

RAPPORT 1205

Svein Bråthen, Nigel Halpern and George Williams

**THE NORWEGIAN AIR TRANSPORT
MARKET IN THE FUTURE**

Some possible trends and scenarios

Svein Bråthen, Nigel Halpern and George Williams

The Norwegian Air Transport Market in the Future

Some possible trends and scenarios

Rapport 1205

ISSN: 0806-0789

ISBN: 978-82-7830-169-2

Møreforsking Molde AS

11. april 2012

Tittel	The Norwegian Air Transport Market in the Future
Forfatter(e)	Svein Bråthen, Nigel Halpern and George Williams
Rapport nr	1205
Prosjektnr.	2379
Prosjektnavn:	Luftfartsmarkedet
Prosjektleder	Svein Bråthen

Finansieringskilde	Samferdselsdepartementet
Rapporten kan bestilles fra:	Høgskolen i Molde, biblioteket, Boks 2110, 6402 MOLDE: Tlf.: 71 21 41 61, Faks: 71 21 41 60, epost: biblioteket@himolde.no – www.himolde.no

Sider:	82
Pris:	Kr 100,-
ISSN	0806-0789
ISBN	978-82-7830-169-2

Short Summary

The purpose of this report has been to address the Norwegian air transport market today and in which direction it is likely to develop in the future. The main objective is to address the following questions:

- Is the long run sustainability of today's well-functioning network dependent on that existing airlines maintain their position in the Norwegian market?
- How can other airlines be expected to enter the Norwegian market if one or more of the incumbents reduces their level of service, be it from financial or other reasons?
- Will the structure of airlines or airline ownership have an influence on the level of service that is offered to the market?
- How will policy framework conditions and the current economic situation (influencing e.g. air transport demand and the level of competition in the airline industry) affect the supply of air transport services?

The findings indicate that there are challenges in Norwegian air transport, connected to the weak financial state of affairs for SAS, Norwegian's expansion plans with a unit fleet of larger aircraft and a network of 800 metre local airports with a limited number of competitors for the PSO routes and scarce aircraft availability. For the two first factors, possible market-driven solutions can be seen without any serious barriers to entry, whereas the situation for the 800 metre airports remains as a challenge with ageing aircraft in cases where more than 19 seats aircraft are demanded, no known plans for developing new aircraft types replacing the Dash-8 100/200, operations with demands for specialized training of crew and short time span for preparation of operations after a tender is awarded. The report gives reason to expect that perhaps the largest volatility will be on the thinner domestic commercial routes where SAS and Norwegian are competing today.

Preface

This document addresses how the Norwegian air transport market may develop in the future. The work is commissioned by the Norwegian Ministry of Transport and Communications.

The authors want to thank the following persons for sharing their views:

- Alf Reidar Fjeld (Sandefjord Lufthavn, Torp)
- Thorbjørn Lothe (NHO Luftfart)
- Knut Stabæk and Torolf Holte (Oslo Lufthavn, Gardermoen)

Representatives from the Ministry of Trade and Industry and the Ministry of Transport and Communications have given valuable viewpoints. Trond Kråkenes has been the principal's representative.

The authors are solely responsible for all viewpoints, analyses and conclusions.

Molde, 11 April 2012

The Authors

TABLE OF CONTENTS

A	Summary and conclusive comments	7
1	Introduction	13
1.1	Background	13
1.2	Main objectives	13
1.3	Research approach.....	14
1.4	The report	14
2	The Norwegian air transport market	15
3	Factors affecting the Norwegian air transport market.....	29
3.1	Macro-environmental factors	29
3.2	Key airline issues	33
3.2.1	Ownership	33
3.2.2	Operations.....	36
3.2.3	Strategy	40
3.2.4	Financial performance	43
3.2.5	Future prospects	45
3.3	Barriers to market entry	51
3.3.1	Air service agreements (ASA's)	51
3.3.2	Global airline alliances	52
3.3.3	Frequent Flyer Programmes (FFP's).....	53
3.3.4	Pricing and state aid	54
3.3.5	Sunk costs and operational challenges	55
3.3.6	Airport slots and competition	56
3.3.7	Ground Handling Services (GHS's)	56
3.3.8	Computer Reservation Systems (CRS's)	57
4	Airline business models serving the Norwegian Market	59
5	Possible scenarios	77
	References.....	81

A SUMMARY AND CONCLUSIVE COMMENTS

A.1 Main objective of the study

The purpose of this report is to address the Norwegian air transport market today and in which direction it is likely to develop in the future. The main objective of the study is to address the following questions, where the answers are summarized in sections A.3-A.6 below:

1. Is the long run sustainability of today's well-functioning network dependent on that existing airlines maintain their position in the Norwegian market?
2. How can other airlines be expected to enter the Norwegian market if one or more of the incumbents reduces their level of service, be it from financial or other reasons?
3. Will the structure of airlines or airline ownership have an influence on the level of service that is offered to the market?
4. How will policy framework conditions and the current economic situation (influencing e.g. air transport demand and the level of competition in the airline industry) affect the supply of air transport services?

There are a lot of underlying uncertainties affecting the air transport market worldwide, as chapter 3.1 in particular illustrates. Therefore, we have made no attempts to conclude with certainty about the future development in the Norwegian air transport market. However, in our opinion the report outlines some realistic development paths.

A.2 Today's situation in Norwegian air transport

Two independent airlines (previously SAS and Braathens but more recently SAS and Norwegian) have served the domestic routes at the main and medium-sized airports over the years. Moreover, the Norwegian airline market has also had smaller carriers operating at the regional airports but with one dominant market player, Widerøe. Another smaller carrier, Danish Air Transport (DAT) is now serving domestic routes from Oslo, Moss/Rygge, Stavanger, Bergen, Florø and Trondheim. From April 2012, DAT will serve the routes from Bodø to Røst, Leknes, Svolvær, Stokmarknes and Narvik, whereas Widerøe will take over DATs routes from Oslo to Florø and Bergen.

