

# Issues in Network Development by National Airlines: The Case of Ukraine

Volodymyr Bilotkach<sup>1, 2</sup>

August 2007

## Abstract

This paper uses example of Ukraine to explore the issue of national airlines' strategies on the global deregulated airline market. Ukraine's case is unusual in a sense that the country currently has two main national carriers, which do not directly compete on any international route. The carriers' success on the global deregulated market requires a well-established and structured network, which none of the two carriers can offer at this time. We suggest that an alliance between the two carriers is a preferable option to a merger. The analysis is extended to suggest alliances as a possible policy option on the deregulated airline markets.

Questo articolo analizza il caso dell'Ucraina per esplorare il problema delle strategie delle compagnie aeree nazionali sul mercato globale aereo non regolamentato. Il caso dell'Ucraina e' particolare perche' il paese ha due compagnie principali che non competono direttamente su nessuna rotta internazionale. Il successo delle compagnie sul mercato globale non regolamentato richiede un network ben stabilito e strutturato che nessuna delle due compagnie puo' offrire in questo momento. Sugeriamo che un'alleanza tra le due compagnie e' preferibile a una fusione. L'analisi sembra anche indicare che alleanze sono una possibile opzione nei mercati aerei non regolamentati.

JEL Codes: L20, L93

Keywords: Ukraine, National Airlines, Airline Alliances, Deregulation

---

<sup>1</sup> Address: Department of Economics, University of California, Irvine, 3151 Social Science Plaza, Irvine, CA, 92697, USA, Phone: (949)-824-5192; e-mail: [vbilotka@uci.edu](mailto:vbilotka@uci.edu)

<sup>2</sup> The author thanks Claudio Piga and an anonymous referee for helpful comments.

## 1. Introduction

As new members of the European Union are reaping the fruits of liberalization of the EU's airline market, and with further liberalization of the US-EU market well on its way; it is interesting to study implications of these trends for countries excluded from the process, yet located close to the EU. In this paper, we examine the case of Ukraine as one such country. This former Soviet Union republic, now a country of approximately 46 million people with area exceeding that of France, presents an interesting case for several reasons. First, Ukraine has rather close business ties to the EU. In fact, in 2006 the value of Ukraine's exports to the EU countries exceeded same to the former Soviet Union republics. Second, recent (from Spring of 2005) abolition of visa requirement for EU citizens visiting Ukraine<sup>3</sup> sparked interest in the country as the tourist destination. From 2004 to 2006, Ukraine has seen over 20 per cent increase in the number of foreigners visiting the country (according to the State Statistics Committee of Ukraine). According to the EU, 1.5 million passengers traveled by air between Ukraine and the European Union in 2004, representing 25 per cent increase from 2003. Comparing these numbers to the total number of air passengers in Ukraine (as provided by the State Statistical Committee of Ukraine), we can say that half of passengers boarding the flight to/from Ukraine traveled to/from an EU country. Third, as we will show in this paper, Ukrainian airline companies have the potential of entering the dynamic Europe-Asia market, provided the country's carriers play their cards right.

More broadly, this paper is about the strategies for national airlines in the liberalizing global airline industry. European experience dramatically shows that liberalization poses a substantial challenge to the national airlines, which 'flag carriers' can successfully respond to. Generally, it appears that unless a national airline can find its niche on the global market, it may cease to exist. Doganis, R. (2001) devotes an entire chapter of his book elaborate this point. As a key to a national airline's success he suggests the strategy of 'network size rationalization', which usually implies focusing on profitable routes and abandoning unprofitable ones.

We use example of Ukraine to take this point further to suggest that network development is the key to a national airline's survival on the globally competitive

---

<sup>3</sup> This also applied to citizens of Switzerland, Norway, Japan, US, and Canada

market. Case of Ukraine is unusual, as this country has two airlines which can be called ‘flag carriers’ and compete on domestic routes, but not on international ones. We consider this case to propose strategies which can be employed by formerly protected airlines to meet challenges of deregulation, as well as the related policy options to be pursued by the regulators. Namely, since international networks of Ukraine’s two major carriers do not overlap, while domestic routes do, we suggest that a code-sharing agreement involving only international flights of the two carriers, but excluding domestic routes, will have little if any anti-competitive effect, and can help both airlines establish a strong competitive position on routes from Europe and North America to Asia, using Kiev’s Boryspil airport as a hub for channeling passengers. At the same time, competition on the domestic markets will not decrease.

