empty legs, positioning flight, ferry flight, business aviation

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THE SALES OF EMPTY LEGS IN BUSINESS AVIATION

Summary. This article contains case study of empty legs that consists of three basic cases that explain possible scenarios that serve for risk evaluation using variability of time as well as number of other entering factors.

HANDEL PUSTYMI ETAPAMI W BIZNESIE LOTNICZYM

Streszczenie. Artykuł zawiera studium przypadków, możliwych pustych etapów lotu statku powietrznego. Wybrane i rozpatrzone zostały trzy podstawowe przypadki. Następnie opracowane zostały i przedstawione możliwe scenariusze, które posłużyły do oceny występującego ryzyka. Uwzględniona została zmienna czasowa oraz inne, wybrane i ważne czynniki.

1. INTRODUCTION

The sales of empty legs is rather new and highly actual topic in business aviation industry. Empty legs represent a unique business opportunity for both charter customers and charter operators. However, both sides have to be aware of all the risks that are related with selling or purchasing an empty leg. This article contains case study of empty legs that consists of three basic cases that explain possible scenarios that serve for risk evaluation using variability of time as well as number of other entering factors.

2. SALES OF EMPTY LEGS- CASE STUDY

2.1. Case No. 1: Positioning flight

Comlux Aviation needs to fly positioning flight from Munich to Moscow with Challenger 605 aircraft for the charter customer located in Moscow while the aircraft is located in Munich. Comlux Aviation Company can offer this flight as one-way available for a potential customer who would just need to fly one-way without necessity to pay for return ferry flight. In order to offer this advantageous and time limited chance to broader scope of potential customers, Comlux Aviation offers this empty leg thru Charter X and LunaJets programs in form of six possible variants as shown on the figure below (Source: Charter X).

Fig. 1. Positioning flight
Rys. 1. Linia pozycyjna lotu – trasa lotu

Ideal Empty Leg:

EDMO- UUWW; Munich, Oberpfaffenh'n, Germany - Moscow, Vnukovo, Russia

Alternative Variants:

1. LFPG- UUWW; Paris, Charles-De-Gaulle, France- Moscow, Vnukovo, Russia; Estimated time of one-way flight: 03:21.
2. LFMN- UUWW; Nice, Cote D´ Azur, France- Moscow, Vnukovo, Russia; Estimated time of one-way flight: 03:26.
3. EDDT- UUWW; Berlin, Tegel, Germany- Moscow, Vnukovo, Russia; Estimated time of one-way flight: 02:18.
4. EBBR- UUWW; Brussels, Brussels National, Belgium- Moscow, Vnukovo, Russia; Estimated time of one-way flight : 03:03.
5. LSZH- UUWW; Zürich, Zürich, Switzerland - Moscow, Vnukovo, Russia; Estimated time of one-way flight: 02:59.
6. LSGG- UUWW; Geneva, Cointrin, Switzerland- Moscow, Vnukovo, Russia; Estimated time of one-way flight: 03:17.

However these alternative variants will be replenished by another positioning flight that the aircraft would have to fly in order to acquire the destination where the potential empty leg customer would be located. This implies that potential empty leg customer will be also charged for another additional empty leg in form of positioning flight that Comlux Aviation has to make in order to get to him, but this time it will be much shorter positioning flight and the potential customer will still pay much lower total price for the flight than paying for charter on demand and Comlux Aviation offer is still very competitive.

1. EDMO- LFPG; Munich, Oberpfaffenh'n, Germany- Paris, Charles-De-Gaulle, France; positioning time: 01:11.
2. EDMO- LFMN; Munich, Oberpfaffenh'n, Germany- Nice, Cote D´ Azur, France; positioning time: 01:08.

3. EDMO- EDDT; Munich, Oberpfaffenh'n, Germany- Berlin, Tegel, Germany; positioning time: 01:02.
4. EDMO- EBBR; Munich, Oberpfaffenh'n, Germany- Brussels, Brussels National, Belgium; positioning time: 01:08.
5. EDMO- LSZH; Munich, Oberpfaffenh'n, Germany- Zürich, Zürich, Switzerland; positioning time: 00:36.
6. EDMO- LSGG; Munich, Oberpfaffenh'n, Germany- Geneva, Cointrin, Switzerland; positioning time: 00:55.

