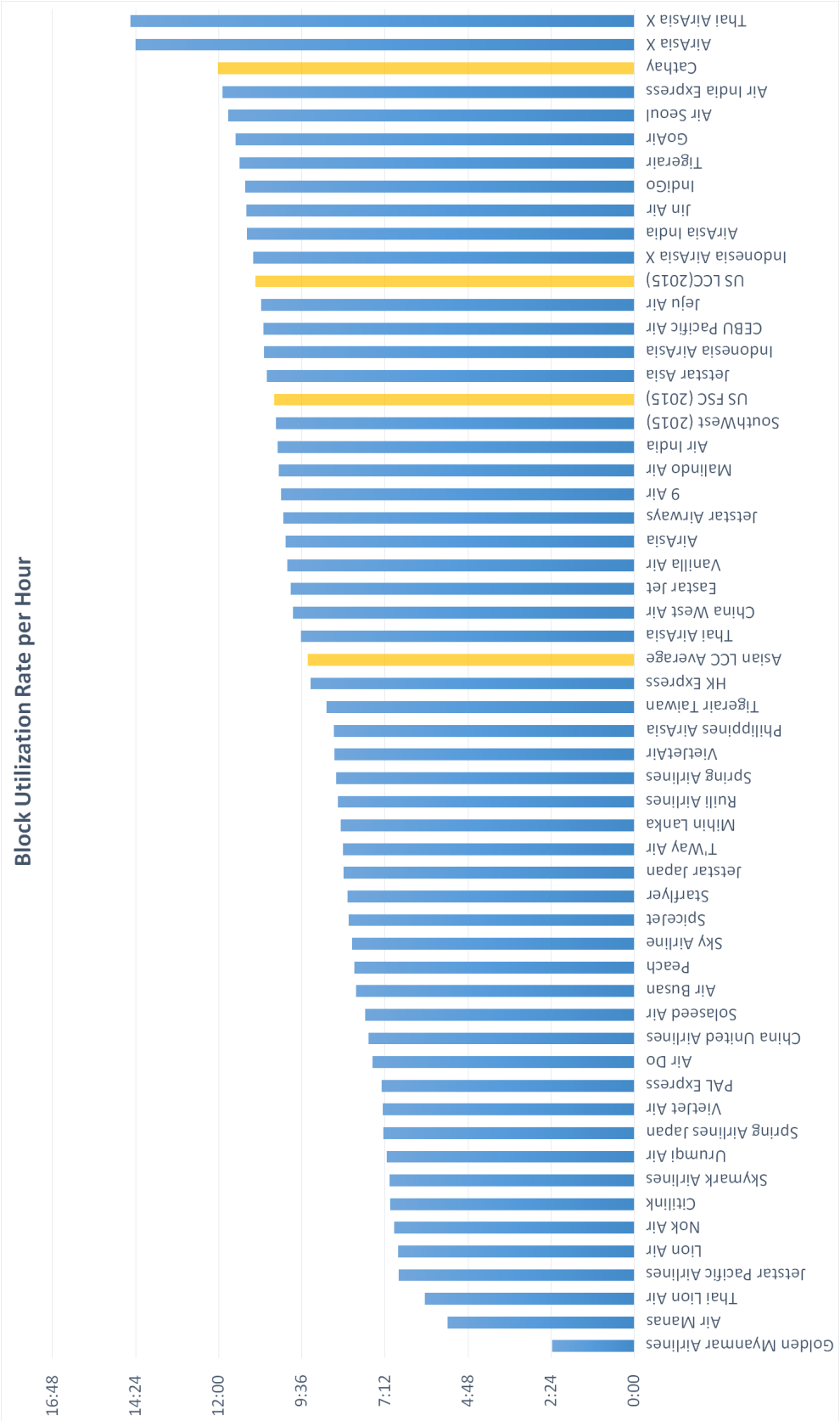
In conclusion, this paper gave solid and sophisticated reasoning to identified the four key factors that would determine the potential for Asian LCC to form strategic air alliances: network, load factor, utilization rate and frequent flyer programs. We then identified strong potential for Asian LCC to make use of air alliances to expand its network. We also observe excessive capacity for Asian LCC to utilize for load factor and utilization rate. Lastly, we believe that the incorporation of FFP secures and enhances customer experience when flying Asian LCC. Overall, we conclude that there is in fact potential for Asian low cost carriers to form strategic air alliances.

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Appendix

A Fleet block hour utilization rate for Asian LCC with benchmark



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