The following more general conclusions follow from our analysis. First, where several protected national carriers are present in the regulated environment, it is likely that following the deregulation some cooperation will be required between them; further, consolidation in such a case appears a more favorable policy options than a merger. Second, in cases where regulators are concerned that a single national airline obtains too much market power on international routes, splitting the carrier into two with a code-sharing agreement between them could be considered a viable policy option, especially for national carriers believed to be inefficiently large. Generally, we point out to the possibility of using airline partnerships as a policy option, when dealing with the national airlines.

A conclusion more closely related to the European Union is that some of the EU airlines’ competitors on the EU-Asia airline markets are located east of the EU. How strong those competitors will be is going to depend on how regulated the market between the EU and the respective country is, as well as on the strategies pursued by the countries’ airlines.

The rest of the paper is organized as follows. Section 2 describes Ukrainian airline industry, with the emphasis on the country’s two most advanced carriers. Section 3 makes the case for Ukrainian airlines’ possible role on the EU-Asia market, and outlines major problems to be solved by the carriers before this goal can be reached. Section 4 compares two possible strategies Ukrainian carriers can implement to facilitate obtaining the market niche dictated by the country’s geographical position. Section 5 concludes.

## **2. Ukraine's Airline Companies**

### *2.1 Background*

Following break-up of the Soviet Union in 1991, Ukraine, a country of about 46 million<sup>4</sup> people, inherited a number of decent airports, a well-developed railroad network, and a fleet of outdated Soviet airplanes<sup>5</sup>. Ukrainian railroad network coupled with the low per capita income hindered development of the domestic airline market throughout the 1990s, and is partly responsible for the fact that most international routes out of the country originate at Kiev's Borispol (KBP) airport. The country's economy is developing rather asymmetrically, with Kiev – the capital city of almost 3 million – growing faster than most regions. In addition to that, most of Ukraine's major cities are a half-day or one-night train ride from Kiev, and fares are low (rarely more than \$30 one-way for standard class); Kiev is connected with all major Ukrainian cities by one or several daily train services.

Noticeable development of the domestic airline market started around 2000, when Ukraine finally showed economic growth after almost a decade of decline. The domestic market is rather deregulated; nevertheless, the government of Ukraine still can have profound influence on it<sup>6</sup>.

The number of passengers using air transport (both domestically and internationally) is reported to have quadrupled from the year 2000 (when about 1.1 million people traveled by air) to 2006 (4.4 million passengers). The biggest jump in air travel occurred from 2003 to 2004, when the number of passengers went up by about 0.9 million, or an astounding 40 per cent. All the numbers presented here are as reported by the State Statistical Committee of Ukraine. The reliability of this data is uncertain: for example, Kiev's Boryspil airport (KBP) states on its web site that it handled over 3.9 million passengers in 2005; whereas the officially reported number of air passengers for Ukraine over the same year is 3.8 million. Whatever the exact numbers, however, the growth over the last six years has been substantial.

---

<sup>4</sup> This is the most recent officially released figure for the population of Ukraine. In 1991 the population of Ukraine was 52 million people.

<sup>5</sup> The only Soviet Union's airline company was Aeroflot. The company used Soviet-made aircraft. The airline's passenger fleet consisted of Antonov turboprops, as well as Ilyushyn, Tupolev and Yakovlev jets. The network was largely point-to-point.

<sup>6</sup> For example, in the Summer of 2002 the government decided to conduct an 'experiment' on the domestic market. It 'offered' the domestic airlines to expand capacity, increase frequency and slash fares on all domestic routes. The 'experiment' lasted for three months and the government claimed that it has boosted air travel within Ukraine (some local experts claimed otherwise). Whether this is indeed so is an interesting question, but the data necessary to conduct such an investigation is out of reach.

## 2.2 *Three-Tier System*

Technically, around 30 airline companies offer passenger service within Ukraine, with a number of those performing charter and scheduled international services. Majority of flights within Ukraine are still operated using the Soviet era aircraft (mostly Antonov turboprops and Yakovlev jets). There is also a seasonal market for international charter services to major tourist destinations (mostly in Turkey and Egypt), in which carriers from all three tiers participate.