2.1.1. Empty legs risk factor

Basically there are two kind of empty legs:

- Positioning flight: It's an empty leg that needs to be undertaken in order to locate the aircraft in a position of client who chartered the particular aircraft.
- Ferry flight or return empty leg is a flight that needs to be undertaken after aircraft delivered a passenger to its final destination and the aircraft has to fly back to its operational hub or base.

2.1.1.1. Positioning flight

The risk factor of positioning flights is high for charter customers as well as for the charter operators and substantially higher than risk factor of ferry flights. It is given by the principal nature of these flights that are throughout their whole existence or during their overall availability on market of charter flights, negatively influenceable by the charter customer to whom it is needed to undertake that particular positioning flight. The overall time when the positioning flights are available is short in majority of cases, because charter customers usually make decisions at the last moment and they naturally expect that the aircraft will be ready for them as soon as possible. Just occasionally are positioning flights offered throughout longer period of time and predominantly in these cases there is relatively high probability that they will be cancelled, because charter customer to whom it is needed to undertake that particular positioning flight has longer time period when changes in his schedule can happen and that can eventually affect his charter flight and positioning flight along with it.

Consequently the customer to whom the seller, whether it is operator or broker, would like to sell empty leg in form of a positioning flight must be informed about the fact that he/she is buying hazardous empty leg and the seller in this case can not take the liberty of not informing charter customer just because the risk is present throughout whole availability of positioning flight.

Proportion of positioning flights or their multitude on the market of business charter flights is majoritarian since positioning flight are carried out by operators that need to bring their jets back on their base as well as operators with business model based more on point-to-point charter operation without the necessity of bringing jets back on their hub. After all, this fact contributes to the character of majority of empty legs and that's the risk resulting from the possibility of cancellation.

Huge majority of empty legs on business aviation market originate and de facto becomes available at the time when they're negatively influenceable by previous one-way charter flight or by charter customer that booked primarily his one-way charter flight. That's why the subsequent customer, that would have a potential interest for booking that particular empty leg in form of a positioning flight, must be informed about the possibility that the flight could be cancelled.

2.1.1.2. Ferry flight (return empty leg)

The risk factor of ferry flights is for the charter customers lower compared to the positioning flights but it's not always true. Their riskiness results from the way how they are offered by the seller and mostly when they are offered by the seller. We can divide overall length of ferry flights availability in the middle. In the first half we have ferry flights that spring up in the market at the time when they are influenceable by one-way charter flight of the prime customer whereas in the second half we have ferry flights that enter the market of business charter flights after the previous one-way charter flight would be definitely completed so that the prime client can't affect it any more.

At selling empty legs, every operator also has to take into account to what destination he's entering with his aircraft or what market he's entering and what are the chances to find customer there. If there is a real chance that he will find a customer there, the operator doesn't have to lower the price or the empty leg rate considerably whereas when he enters with his jet to the destination where the chances to find a customer are very low and he needs to bring his jet back anyway he will lower the price. On the other hand it also depends on the particular market and competition on it. When the operator enters with his jet to the destination where plenty of potential customers are (for instance: Ibiza, Nice), there will be lots of competition as well that will keep the price of an empty leg down because the operator will try to make it more advantageous for the potential customer. If it be to the contrary when the operator enters with his jet to the destination where the chance of finding a customer would be very low and there would be no threatening competition and despite all this the operator would find a customer there, he won't have to lower the price for an empty leg.

2.2. Case No. 2: Ferry flight

A light jet leaves Prague heads to Murcia and drops off a married couple for a two weeks vacation in Spain. This married couple stays in Murcia for fourteen days so they will ask the operator that the aircraft doesn't have to stay in Murcia waiting for them but to come back after fourteen days. It means that they booked two one-way flights but they will have to cover costs for two round trips. Then the jet in question does not have another flight for two days. The charter company will keep the jet in Murcia until it must return or until someone needs a flight back to the north-east. That means another customer has a good chance of flying on the same jet which is already paid for the return leg back to Prague by the previous married couple.