SAS and Norwegian are competing on the three main trunk routes between Oslo and Stavanger, Bergen and Trondheim. In addition, these airlines are also competing on thinner routes. The three main routes will be allowed to reintroduce the Frequent Flyer Programmes (FFPs) that were banned in 2002 and 2007 for a period of 5 years. The main claimed reason for this is that the volumes on these

three routes are considered as robust. The competitive situation is considered as too fragile on the thinner routes.

One concern at present is that SAS is struggling with higher costs and lower productivity than its competitors, and with rather weak financial results and future liabilities. Norwegian is apparently in a much stronger position, with lower costs, higher productivity and an extensive fleet renewal program. Therefore, one main challenge in this study has been to address the situation in the event of SAS having to reduce or cease their operations.

A.3 What are the likely development paths?

No airlines are immune from financial turmoil so any of the airlines operating in the Norwegian air transport market could experience financial crisis that leads to them ceasing operations. Some threats and possibilities in the Norwegian air transport market are discussed in Chapter 3.

Norwegian has performed well in recent years and will continue with their expansion plan. New and larger aircraft will be good for cost-efficiency but the need to find routes with sufficient demand for their increased fleet could be a challenge. This unit fleet could also pose a challenge with respect to maintaining competition on thinner domestic routes. Norwegian's planned move into low-cost long-haul operations appears as a significant risk.

The situation for SAS is fairly precarious. Rumours about the sale of government shares in SAS were raised by the media on 15 February 2012 with Lufthansa, Finnair and Qatar Airways being mentioned as most likely candidates to buy the shares. The long run sustainability of the company in its current state of affairs is encumbered with a high degree of uncertainty.

Still, Scenario A is a possible scenario that reflects the status quo but also the immediate fleet and route plans of existing airlines in the Norwegian air transport market.

Scenario A - Status Quo

- SAS continues as a full service network carrier with the current ownership structure.
- Norwegian continues to establish a unit fleet of B-737-800 with 186 seats.
- Norwegian pulls out of the thinner routes in Norway because of the mismatch between aircraft and market size, and focuses on the main trunk routes in Norway along with new short- and medium-haul routes within Europe. Norwegian also attempts to establish long-haul routes to/from Europe e.g. to Asia and the USA.
- SAS and/or Widerøe operate the thin routes, perhaps in competition with regional carriers like DAT or Flybe Nordic.

- Other network and low cost carriers based in Europe provide an increasing number of international services from airports in Norway.
- Additional competition for PSO routes occurs at non-800 metre runway airports.

A variant of Scenario A could be that Norwegian uses their B-737-800s to capture the peak markets on the thinner routes, leaving the remaining parts of the market for SAS and/or Widerøe. The result may be reduced departure frequencies, with uncertain effects on fare levels.

Bankruptcy of SAS or (less likely at present) Norwegian would have quite an impact on the Norwegian air transport market, leaving a big gap in the domestic and international route networks in the short term. Two possible scenarios in case of this event are discussed here:

Scenario B - Ongoing Struggle for Profitability

- SAS continues to incur financial losses.
- The Norwegian and Swedish Governments sell their shareholdings in SAS.
- SAS is forced to downsize and drops non-profitable and marginally profitable domestic and international routes.
- Norwegian takes over the domestic and international routes dropped by SAS and continues to grow successfully.
- Other network and low cost carriers based in Europe provide an increasing number of international services from airports in Norway.
- Additional competition for PSO routes occurs at non-800 metre runway airports.

Scenario C - Major Airline Failure

- As a result of its worsening financial position SAS is forced into bankruptcy and its assets are sold.
- Widerøe is bought by investors in Norway.
- Danish investors (including the Government) acquire the Copenhagen operations of SAS.
- Norwegian takes over many of the domestic and international routes previously operated by SAS.
- Another low cost carrier (possibly easyJet) opens a base at Gardermoen and begins operating both international and domestic services.
- Other network and low cost carriers based in Europe provide an increasing number of international services from airports in Norway.
- As a result of the increased competition, Norwegian finds it increasingly difficult to expand profitably.

- Additional competition for PSO routes occurs at non-800 metre runway airports.

A.4 Which airlines could enter the Norwegian market?

The likely impact in the event of SAS contracting its operations or going bankrupt will involve a mixture of existing operators increasing their services and new entrants coming into the Norwegian market. It is evident from very recent airline failures in Europe, notably Malev and Spanair, that replacement services are rapidly provided by existing carriers and/or new entrants.

Links to International Hub Airports

In terms of the links to international hubs the table below lists the possible outcomes in respect of the carriers likely to serve each hub from Oslo Gardermoen Airport (OSL).

Table A.1 Carriers serving different hubs from OSL

Hub	Existing carriers increasing services	New entrant(s)
Amsterdam	KLM / Norwegian	
Brussels	Brussels Airlines	Norwegian
Copenhagen	Norwegian	Finnair
Frankfurt	Lufthansa	Air Berlin / Norwegian
Helsinki	Finnair / Norwegian	
London LHR	British Airways	Norwegian
Munich	Lufthansa / Norwegian	Air Berlin
New York	United	Norwegian
Paris CDG	Air France / Norwegian	easyJet
Rome	Norwegian	Alitalia
Stockholm	Norwegian	Air Baltic / Finnair
Zurich	Swiss	Norwegian

In addition (and independent of the situation for SAS) it could be that Norwegian will be a new entrant on Oslo-Bangkok, which is served by Thai at present.

Links to International non-Hub Airports

In respect of predominantly business destinations it is most likely that in each case replacement services would be provided by the network carrier based at the destination airport or with a significant presence there.