If we try to classify Ukrainian airline companies, a three-tier system seems the most appropriate vision. At the lower tier, we have companies relying mostly on domestic and/or seasonal charter flights, with limited international services. The fleet of these airlines normally consists of few rather old airplanes. A good example of an airline at this tier is state-owned Lviv Airlines, based in the city of Lviv in western Ukraine. This carrier offers scheduled flights to Kiev and Moscow (daily), as well as sporadic services to Rome, Madrid, Lisbon, and Naples, using its fleet of Antonov-24 turboprop and Yakovlev-42 jet aircraft<sup>7</sup>.

At the second tier we have three carriers (Ukrainian Mediterranean Airlines or UMAir; Donbassaero and Dniproavia) which, while still relying on charter services to a significant degree (e.g., 60 per cent of UMAir's flights are charter services, according to the airline), also offer scheduled international services to a number of destinations. These services are, however, infrequent. While at this second tier we observe airlines using Boeing and Airbus aircraft, along with more than once-a-week scheduled services to EU countries; it is also true that on-line booking is rarely available (only offered by Donbassaero), and electronic tickets are unheard of<sup>8</sup>.

The top-tier Ukrainian carriers, which clearly stand out from the rest are Ukraine International Airlines (PS) and Aerosvit Ukrainian Airlines (VV), both based in Kiev, the capital of Ukraine. These airlines can be called Ukraine's 'flag carriers', and use Boeing aircraft for their international flights<sup>9</sup>. As of April 2007, Ukraine International's fleet consisted of fourteen Boeing 737 aircraft (with 15<sup>th</sup> to be delivered shortly). Aerosvit at the same time had eleven Boeing 737 planes and three wide-body 767-300 series airliners (previously flown by SAS and Mexicana); and it

---

<sup>7</sup> According to the airline's web-site ([www.avia.lviv.ua](http://www.avia.lviv.ua)), over the period from October 2006 till March 2007 the carrier performed 18 flights to Rome; 8 services to Madrid; 6 to Lisbon; and 15 to Naples.

<sup>8</sup> Even though you will be able to purchase the ticket on Donbassaero's web-site, you will still need to pick up the paper ticket at either the airline's office or the airport (delivery by mail is not offered).

<sup>9</sup> Soviet made Antonov-24 turboprops and Yakovlev-40 jets are used for some of the carriers' domestic services; yet, they too are being replaced with B-737 jets.

aims to double the narrow-body and triple the wide-body fleet over the next five years. Aerosvit will also be the main tenant of the new terminal at Kiev's Boryspil airport (scheduled to be opened in 2009). These airlines offer the kind of services one is accustomed to with major carriers from Europe, North America, or Southeast Asia, including on-line booking, electronic tickets (on a growing number of routes), frequent flier programs, on-line flight and luggage tracking.

Ukraine International is 61 percent owned by the Ukrainian government, with Austrian Airlines holding 22 percent, and EBRD – 10 percent of the airline. Aerosvit is 38 percent owned by a Dutch company Gilward Investments B.V. (rumored to be linked to Russian business interests<sup>10</sup>), with Ukrainian government holding 22.5 percent of the company; the remaining part of the airline is owned by several Ukrainian entities.

The carriers are modestly profitable: Ukraine International finished year 2006 with \$2.2 million operating profit on \$198 million revenue, marking seventh straight profitable year for the carrier; whereas Aerosvit made \$0.5 million on similar revenue. Both airlines made less in absolute terms in 2006 than they did in 2005 (and given that their revenue increased sharply due to expansion, their margins fell dramatically), a fact the carriers themselves attribute to the rising fuel cost.

These airlines are members of IATA but not of the European Association of Airlines. Also, neither PS nor VV is affiliated with any of the three major international airline alliances. Ukraine International Airlines, however, has a rather strong partnership with Austrian Airlines (which is not surprising given that Austrian owns part of UIA), and cooperates with members of the Skyteam alliance – UIA's flights to Amsterdam, Paris and Milan are included into KLM's, Air France's and Alitalia's schedules, respectively. Ukraine International uses its morning services on these routes to feed traffic to European carriers' transatlantic and other services.