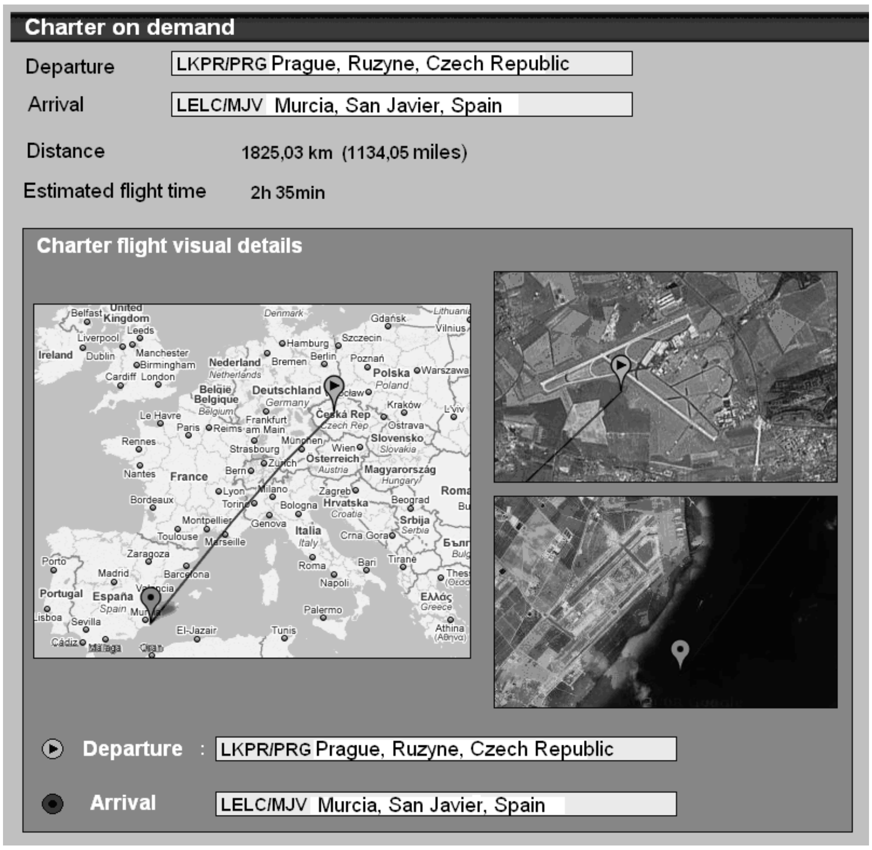

Fig. 2. Charter on demand
Rys. 2. Wymagania czarterowe

So let's say customer B, wants to go from Ibiza to Munich the next day. Then customer B would ask the charter company to come to Ibiza from Murcia and pick him up by positioning flight. Customer B needs to be dropped off in Munich and asks the charter company for a quote.