As regards destinations that have a large proportion of non-business traffic (VFR/long and short stay holidays), it is highly probable that any replacement services would be provided by low cost carriers. For example, to Spanish destinations this could involve Vueling and/or easyJet, whilst to Austrian cities it could be FlyNiki. Some routes may be lost.

Domestic Trunk Routes

While it is fairly certain that Norwegian would increase the number of services it provides on these routes, it is very likely that these markets will be entered by other carriers. The possibilities include easyJet, Finnair and Widerøe (assuming that with independence Widerøe acquires jet aircraft). The latter may be well placed to operate services with jets seating no more than 100 passengers, particularly given that Norwegian's fleet will soon comprise only aircraft equipped with 186 seats which may prove too large for some non-peak flights.

Secondary Domestic Commercial Routes

A number of regional carriers, such as Air Baltic, Flybe Nordic and an independent Widerøe, are likely to show interest in operating these routes given SAS's withdrawal from this market. As indicated above, Widerøe or another regional carrier with smaller regional jets may provide a good adaptation to market needs.

PSO Routes

To airports equipped with runways of 1200 metres or more a number of regional carriers, such as Air Baltic, DAT, Flybe Nordic and an independent Widerøe, are likely to show interest in providing services. To airports with 800 metre runways, only airlines operating Dash 8-100 or 200 aircraft will be possible contenders. Competition for tenders on such routes is likely to continue to be very limited, given the very few airlines in Europe that operate this type of aircraft, DAT recently being one rare example. DAT's presence in the Norwegian market is fairly limited and any withdrawal from the market would probably involve quick replacement by Widerøe, especially on the PSO routes.

A.5 General trends

At present, Danish airline DAT is the only foreign airline operating scheduled domestic routes in Norway. Approximately 30 foreign airlines operate scheduled international routes to/from Norway, mainly at OSL but also at other airports in the Oslo fjord area and the larger regional airports such as Bergen, Trondheim and Stavanger. It is likely that the number of foreign airlines serving scheduled international routes to/from Norway, and the range of routes offered, will increase in the future as demand for air travel within and to/from Norway continues to grow. It is also possible that more foreign airlines will enter the scheduled domestic market in Norway, especially in the event of situations taking place as indicated in Scenario B and C above.

A.6 Barriers to entry

There are some barriers to entry in the Norwegian air transport market. These are discussed in Chapter 3.3. The most important barriers for new entrants are related to the 800 metre runways operations in the Norwegian PSO network: the availability of replacements for the ageing aircraft in cases where more than 19

seats aircraft are demanded, no known plans for developing new aircraft types replacing the Dash-8 100/200s, operations with demands for specialized training of crew and short time span for preparation of operations after a tender is awarded. In addition, available slot capacity at OSL at peak times can be a matter of concern.

1 INTRODUCTION

1.1 Background

There were around 38 million arrivals and departures at Norwegian airports during 2011, and around 50/50 share of domestic and international passengers. In domestic air transport, the airlines Norwegian and SAS are serving the trunk routes, while Widerøe and one smaller operator (Danish Air Transport, DAT) are serving mainly the local airports, partly under the PSO regime. DAT is also expanding their program from Moss Airport, Rygge. In the international market, SAS, Norwegian, Ryanair, KLM and Lufthansa are the bigger operators. Norway is currently a market with relatively strong air passenger growth of around 10 % from 2010-2011. It is worth noting that some of this growth can be explained by the Eyafjallajökull eruption in Spring 2010.

1.2 Main objectives

The purpose of this project has been to address the Norwegian air transport market today and in which direction it is likely to develop in the future. The main objective is to address the following questions:

- Is the long run sustainability of today's well-functioning network dependent on that existing airlines maintain their position in the Norwegian market?
- How can other airlines be expected to enter the Norwegian market if one or more of the incumbents reduces their level of service, be it from financial or other reasons?
- Will the structure of airlines or airline ownership have an influence on the level of service that is offered to the market?
- How will policy framework conditions and the current economic situation (influencing e.g. air transport demand and the level of competition in the airline industry) affect the supply of air transport services?

Furthermore, the report contains an assessment of possible scenarios where different airlines are operating in the Norwegian market and how this will affect the level of service.

1.3 Research approach

Trends and developments in the Norwegian air transport market are contrasted against experiences from relevant international markets. The following factors are addressed:

- The incumbent airlines, their business models and financial results.
- The external factors that may affect airline operations, like taxation, developments in domestic and international markets and airport infrastructure issues including the role of OSL and the adjacent airports in the Oslo fjord area.
- Possible foreign airlines that may enter and/or expand in the Norwegian market.

Wider changes in the business environment are likely to affect the Norwegian air transport system. We briefly address policy framework conditions and the current economic situation.

Data sources on airlines are ICAO, Flightglobal Pro (formerly Air Transport Intelligence, ATI), OAG, IATA and airline annual reports. Data on the Norwegian air transport market are supplied by Avinor.

1.4 The report

The rest of the report starts with a short description of the Norwegian air transport market, given in Chapter 2. For a more comprehensive discussion about the importance of air transport for Norway, we refer to Lian et al (2005). Chapter 3 proceeds with an assessment of external factors that can influence the Norwegian market. This chapter also discusses key airline issues with focus on strategies. Chapter 4 discusses airline business models. Chapter 5 presents future scenarios and likely development paths related to the Norwegian air transport market.

Summary and conclusive comments are provided in Chapter A.