### *2.3 Operations of Top-Tier Airlines*

International operations of the two largest Ukrainian carriers have the following peculiarities. First, international routes to/from Ukraine are still subject to regulation by restrictive inter-governmental bilateral agreements. Some progress towards liberalization has been made in late 2005, when a new aviation treaty was signed between EU and Ukraine; however, the only major change that agreement brought

---

<sup>10</sup> Search on the internet revealed no web site or physical address for this investment company.

about was removal of the nationality clause from bilateral agreements between Ukraine and individual EU member states. Thus, ‘traditional’ entry barriers (i.e., specifying the number of carriers that can be designated to perform services between the two countries, frequency of such services, airports to/from which scheduled flights are permitted) remain agreement-specific and intact. In fact, Ukraine does not have an ‘open-skies’ type of treaty with any country. Thus, the structure we currently observe is the result of the bargaining process between the Ukrainian and respective foreign governments. Sometimes this bargaining turns into ‘trade wars’. For instance, Lufthansa’s attempt to launch a second daily non-stop flight between Munich and Kiev in the Fall of 2004 led to suspension of almost all air services between Ukraine and Germany for several months<sup>11</sup>.

The second notable fact is that the two flag carriers do not directly compete on any international route out of Ukraine, as far as scheduled services are concerned. Ukraine International flies mostly to Western Europe and the Middle East, while Aerosvit’s services are to Eastern European, North American (services to New York and Toronto) and Asian (flights to New Delhi, Bangkok, Beijing and Shanghai) countries. In total, PS and VV combined offer scheduled services to over thirty destinations outside of Ukraine, and link Kiev to at least eight major Ukrainian cities. The two carriers may compete on the routes where they offer seasonal charter operations, but these are not of much interest to us, as such flights are sold predominantly as part of the air-hotel packages and not as separate products.

As of summer of 2007, thirteen EU airlines – all of them former ‘flag carriers’ – offer scheduled non-stop services to Ukraine (compared to seventeen EU countries serviced by the top two Ukrainian carriers), concentrating mostly on flights to the country’s capital. A small seasonal charter market to Crimea peninsula appeared recently, as EU citizens are no longer required to have visas for short-term visits to Ukraine. Even though the new EU – Ukraine aviation treaty (signed in December 2005) effectively removes the nationality clause, so that any EU airline can fly from any EU country to Ukraine; no carrier has used this right up to now. As mentioned above, EU airlines do not go much beyond offering flights to Ukraine’s capital city.

---

<sup>11</sup> The air services agreement between the two countries capped the frequency of flights that can be offered by airlines of either Ukraine or Germany on any given city-pair market between the two countries at seven per week. Lufthansa’s decision was in violation of that clause, and subsequent ‘negotiations’ led to suspension of all scheduled services between the countries except for those on Frankfurt-Kiev route. Following re-negotiation of the treaty, Lufthansa was allowed to open its second daily Munich-Kiev service.

Only four EU's flag carriers offer services on more than one route between their respective country and Ukraine. These carriers are:

- Lufthansa (which flies to Kiev from Frankfurt, Munich and Düsseldorf, also offering flights to Donetsk and Dnipropetrovsk);
- LOT Polish Airlines (with flights from Warsaw to Kiev, Lviv and Odessa);
- Malev Hungarian Airlines (flying to Kiev and Odessa);
- Austrian Airlines (offering flights to Kiev, Kharkiv, Lviv, Dnipropetrovsk, Donetsk, and Odessa). As mentioned above, this carrier also owns a chunk of Ukraine International Airlines – this presumably facilitated Austrian Airlines' expansion on Ukrainian market.

So, most EU carriers do not appear to exhibit substantial interest in Ukrainian market at this point. One can suggest that this is dictated by restrictive regulation on the market; however, Lufthansa's and Austrian Airlines' presence on a good number of routes suggests it is only the matter of willingness to negotiate.

### **3. Possibilities and Problems**

#### *3.1 EU – Asia Niche*

Geographical position of Ukrainian airports (especially of Kiev's Borispol airport) allows establishment of a hub for routing passengers on lucrative routes from Europe and North America to Asia. Yet, competition on those markets is likely to be keen. A good number of services are offered between the EU states and the main Asian countries (Japan, South Korea, China, India), by both European and Asian carriers. Besides Ukrainian carriers, Aeroflot Russian Airlines<sup>12</sup> and Turkish Airlines are also interested in establishing their position on this market niche. One can indeed travel to Asia through Kiev, Moscow, or Istanbul from either Western or Eastern Europe without much loss in terms of distance and (subject to clever schedule coordination) travel time. The questions of the day are whether Ukrainian carriers should compete for this niche and what they should do to succeed. These issues will become increasingly important as pressure builds up for allowing competition on the international routes out of Ukraine. While entering the EU is a rather distant

---

<sup>12</sup> Aeroflot has had a strong position on Europe-Asia market during the Soviet times, when competitors were not even granted the first freedom right (the right to fly over USSR territory without stopping) for their services to Asia. After demise of the Soviet Union, an agreement was reached whereby European and Asian carriers pay the Russian government for the right to fly over Russia in connection with the Europe-Asia flights.

alternative, the possibility of facing competition not only from the ‘traditional’ airlines, but also from the European low-cost carriers may not be that distant, as example of Russia shows (a number of European low-cost carriers offer services to Moscow).