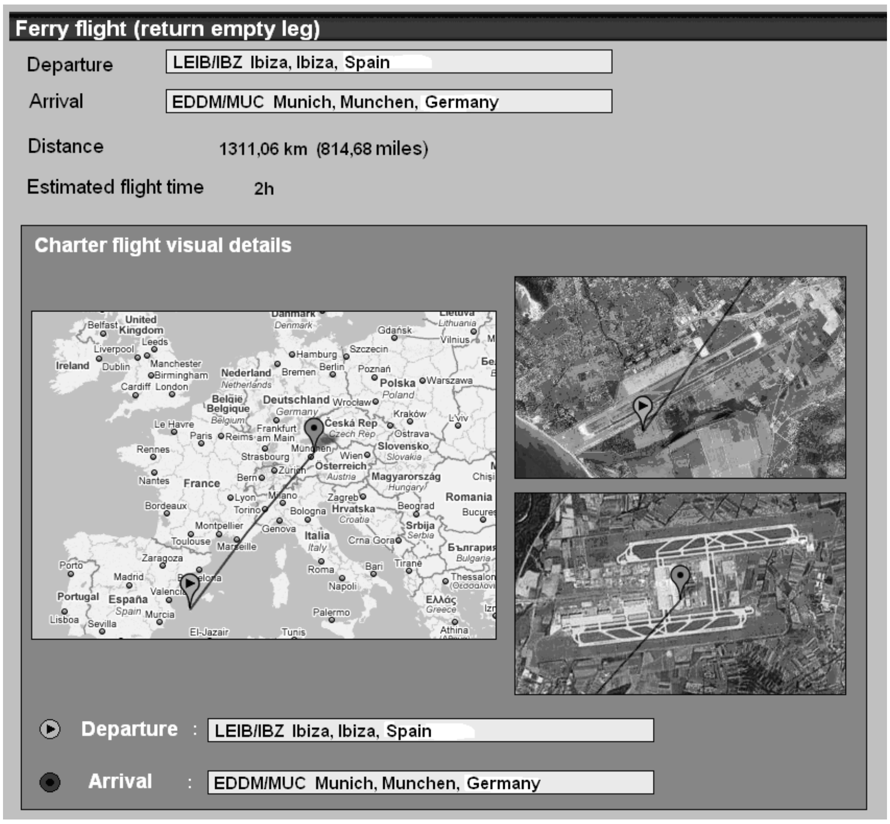

Fig. 3. Ferry flight
Rys. 3. Przeniesienie lotu (przebazowanie)

Option 1: The charter is already paid back to the north-east and Munich is on the return route of the jet heading to Prague. So, the jet will fly about two hours with passenger B on board. This flight should be less than the retail rate of the aircraft. In this quote, there should be added costs that were caused by aircraft standing in Murcia and waiting for another potential customer. But, in order to apply this empty leg in this particular area, the price should never exceed the price per hour on given aircraft and per given number of hours flown (2 hours). If the retail rate of Citation Bravo is €2700 per hour, passenger B should see a quote for €5400 and maybe a landing charge.

Option 2: Sometimes the charter company will have a basic empty leg rate for all of their aircraft. Keep in mind that empty legs only work if the aircraft is going in the direction the customer needs to go. Sometimes a charter company will discount the empty leg by 50% because the aircraft must fly in that direction anyways. This seems to be the best way how to sell empty leg flights.

For example: A LearJet flies from Prague to Murcia and drops off their passengers. The company knows they have a flight the next day from Prague and must return later that night from Murcia. The operator advertises this flight to all of the customers, brokers and charter companies around the route. This kind of flights is the most economical. But they are scarce and the customer must usually be more flexible with travel dates and times.

2.2.1. Booking of Empty Legs and Related Risk

Charter customer could get a great discount by booking an empty leg but he must be aware of all the risks related with it.

Discounts differ

Customer that will choose an empty leg should know that prices of empty legs are not always the same. Operators have different rate on empty legs and also the actual amount is very specific. According to charter brokers empty legs represent discount within the range of 25% to 70% from the price of charter on demand. With such a wide range the customer can not expect the same discount every time.

Best availability at the last minute

Customer can book empty leg months in advance but the best availability is very close before the actual execution of the flight. According to charter brokers the majority of private charter reservations are done approximately four days before the actual execution of the flight what increases the total time when empty legs can be offered. Executives from Virgin Charter say that empty legs booked 48 hours before actual execution of the flight have much higher probability of not being changed or cancelled.

Empty legs can be cancelled

Booking of an empty leg is related with inherent risk since this flight directly depends on the flight of previous customer. If the previous customer decides to leave one day later, empty leg will change accordingly and can be cancelled with late notice.

Customer can make changes in itinerary

Broker is looking for a flight from Ibiza to Munich and finds a jet in Murcia that needs to do empty leg to northeast. Broker can offer rerouting of the jet from Murcia to Ibiza to the customer whereas customer must know that he will have to pay for this rerouting even if it is just a 5 minute flight to designated airport.