2 THE NORWEGIAN AIR TRANSPORT MARKET

Air transport is the main mode for longer journeys both within Norway and abroad (Vågane et al, 2011). The country's topography is an obvious reason for this, as well as the geographical distances to popular destinations on the European continent and elsewhere. Moreover, the airline industry is crucial for a modern society to be able to maintain a decentralised settlement (Lian et al, 2005). In addition to equity and regional balance, it is also likely that the air transport system affects the economic activity level in general and also the industrial structure. This is due to the fact that multi-national companies and network industries have located themselves in many areas, and they are clearly dependent on reliable air services. Another issue is related to the fact that some industries are less footloose because they are either dependent on local skills and local industrial networks or the existence of natural resources (oil, gas, fish) that needs rapid transport of people and time-urgent cargo. If this kind of resource base becomes less productive without an airport in the vicinity, then there are productive effects present that are likely to affect the nation's resource base. A third issue is related to how economic players in more remote areas interact with their markets in buyer-supplier relationships. *A priori*, the probability of finding markets and collaborators are significantly higher for businesses in central areas. Hence, the air transport system may play an important role in exploiting the scale effects in both human capital and natural resources in remote areas. However, there will certainly be large variations among regions depending on their existing resource base.

Table 2.1 shows a few key figures on how the air transport market has developed in comparison with other transport modes.

Table 2.1 Development of transport modes (*=indicative numbers. Source: SSB and Vågane & Rideng 2011).

	Consumer price index							
	2004	2005	2006	2007	2008	2009	2010	2011 ^{*)}
CPI	113.3	115.1	117.7	118.6	123.1	125.7	128.8	130.4
Transport in total	115.8	120.8	124.8	127.2	132.2	134.2	137.0	139.7
Air	110.6	120.4	125.3	126.9	134.5	132.5	124.0	121.0
	% change in passenger kilometers, domestic							
Car	0.9	-0.4	1.7	2.9	2.0	1.0	1.0	n.a.
Rail	6.8	3.6	3.0	4.4	5.4	-0.8	2.6	n.a.
Sea	-1.4	1.3	1.2	0.8	1.0	-6.0	3.7	n.a.
Air	6.4	2.4	3.7	2.7	2.6	-0.6	1.5	n.a.

Air transport has a price level today at approximately 2005 level, whereas the price level for the other modes has increased steadily. Prices have dropped by more than

10% on average since 2008. Currently, the business market has the largest price decrease (down 12.5% between 3rd and 4th quarter of 2011, 4% decrease for leisure traffic).

Apart from after the financial crisis in 2008, the number of passenger kilometres has grown by 2.4 - 3.7% per year after 2004. In a longer time perspective, the Norwegian air transport market has been growing steadily, albeit there have been some downturns related to business cycles, as shown in Figure 2.1 and 2.2.

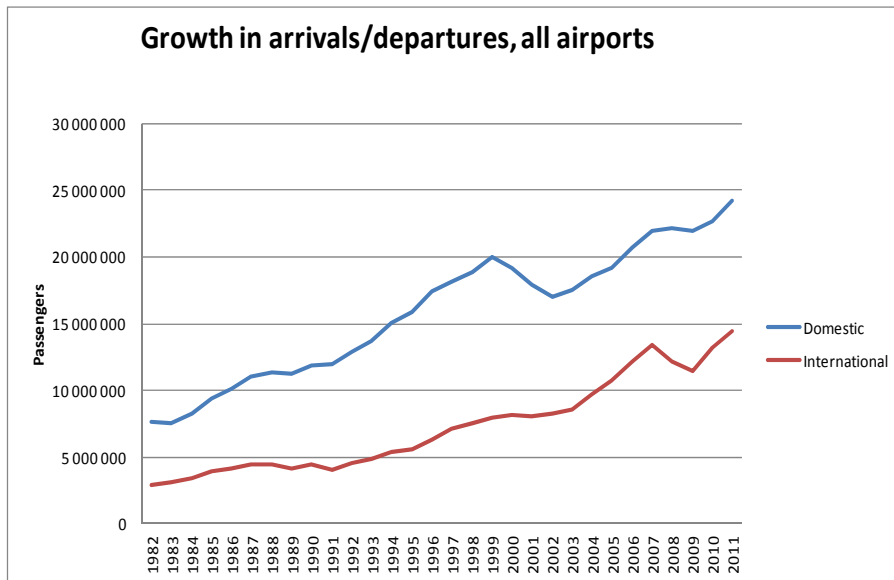


Figure 2.1 Arrivals/departures, 1982-2011. (Source: Avinor)

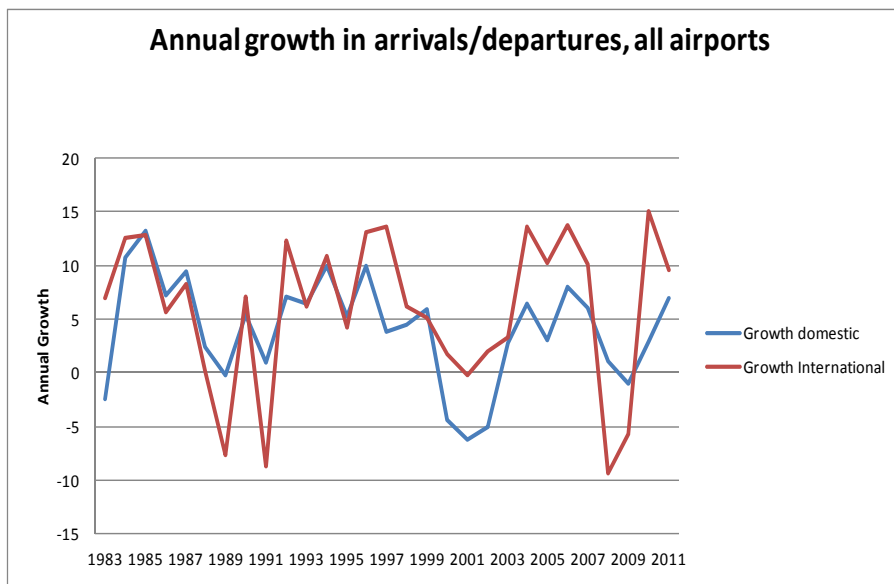


Figure 2.2 Annual growth rates. (Source: Avinor)

Figure 2.2 indicates that air transport is subjected to business cycle fluctuations, and that in most cases the amplitudes are larger for the international market.