Thus, the strategies Ukrainian carriers will pursue now will determine whether the country’s national carriers will disappear or thrive. As an example of a successful capitalization on the hub airport’s position, we can consider the case of Iberia, which managed to turn Madrid’s airport into the hub for Europe – South America air traffic. Also, a careful examination of the case of Ukraine should allow us to suggest strategies and policy options for other national carriers in the deregulated environment.

The answer to the first question we asked above is trivial. If Ukrainian carriers fail to take the niche ‘dictated’ by the geographical position of KBP, there will be no place for them on the truly global and competitive market. Historically, metropolitan areas of the size of Kiev have become hubs of certain carriers. Examples from the US market include Phoenix, Dallas – Forth Worth, Minneapolis – St. Paul, Miami. Ukrainian carriers could still bet on generating sufficient traffic within Ukraine (which can also be routed through Kiev) to remain internationally competitive. Such strategy will be feasible in the regulated environment like the one currently observed, and could be probable in a partially deregulated environment, where foreign carriers are excluded from Ukraine’s domestic market (a framework of a typical ‘open-skies’ agreement). However, even in the partially deregulated setting Ukraine’s airlines will feel fiercer competition from the other countries’ carriers, as the latter may choose to offer non-stop services to Ukraine’s other major cities<sup>13</sup>. There is always an option for Ukrainian carriers to simply feed passengers to other airlines; but in a completely deregulated environment such carriers are absorbed by the stronger competitors.

### 3.2 *Problems*

Before we further develop the issue we raised above, it is necessary to mention the well-known concept of ‘economies of traffic density’, which is crucial to understanding the benefits of the hub-and-spoke system. An airline can increase its output by expanding the network and/or increasing traffic on the current network.

---

<sup>13</sup> Besides Kiev, Ukraine has four cities with population of over 1 million people (Kharkiv, Donetsk, Odessa, and Dnipropetrovsk), which could become very attractive entry targets for foreign carriers.

When talking about economies of traffic density, we refer to a situation where airline's average cost of carrying a passenger decrease with increased traffic, holding network size constant. This means that under economies of traffic density it makes sense for an airline to fill up the airplane. Several studies (e.g., Brueckner J.K. – Dyer N.J. – Spiller P.T., 1992, Brueckner J.K. – Spiller P.T., 1994) empirically confirmed economies of traffic density in the airline industry. A well-developed hub-and-spoke network allows bringing passengers from many destinations for a connecting flight at the hub airport, increasing the load factor and allowing the carrier to use economies of traffic density to fuller extent.

We claim that the current network structure, offered by Ukrainian carriers, will not allow them to establish a strong position on the Europe – Asia and North America – Asia markets. Demand on Europe – Ukraine, North America – Ukraine or Asia – Ukraine markets alone will be insufficient to ensure high load factors on a comprehensive network (there are some routes where this is achievable, either year-round or seasonally, though). Thus, travelers on Asia – Europe and Asia – North America routes must be added, and as many of those as possible. Yet, we mentioned above that Aerosvit and Ukraine International do not offer overlapping networks outside of Ukraine, and Aerosvit appears to be the only airline attempting to use Kiev as a hub for travel between Europe/ North America and Asia. This means that Aerosvit is effectively unable to channel passengers from Western Europe to its services to Asia through Kiev, leaving the most profitable segment of the market out of reach. Also, Ukraine International is not able to take advantage of potentially higher load factors it could achieve with passengers from Aerosvit's Asian services. Thus, Ukraine International currently relies on either substantial number of Ukrainians abroad (e.g., services to Lisbon, Madrid, Rome), or on feeding passengers to hubs of other carriers (Amsterdam, Zurich, Vienna) for filling its planes.