2.2.2. Evaluation of Case No. 2

This is a classic way how European operators are trying to make use of their empty legs. When they get with their aircraft into a lucrative destination they can choose to hold the aircraft in this destination for a certain period of time with the expectation that some customer will appear which would need to fly in the same direction as the aircraft is going. The operator doesn’t know if some customer will show up but he decided to wait for a certain period of time in order to offer his empty leg. However for the operator it is much easier to wait when he operates on massively crowded routes where he’s almost sure that he will find someone who will need to fly in opposite direction. But at flying in Europe where such utilization is scarce operators who decided to try to make use of their empty legs will have to settle exactly how long would be their aircraft waiting period in destinations. Alongside operators that are forced to haul in their jets earlier in order to be at disposal for their owners, this aircraft waiting period is usually two days at the most because by every day the costs related with holding the jet in destination like for example: parking charges, overnight charges as well as quarterage and diets of flight crew are rising. Only companies that are using their own aircraft or companies whose business model is based on charter flights can keep their jets in destination for a longer time period and they keep down the number of ferry flights back to base and they fly classically point-to-point. Those operators that are focused pronouncedly on charter flights keep their jets in destinations for a longer time periods, even ten days for instance, with not just an expectation but with a dedication that they will find a customer there without any direction limitation. And also this operator is not limited by the following destination where he would have to get with his jet. Example of such a company is for instance DC Aviation which owns major part of its fleet and so they can keep their jets in destination for a longer time period, if it is a lucrative destination, but company that uses jets of private owners for chartering like for example company ABS Jets, which has to haul in their jets from destinations much earlier so that they are at disposal for their owners. Such an operator is limited by the direction of an empty leg, so that the jet would get back to the particular destination- to its own operational hub. If the operator wouldn’t make it precisely to the particular destination where the jet needs to be located, it can possibly be other destination in close range of the aiming destination and so he will bring up the jet closer (e.g. Munich- Prague). The only thing that such an operator wouldn’t like to do is to move the jet farther away than the initial return flight was.

Whether it is costs or short period of time when ferry flight are available and being offered, it’s a disadvantage of the operator who would like to make use of his empty legs. This case represents convenient offer for the charter customers where risks related with booking of an empty leg are decreased to minimum. It’s because the previous charter customer can not influence availability of this empty leg by any means since his charter flight is already completed. Operator is not offering de facto a risky empty leg but he’s offering one-way flight whose only disadvantage is that it has to be executed in certain flight direction.

2.3. Case No.3: Maximum risk

Assumption: Charter customer hasn’t been informed during reservation of charter flight about the fact that operator wants to use empty leg.