The airport coverage in Norway is good, and two out of three citizens has access to an airport within one hour (Lian et al., 2005). Although the airports represent a network with good international connections, several destinations cannot be reached directly. Travelers are therefore dependent on a hub-and-spoke system (Lian et al., 2005). Oslo is the national hub, with Bergen, Trondheim, Bodø and Tromsø as regional hubs where the main routes (served by B-737 and the like, 120+ seats) and the local routes (mostly Dash-8/100 and ATR 42) are connected.

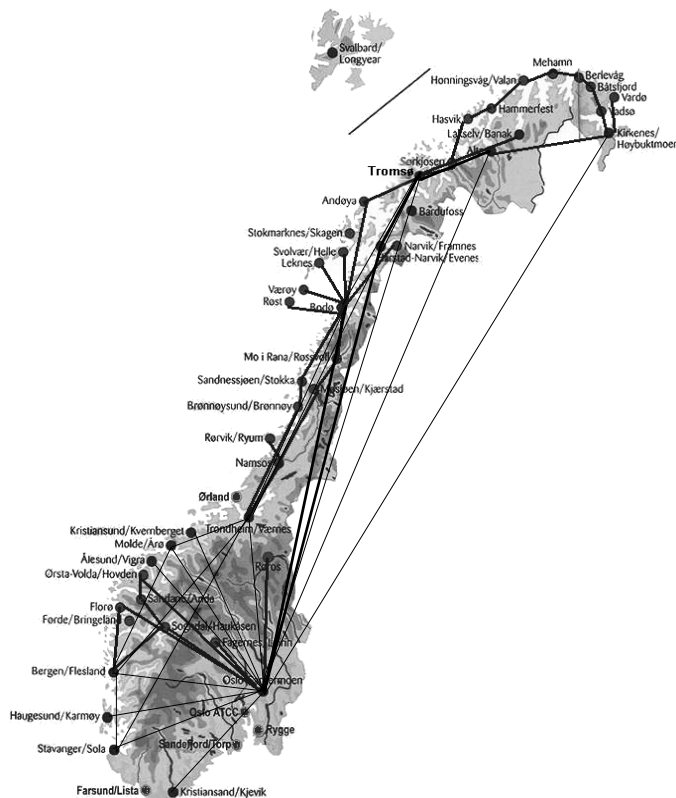


Figure 2.3 Avinor's network of airports. (Source: Williams and Bråthen 2010)

The Norwegian airline market has been rather unique compared to other countries in Europe as two independent airlines have served the domestic routes at the main and medium-sized airports over the years. These dyads have been Braathen SAFE/Braathens and SAS, later on Norwegian and SAS-Braathens/SAS. Most other countries have only had one domestic carrier (Strandenes, 2004, in Bjerkvik 2012). Moreover, the Norwegian airline market has also had smaller carriers operating at the regional airports but with one dominant market player, Widerøe. Another smaller carrier, Danish Air Transport (DAT) is now serving domestic routes from Oslo, Moss/Rygge, Stavanger, Bergen, Florø and Trondheim. From April 2012, DAT will serve the routes from Bodø to Røst, Leknes, Svolvær, Stokmarknes and Narvik, whereas Widerøe will take over DAT's routes from Oslo to Florø and Bergen.

Table 2.2 Direct routes between the regional and main airports in Norway, per February

2011. (The routes are listed only once, and the local airport network is not fully included)

Route	Carrier	Remarks
Oslo-Bergen	SAS, Norwegian	
Oslo-Stavanger	SAS, Norwegian	
Oslo-Trondheim	SAS, Norwegian	
Oslo-Tromsø	SAS, Norwegian	
Oslo-Bodø	SAS, Norwegian	
Oslo-Alta	SAS, Norwegian	
Oslo-Kirkenes	SAS, Norwegian	
Oslo-Andenes	Norwegian	From Summer 2012
Oslo-Bardufoss	Norwegian	
Oslo-Brønnøysund	Widerøe	
Oslo-Fagernes	DOT/DAT	North Flying from 1 April 2012
Oslo-Florø	DAT	Widerøe from 1 April 2012
Oslo-Harstad/Evenes	SAS, Norwegian	
Oslo-Haugesund	SAS, Norwegian	
Oslo-Kristiansand	SAS, Norwegian	
Oslo-Kristiansund	SAS	
Oslo-Lakselv	Norwegian	From May 2012
Oslo-Longyearbyen	SAS	
Oslo-Molde	SAS, Norwegian	
Oslo-Røros	DOT/DAT	
Oslo-Sandane	Widerøe	
Oslo-Sandnessjøen	Widerøe	
Oslo-Sogndal	Widerøe	
Oslo-Stavanger	SAS, Norwegian	
Oslo-Stord	DAT	
Oslo-Ørland	Air Norway	
Oslo-Ørsta/Volda	Widerøe	
Oslo-Ålesund	SAS, Norwegian	
Moss/Rygge-Stavanger	DAT	
Moss/Rygge-Bergen	DAT	
Moss/Rygge-Trondheim	DAT	
Sandefjord/Torp-Harstad/Narvik	Norwegian	
Sandefjord/Torp-Bodø	Widerøe	During Summer
Sandefjord/Torp-Bergen	Widerøe, Norwegian	Norwegian from 1 March 2012
Sandefjord/Torp-Stavanger	Widerøe	
Sandefjord/Torp-Trondheim	Widerøe, Norwegian	Norwegian from 1 March 2012
Kristiansand-Stavanger	Widerøe	
Kristiansand-Bergen	Widerøe	
Stavanger-Skien	DAT	