## 4. Strategies and Policy Options

### 4.1 *Single Carrier*

Previous sub-section suggests an obvious conclusion. If Ukraine's airlines want to establish a strong position on the Europe–Asia and North America–Asia markets, they need to coordinate their efforts in some way. The first solution that comes to mind is a merger of the two companies. Indeed, such an option has been entertained by the Ukrainian government. From the point of view of competition policy, however, such a merger will create two problems. First, it will increase market share of the new single carrier at Kiev Boryspil airport. This brings up the issue of the airport dominance effect. Several studies (Borenstein, S., 1989, Evans W.N. – Kessides I.N., 1993, Berry S.T. – Carnall M. – Spiller P.T., 1996, Lee D. – Luengo-Prado M.J., 2005) have shown that airport dominance is a source of market power on the U.S. airline market. Bilotkach V. (2007a) found airport dominance effect applies to the transatlantic routes. In our case this means that fares for travel to/from Kiev may increase, even though competition on separate Kiev – Europe routes will not decrease. The second problem of such a merger is that it will decrease competition on Ukraine's domestic market. While economies of traffic density can work to mitigate the negative consequences of both above-discussed effects (as load factor will increase implying lower per passenger cost), there is still a strong possibility that a merger between the two Ukrainian carriers may not be a good policy option.

### 4.2 *Limited Partnership*

We can look at another process currently affecting the international airline industry to suggest a form of cooperation between PS and VV, which (as related evidence suggests) will not be counter-competitive. Over the last fifteen years airlines have been consolidating their services. Such consolidation takes many forms, the most notable of which are code-sharing agreements and alliances. Code-sharing involves joining the partner airlines' networks<sup>14</sup>, allowing carriers to jointly market each others' flights. Several studies (Brueckner J.K., 2001, Brueckner J.K. – Whalen T., 2000, Bilotkach V., 2005, 2007b) have shown that such partnerships decrease fares for interline trips (itineraries requiring change of carrier en route). The intuition for this is that without coordination between carriers and with product complementarity,

---

<sup>14</sup> A typical code-sharing agreement between airlines A and B involves inclusion of flights, serviced by airline A, into the airline B's schedule, and vice versa. This way, each partner airline effectively expands its network without servicing additional flights.

double marginalization results. When two airlines providing such complementary services coordinate their actions, the resulting fare for the interline trip will be lower than without coordination.

We suggest the following structure of a code-sharing agreement between Ukraine International and Aerosvit. Only international flights of the carriers must be included into the united network. This way, for example, Ukraine International will be able to pick up Aerosvit's passengers from Asia for its flights to Western Europe. Thus, the network of both carriers will be enlarged. Such an alliance will not be counter-competitive for the following reasons. First, the two carriers do not directly compete on any of the international routes, meaning that competition on those markets will not be reduced. Second, without a merger there is less chance of price increases due to the airport dominance effect, as discussed above. We must also stress that domestic flights of the two Ukrainian airline companies must be excluded from the proposed alliance, as otherwise we will end up with lower competition within Ukraine (PS and VV do compete on a number of domestic routes). In summary, the proposed consolidation will not be counter-competitive and will help Ukrainian carriers establish a solid position on the Europe–Asia and North America–Asia markets.

Other issue related to such a limited partnership is potential competition. Garcia-Gallego M.A.–Georgantzis N.–Gil-Molto M.J.–Orts V. (2006) suggest that an adverse effect of a code-sharing agreement may be that the partner airlines might choose not to enter the routes serviced by their partners, which they would have entered absent this agreement. This means, for example, that whereas Aerosvit might have considered entering Kiev-London market absent an agreement with UIA, it may abandon its plans once the partnership between the two Ukrainian carriers is in place. Such an effect will have potentially the most severe consequences for routes that are currently served by a single Ukrainian carrier, where such does not face competition with the foreign airline (such as Kiev-Barcelona or Kiev-Madrid markets). Such routes are, however, few, and entry by foreign carriers will most probably not be precluded by a code-sharing agreement between the two Ukrainian airlines, even where such may preclude entry by the second Ukrainian carrier.

One can also become skeptical as to whether the partnership we propose is better than that between, for example, Aerosvit and EU companies offering non-stop flights to Kiev. This way, EU airlines will feed traffic to Aerosvit's services to Asia,

and VV will feed passengers to European carriers' service to their respective countries (from both Asia and Ukraine). Such a partnership may or may not be beneficial to our hypothetical European carrier. On one hand, if the EU airline also offers a non-stop service to the Asian city where Aerosvit flies, the partnership will both create a competitor for the EU carrier and lower the load factor on the non-stop flight (thereby increasing per passenger cost). On the other hand, the airline can earn more money by segmenting its passengers between non-stop (which will cater to customers with higher value of time) and one-stop services, and engaging in good old price discrimination.