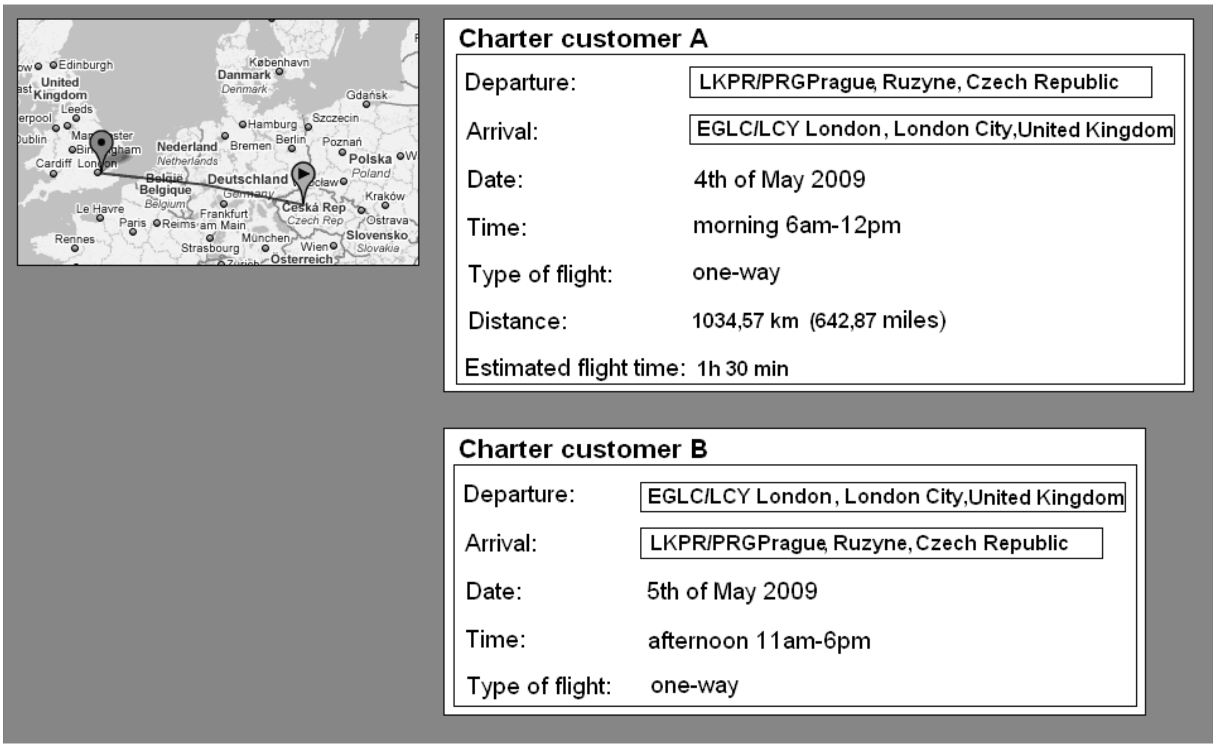

Fig. 4. Consequent flights
Rys. 4. Konsekwencja lotów

2.3.1. Time allowance

This is an ideal case where it might be possible to sell the empty leg to another customer B that wants to fly the next day, on the same route as previous charter customer A. In work experience, this case is very scarce and such a situation similar to this can happen in Europe maybe once per year if any. If two flights happen to be in sequence, there has to be sufficiently long time allowance between them. If the time allowance is not sufficiently long, delay or unpleasant weather on the first flight would negatively influence the second sequent flight because the jet will not be able to make it on time. In the above mentioned case the charter customer A wants to fly by noon and the second charter customer B wants to fly at afternoon of the next day. That provides sufficiently long time allowance for the seller to resolve any unpleasant or unexpected situations that can happen and that may be caused mainly by unpleasant weather and allows him to adapt to the incurred situation. In the case when charter customer B would like to fly the 4th of May 2009 in the afternoon, the seller wouldn’t have sufficiently long time allowance and if unexpected situation would happen, the seller wouldn’t be able to make empty leg assigned for the charter customer B on time with his jet. The seller has to consider if he would decide to apply his empty leg or he would choose a more secure solution and will insure another jet for charter customer B. Even in the case when he chooses to submit to the risk and to apply his empty leg, he has to have a backup plan that he would initialize in case when the aircraft flying with customer A would not be able to make it on time for charter customer B, which would make full use of operator's empty leg. In backup plan there would be another jet ready to undertake the charter flight (the same model as charter customer B booked).

However operators in Europe have quite opposite problem and that is the time allowance being too long. Every non-strictly point-to-point operator has settled maximum length of waiting times while he is willing to hold the jet in destination. After this time has expired and they haven't found a customer that would use the empty leg, the aircraft must relocate back to its hub empty.