Route	Carrier	Remarks
Stavanger-Kristiansand	Widerøe	
Stavanger-Bergen	SAS, Norwegian	
Stavanger-Florø	DAT	
Stavanger-Trondheim	SAS	
Haugesund-Bergen	Widerøe	
Bergen-various local airports on the West coast	Widerøe, DAT	
Bergen -Ålesund	SAS	
Bergen-Molde	Widerøe	
Bergen-Kristiansund	Widerøe	
Bergen-Trondheim	SAS, Norwegian	
Bergen-Brønnøysund	Widerøe	
Ålesund-Trondheim	SAS	
Molde-Trondheim	Krohn/Helitrans	
Kristiansund-Trondheim	Widerøe	
Trondheim-various local airports	Widerøe	
Trondheim-Bodø	SAS, Norwegian	
Bodø-various local airports	Widerøe, Lufttransport to Værøy	DAT takes over Bodø-Røst/Leknes/Svolvær/Narvik from 1 April 2012
Bodø-Harstad/Evenes	Widerøe	
Bodø-Bardufoss	Norwegian	
Bodø-Tromsø	SAS, Norwegian	
Harstad/Evenes-Andenes	Widerøe	
Harstad/Evenes-Tromsø	Widerøe	
Tromsø-various local airports	Widerøe	
Tromsø-Alta	SAS, Widerøe, Norwegian	
Tromsø-Kirkenes	Widerøe, Norwegian	
Tromsø-Longyearbyen	SAS	
Alta-Kirkenes	Widerøe	
Alta-various local airports	Widerøe	
Kirkenes-various local airports	Widerøe	

Figure 2.4 shows the routes that are subjected to competition per February 2012. SAS and Norwegian are competing on the three main trunk routes between Oslo and Stavanger, Bergen and Trondheim. In addition, these airlines are also competing on thinner routes. If the Ministry of Government Administration, Reforms and Church Affairs will approve the recent recommendations from the Norwegian Competition Authority, the three main routes will be allowed to reintroduce the Frequent Flyer Programmes (FFPs) that were banned in 2002 and

2007 for a period of 5 years. The main claimed reason for this is that these three routes are considered as robust and they may also be more attractive for other entrants if the FFPs are reintroduced. This statement is questioned in Chapter 3.3.3. According to the Norwegian Competition Authorities, even if the number of routes with competition has increased from 4 to 23 during the last 10 years (see Figure 2.4), the competitive situation is considered as too fragile on the thinner routes because of the volatility in the market for business travel with respect to the quality of the FFPs.

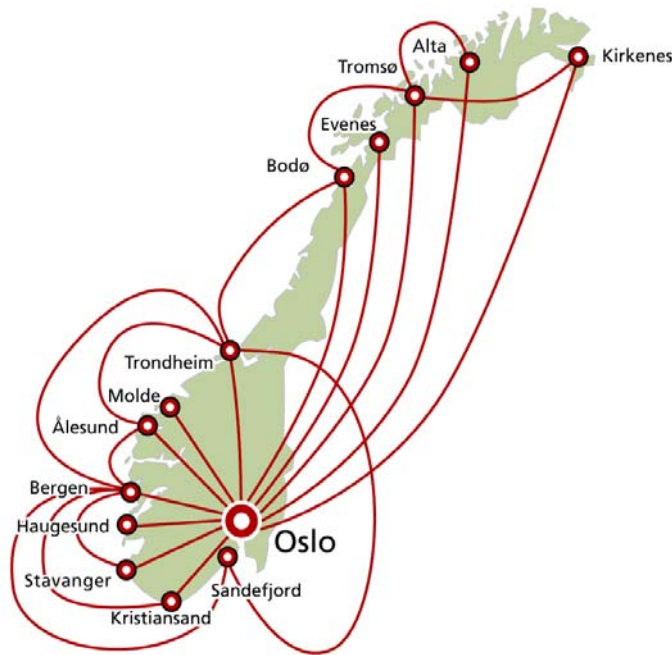


Figure 2.4 Domestic routes with competition. (Source: Norwegian Competition Authority)

Table 2.3 shows the top 10 international airports as destinations from Norwegian airports owned by Avinor, whereas Tables 2.4 and 2.5 shows the market shares for the top 10 airlines on the foreign and domestic routes, measured in number of passengers on all departures from Avinor's airports in 2011. Copenhagen has the highest market share as a destination, with 13%, followed by Amsterdam and London. The SAS Group (SAS+Widerøe) has 60% of the domestic departures (passengers) from Avinor's airports, Norwegian has 36%. SAS and Norwegian have the same market share (29%) on the international routes from Avinor's airports. It is worth noting that the departures from Sandefjord/Torp and Moss/Rygge are not included here. Ryanair is presumably the third largest airline in terms of international departures from Norwegian airports.

Table 2.3 Market share for top 10 international destinations, departures from Avinor's airports, 2011. (Source: Avinor)

Airport	Market share, %, passengers
Copenhagen	13
Amsterdam/ Schiphol	9
Stockholm/ Arlanda	8
London/Heathrow	5
Frankfurt	4
London/Gatwick	4
Las Palmas	3
Antalya	3
Helsinki	2
Munich	2
Others	47
Total	100

Table 2.4 Market share for top 10 airlines, domestic routes from Avinor's airports, departures, 2011. (Source: Avinor)

Airline	Market share, %, passengers
SAS	45,98
Norwegian	36,24
Widerøe	14,61
CHC Helikopter Service	1,51
Danish Air Transport	0,95
DOT LT	0,24
HeliTrans	0,08
Air Baltic	0,05
Lufttransport	0,05
Icelandair	0,05
Total	99,76

Table 2.5 Market share for top 10 airlines, international routes from Avinor's airports, departures, 2011. (Source: Avinor)

Airline	Market share, % passengers
Norwegian	29
SAS	29
KLM	7
Lufthansa	5
Thomas Cook Airlines	4
Widerøe	2
British Airways Plc.	2
Air Baltic	1
NovAir	1
TUIfly	1
Others	17
TOTAL	100

Figures 2.5-2.15 show the market shares for the 10 busiest airports in Norway, measured in terms of passengers departed from Oslo.