Another aspect of the partnership between a European and a Ukrainian carrier versus that between the two Ukrainian airlines is that in the former case the alliance will be clearly complementary, whereas in the latter we will talk about a semi-complementary partnership, as far as travel between Ukraine and Europe is concerned. Take Donetsk-Paris market, with service via Kiev. Currently the only Ukrainian airline capable of offering the single-airline service on this route is Ukraine International Airlines<sup>15</sup>. At the same time, Aerosvit offers Donetsk-Kiev flights; and Air France flies between Paris and Kiev. The two partnerships we can consider on this route are Ukraine International – Aerosvit and Air France – Aerosvit. In the former case, both Ukraine International and Aerosvit will feed traffic to UIA's Kiev-Paris service, so UIA will effectively compete against itself; whereas in the latter case UIA will compete with Air France-Aerosvit service. Welfare properties of such partnerships are compared in Bilotkach V. (2007c). This study finds that the semi-complementary alliance can dominate if economies of traffic density are strong. We should add, however, that a network-wide partnership between UIA and Aerosvit should be easier to setup than a series of agreements between Ukrainian and European carriers.

For the proposed partnership between the two Ukrainian airline companies to be successful, the carriers must implement several adjustments in other dimensions of their services. First of all, coordination of schedules will be required. Passengers can be easily distracted from flying through Kiev if they have to wait for ten-fifteen hours between the flights. Second, the key to success of an airline is in being able to attract frequent business travelers. And an important factor in attracting such customers is

---

<sup>15</sup> One can also travel via Vienna with Austrian Airlines or via Munich with Lufthansa.

frequency of flights. This issue may prove problematic for the Ukrainian carriers; yet, there are visible improvements in this area. For example, UIA now provides several flights a day to several destinations (Amsterdam, Vienna) – something unheard of a couple of years ago. Aerosvit's flights to Asia and North America are still infrequent (which is to be expected, if you try to service four Asian – Bangkok, Beijing, Shanghai and New Delhi, and two North American – New York and Toronto – cities with only three airplanes). This schedule will not attract frequent price-insensitive travelers. Moreover, such customers usually tend to stick with a single airline, even though this may mean higher ticket prices; this is reinforced by the frequent-flier programs, offering rewards for brand loyalty. Frequent flier programs also seem more attractive the larger the network over which miles can be collected and redeemed. That is why all serious alliances involve joining of the partner airlines' frequent flier programs. We too can suggest that Ukrainian carriers consolidate their services with other major airlines, including joining the frequent flier programs with world's biggest airlines. This strategy has both benefits (makes services of Ukrainian carriers more attractive for partner airlines' frequent customers) and costs (if passengers who have earned miles on partner airline redeem it on Ukrainian carriers' flights).

## **5. Beyond Ukraine**

Let us generalize the discussion, offered in the previous section, to suggest guidelines for network development by the national airline companies in the deregulated environment. The first general (and a rather intuitive) conclusion that comes to mind is that to be viable in the longer run a national carrier must try to find its niche on the global airline market. This seems like a very obvious point. Yet, sometimes this concept is hard to grasp for companies that have enjoyed so much protection from competition for so long. Successes (Lufthansa, British Airways, Air France, KLM) and failures (Sabena, Swissair, Alitalia) of the EU's flag carriers is a good manifest to this point.

The second related conclusion is that national carriers that want to survive must think about establishing a solid hub-and-spoke network. Moreover, establishing a network that only channels passengers to/from the home country may not be sufficient, especially where the country's market is small and/or competition from the surface transport is substantial. Thus, a national carrier (especially from a small country) should strive to establish a network, which channels passengers through the

country. An important conclusion that can stem from this is that establishing a hub-and-spoke network will more likely require the national carrier to *expand* – a strategy that can contradict the ‘network size rationalization’ as suggested by Doganis R. (2001). Many European carriers (especially from the smaller countries) have been ‘fortunate’ in this respect, as their networks have traditionally been of hub-and-spoke type.

The third conclusion is that where several national carriers exist, there is an alternative to a merger between them to make their competitive position stronger. The carriers can consolidate their operations through a code-sharing agreement to include non-overlapping parts of their networks. This will effectively enlarge the airlines’ networks without increasing market power due to airport dominance, as is possible in case of merger between several national carriers. An alternative interpretation of this conclusion is that a single national airline can be split into several carriers without loss in competitive position, so long as the carriers’ services remain consolidated. One should, however, be careful here to recognize that splitting one national carrier into two or more will mean duplication of management and other departments, so it appears that this option can only be applied to very large carriers, which can be suspected of operating in the decreasing-returns-to-scale part of their average cost curves.