2.3.2. Discount for empty leg

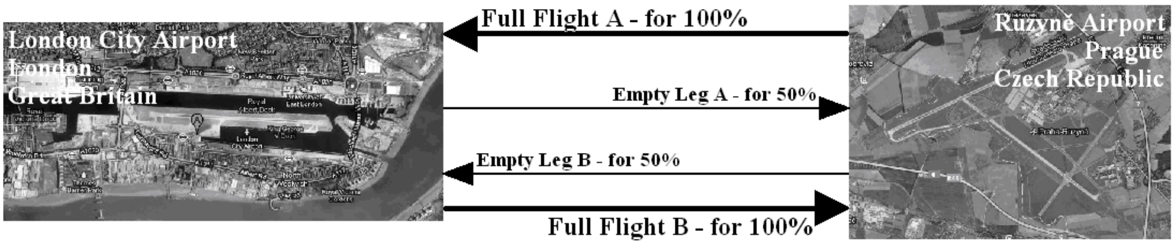

Fig. 5. Discount for empty leg
Rys. 5. Diskont pustego etapu

Charter customers A and B pay for full flight when they are physically in the jet plus costs for return empty leg. This is how the price for charter flight is made. If the seller is 100% sure that customer B will not cancel his flight he could give customer A discount 20% for instance to ensure that he won't turn to competition. Customer B wants to fly with private charter from London to Prague. Since customer B is important client, the seller could avail of the situation and create an interesting offer for the flight in an amount 100% without additional 50% for the ferry flight, what means in this case, that seller is offering unique on-way availability. Or the seller can give to this customer offer in an amount 120% and he would still save 30% of the customer's costs because he should pay 150% and so the seller gives him unique price. At this moment, this offer will be the most competitive among others; because seller lowered the costs for 30% and that's what no other company could achieve without using empty leg. In case when seller created offer for the charter customer B with 20% or 30% discount included and subsequently a complication in sequence with previous charter flight of customer A would arise, the seller would find himself in a difficult situation. Provided that seller didn't informed customer B about the fact that he was booking an empty leg, the seller couldn't provide discount 20% for the charter customer B in advance, because charter customer B would be thinking that he get advantageous offer for charter on demand that the seller couldn't raise back to original 150%. The seller can decide to ensure this trade of two consecutive flights by offering discounts for both customers but he can decide not to risk and will give both customers an offer that will include full and empty flight (2x150%). If both customers A and B will accept this price and seller will make both charter flights, he will get the biggest profit. But if he will choose to ensure both customers by providing discount, he exposes himself into a trade risk, because in case of cancellation of charter flight by one of the customers, the seller couldn't afford to lower the price for charter flight of the second customer.

2.3.3. The risk of selling empty legs at full price

At selling of empty legs it's about seller's honest effort to achieve higher profit from a random and unique opportunity where the probability that two private flights in Europe will be in time and direction sequence is approximately 1%. However, selling of empty legs is not just about seller's effort to achieve higher profit that results from its potential sale. Every charter seller, whether it is broker or operator, is trying to supply demand of charter customer with its own offer that he's trying to compose it in a manner that will maximally satisfy customer's needs and will be unmatched. Therefore when such an opportunity comes along for the seller especially to the broker when he could give to the customers A and B a 20%-30% discount on charter flight or even offer a one-way availability, his natural effort is to make the best of this opportunity and to prosper from both customers and so strengthen his position on market.

When seller finds out that he has an applicant for a charter flight that is in time and direction sequence with the ferry flight of previous customer A, he will try to hold this customer B at all costs because the price that customer B would accept is pure profit for the seller. When such an opportunity comes along, the most important thing for the seller is to hold both customers A and B and don't let competitions to draw even one customer away cause it would ruin this unique opportunity. For that purpose the discount for an empty leg could help him but if he so chooses to, he exposes himself into trade risk. The seller must be sure that both customer A or B will not cancel their charter flight and they won't decide for competitive offer, because if customer A would cancel his charter flight he would also clear out empty leg dedicated to customer B and reciprocally if customer B would cancel his flight, the ferry flight of customer A remains unused and the jet will come back to Prague empty. For the purpose of not losing any of two customers, the seller could give discounts to both customers, since empty leg would be paid twice and the seller would be profitable in any case. However it is here where the seller exposes himself into trade risk, because if he's not sure that customer A will fly for certain, he would try to make it more advantageous for the customer A by lowering the price of the flight but only on condition that flight of the customer B is confirmed on 100%. Seller can give discount to customer A only when he is 100% sure that customer B will fly and will not cancel his flight from London to Prague, because otherwise the seller would give a discount to customer A from something that he's not going to have and he will end up unprofitable or just covering costs for one flight. If the flight of customer B is confirmed for 100%, by providing discount for example 20% to customer A would cleared out competition and there is a high probability that it would hold customer A because the price for the flight would be very appealing for him. Providing of the discount is mutual for customer A as well as for the customer B. The seller must decide if he's going to submit this risk or not. When the broker is sure that the previous customer will certainly fly he can give discount to the next customer without exposing himself into trade risk. He could also sell both one-way flights for their full market price and so avoid the risk of trade failure and finally he could get the highest profit, but if one of the customers would cancels the flight, the seller would lose this opportunity. If the seller would give to both customer A and B an offer with full price 150% at the time when ferry flight dedicated to charter customer B is still influenceable by charter customer A, the seller de facto wouldn't risk that he would have to call off the flight of customer B when the charter customer A would cancel his booked flight. The operator would get paid for full charter flight including positioning flight Prague-London so he could afford to fly for charter customer B and he'd be fully covered. In this case a big problem could arise when charter customer A would accidentally misjudged the time he needs in destination and it can happen that he would decide to fly back at the last moment. So the customer A would ask operator to change previous one-way charter flight that he booked into a round trip but the operator already offered the ferry flight to the next charter customer B for the price of full charter flight.