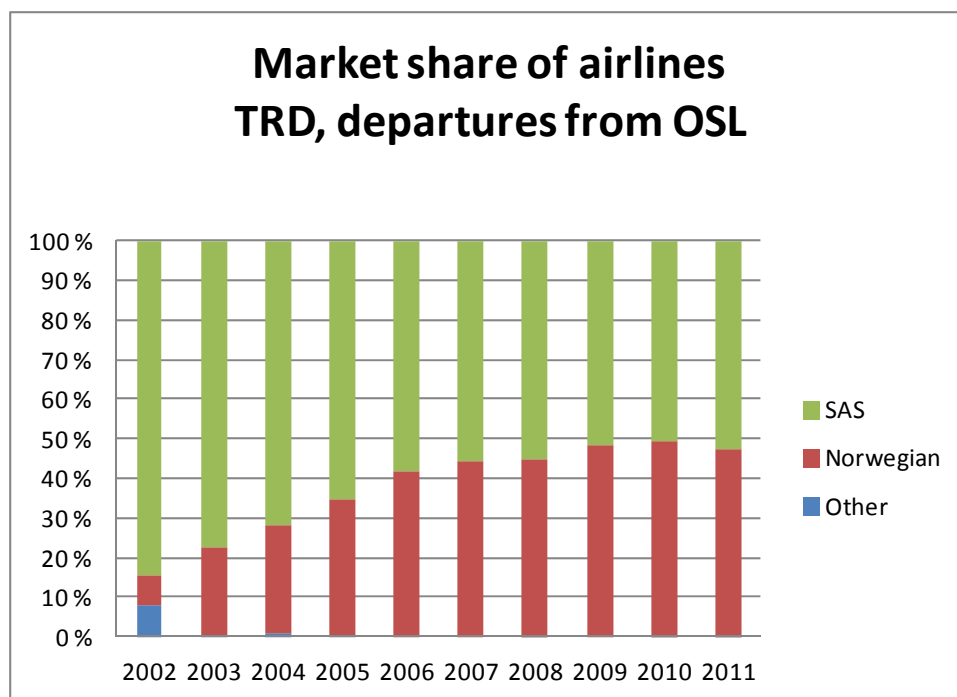


Figure 2.5 Market shares, Oslo-Trondheim (passengers=873 000). (Source: Avinor)

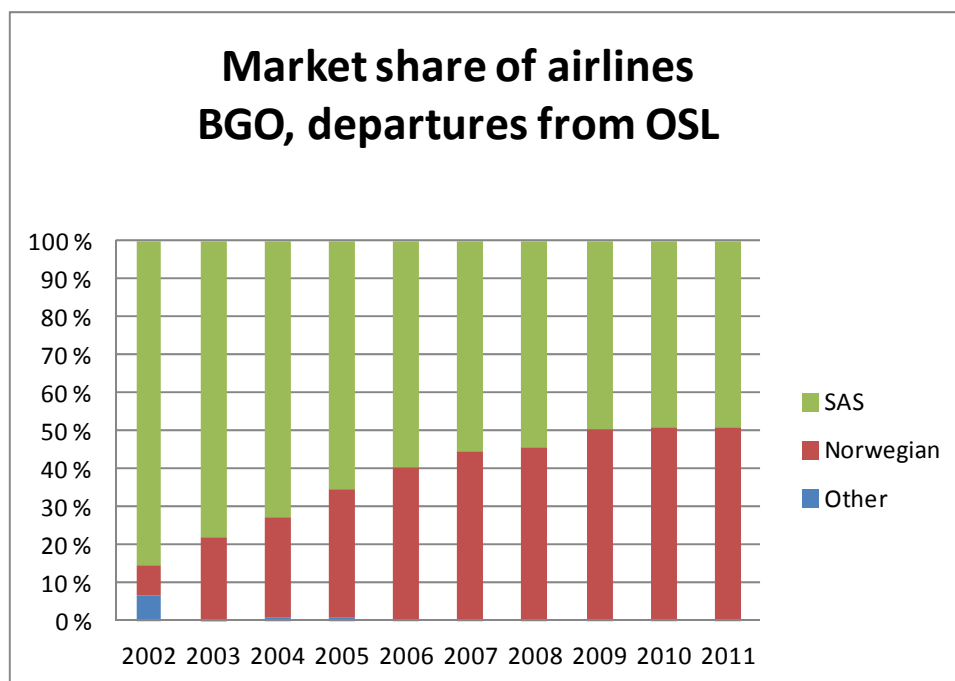


Figure 2.6 Market shares, Oslo-Bergen (passengers=837 000). (Source: Avinor)