Fourth, national carriers should strive to attract frequent business customers, which will require increasing flight frequencies and increasing network size (and/or entering into a partnership with an airline with large network).

To sum it up, following deregulation the airlines which enjoyed the privileged status of national symbols for decades found or will find themselves in a rather difficult position of having to actually compete for the customers. Liberalization of the EU airline industry provides an excellent natural experiment of this phenomenon – better than the 1978 deregulation of the US airline market. In the US, the fares and the airlines’ networks have been effectively fixed<sup>16</sup>; yet, the carriers were free to compete in terms of frequency and service quality. In the EU, however, pre-liberalization era was characterized by a network of bilateral agreements effectively restricting international markets in all dimensions.

---

<sup>16</sup> Even here, regulation related to the inter-state air travel, resulting in at least two (California and Texas) deregulated markets.

One should however understand that even though European Union's liberalized airline market ends at the Poland-Ukraine border; the important Europe-Asia market stretches beyond it. And important players on this market may also have their hub airports east of Poland. With a good number of potential customers willing to tolerate and inconvenience of a stop en route from Europe to Asia for somewhat lower fare, and apparently limited ambitions of airlines from the new EU members for getting involved with this market; the established EU airlines will have to compete with carriers from Russia, Turkey, and Ukraine. How strong those competitors will be is going to depend both on how regulated the market for air travel between the EU and the respective countries is (it remains rather regulated so far); and what strategies those countries' airlines will implement. This paper has considered the case of Ukrainian carriers in light of this issue.

## References:

Berry, S.T. – Carnall M. – Spiller P.T. “Airline Hubs: Costs, Markups, and the Implications of Customer Heterogeneity”, *NBER Working Paper 5561*, 1996

Bilotkach, V. “Price Competition between International Airline Alliances”, *Journal of Transport Economics and Policy*, vol. 39, no. 2, 2005, pp. 167–189

Bilotkach, V. “Asymmetric Regulation and Airport Dominance in International Aviation: Evidence from the London-New York Market”, *Southern Economic Journal*, vol. 74, no. 2, 2007a

Bilotkach, V., “Price Effects of Airline Consolidation: Evidence from a Sample of Transatlantic Markets”, *Empirical Economics*, in press, 2007b

Bilotkach, V. “Complementary versus Semi-Complementary Airline Partnerships”, *Transportation Research Part B*, vol. 41, 2007c, pp. 381-393

Borenstein, S. “Hubs and High Fares: Dominance and Market Power in the US Airline Industry”, *RAND Journal of Economics*, vol. 20, 1989, pp. 344-365

Brueckner, J.K., “The Economics of International Codesharing: An Analysis of Airline Alliances”, *International Journal of Industrial Organization*, vol. 19, 2001, pp. 1475-98

Brueckner, J.K. – Whalen T. “The Price Effects of International Airline Alliances”, *Journal of Law and Economics*, vol. 43, 2000, pp. 503-545

Brueckner, J.K. – Dyer N.J. – Spiller P.T. “Fare Determination in Airline Hub-and-Spoke Networks”, *RAND Journal of Economics*, vol. 23, 1992, pp. 309-333

Brueckner, J.K. – Spiller P.T. “Economies of Traffic Density in the Deregulated Airline Industry”, *Journal of Law and Economics*, vol. 37, 1994, pp. 379-415

Doganis, R. “The Airline Business in 21<sup>st</sup> Century”, Routledge, London, 2001

Evans, W.N. – Kessides I.N. “Localized Market Power in the U.S. Airline Industry”, *The Review of Economics and Statistics*, vol. 75, 1993, pp. 66-75

Garcia-Gallego, M.A. – Georgantzis N. – Gil-Molto M.J. – Orts V. “Game-Theoretic Aspects of International Mergers: Theory and Case Studies”, *International Review of Law and Economics*, vol. 26, 2006, pp. 395-409

Lee, D. – Luengo-Prado M.J. “The Impact of Passenger Mix on Reported ‘Hub Premiums’ in the U.S. Airline Industry”, *Southern Economic Journal* vol. 72, 2005, pp. 372-394