However it is the first charter customer A, who's got priority claim for ferry flight, because charter customers are aware that when they fly one-way flight they also have to pay for ferry flight. Consequently if the charter customer A shall surprisingly decide at the last moment that he wants to return back and would use its ferry flight, the charter of subsequent customer shall be canceled by very late notice, because operator wouldn't have sufficient time to supply the flight of customer B by other aircraft. And these changes at the last moment, when customer's schedule changes and he wants to return back earlier, really happen in business aviation quite often.

It is absolutely unacceptable for the charter customers not to be notified in advance that they are booking an empty leg, because when they are booking a charter on demand they naturally expect that aircraft will be waiting for them accurately at the time they ordered it. No charter customer would tolerate this and the consequences for the business aviation company would be unpleasant including loss of reputation and so on.

3. CONCLUSION

Empty legs basically spring up as a secondary product of one-way charter flights. Empty leg can mean a great deal but the customer must be aware of all the risk that is related with the empty leg. There is a real possibility that a flight in form of an empty leg will be changed or cancelled. Availability of an empty leg is always based on created charter flight that charter operator booked for another- previous charter customer. If charter customer that booked primary flight would decide to change his flight, he would eventually change empty legs as well. Empty leg can be a great choice when customer decides to travel on a “last minute” basis and his/hers schedule is more flexible. But the customer should consider ordering its own charter flight in case when he/she needs to travel in exactly scheduled time and on particular type of aircraft or when the customer is booking the flight long before the actual execution of the flight.

The most suitable way how to sell empty legs, whether for charter operator or broker, would be selling them for their full price. For the seller that is explicitly ideal scenario. On the other hand, this scenario has the lowest probability of realization because it is related with inherent risk. This risk results from a fact that in this case the customer, that would make full use of empty leg, wouldn’t be informed that he’s actually booking and/or making full use of operator’s empty leg.

Provided that majority of empty legs originate and becomes available at the time when they’re influenceable by previous one-way charter flight or by charter customer that booked primarily his one-way charter flight, the possibility that charter operator wouldn’t inform subsequent passenger that he/she is actually making use of operator’s empty leg is simply unacceptable. The first chartering customer can make various changes that would directly influence positioning flight and also, chartering customer has priority claim for his/hers ferry flight, because charter customers are aware that when they fly one-way flight they also have to cover costs for this return empty leg. Consequently if this customer shall decide at the last moment that he wants to return back and will use its ferry flight, the charter of subsequent customer shall be canceled by very late notice. It is absolutely unacceptable for the charter customers not to be notified in advance that they are booking an empty leg, because when they are booking a charter on demand they naturally expect that aircraft will be waiting for them accurately at the time they ordered it. No charter customer would tolerate this and the consequences for the business aviation company would be unpleasant including loss of reputation and so on. Accordingly from the experience of operators arises that the risk from deficient notification of the charter customer is accompanied with much greater risk than potential profit from the sale of empty leg. Therefore it is very risky as well as impossible for the charter operators to hold back this information.

The sales of ferry flights are based more likely on event, that when the aircraft is situated in interesting catchment area, charter operators won’t haste and they try to make it more advantageous for the potential customer that could use this particular ferry flight and attract the customer with the lower price for the flight because on the other hand it is a greater risk for the customer. Note that this could only work when the subsequent customer wishes to fly one-way flight and in the same direction where the aircraft has to return in order to get back to its base. The operator is de facto compensating risk that the flight doesn’t have to be executed by lowering the price for the flight. He is raising the probability by lowering price of an empty leg. Thus he could compensate uncertainty of the customer related with the infeasibility of the flight.

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