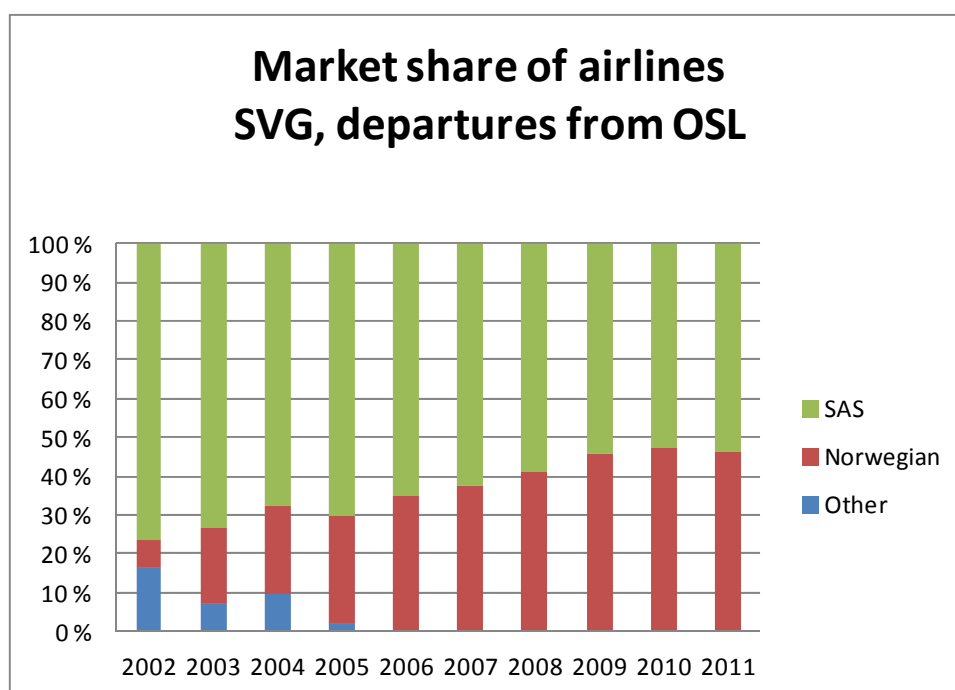


Figure 2.7 Market shares, Oslo-Stavanger (passengers=717 000). (Source: Avinor)

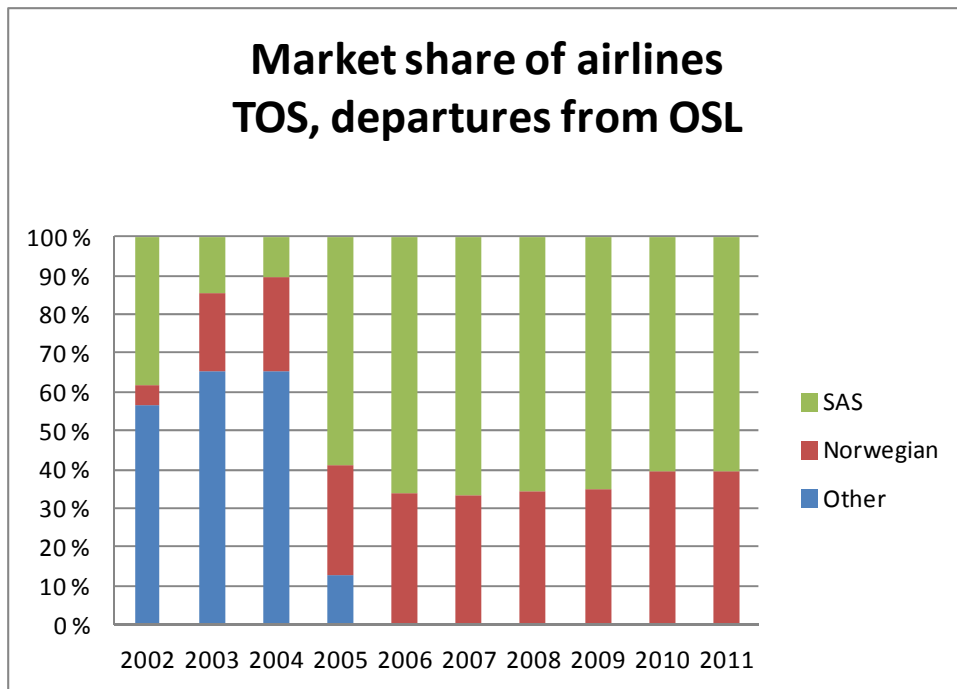


Figure 2.8 Market shares, Oslo-Tromsø (passengers=474 000). (Source: Avinor)

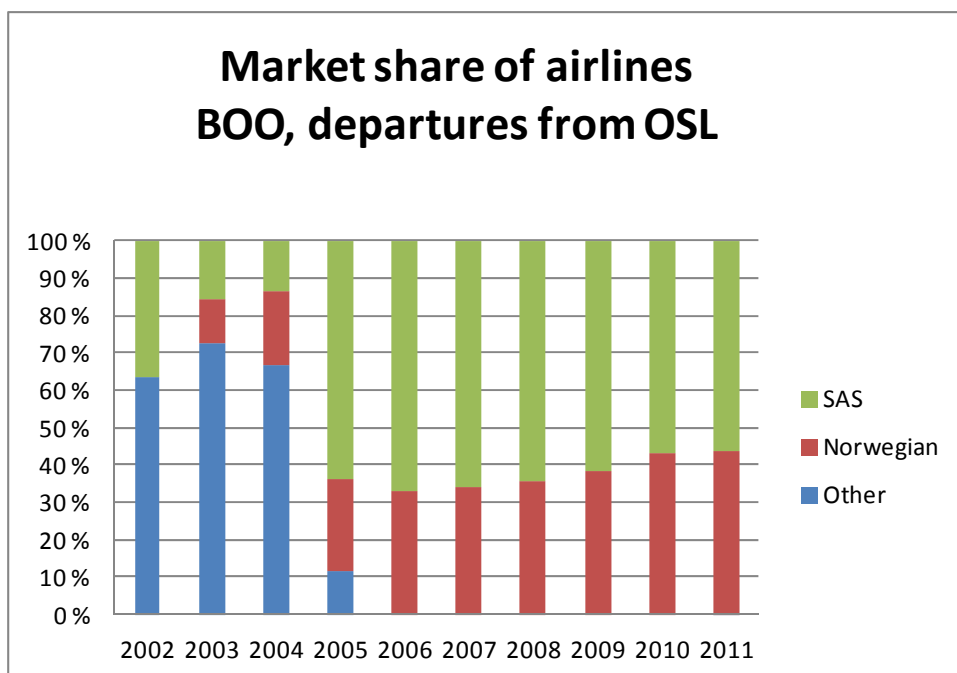


Figure 2.9 Market shares, Oslo-Bodø (passengers=363 000). (Source: Avinor)

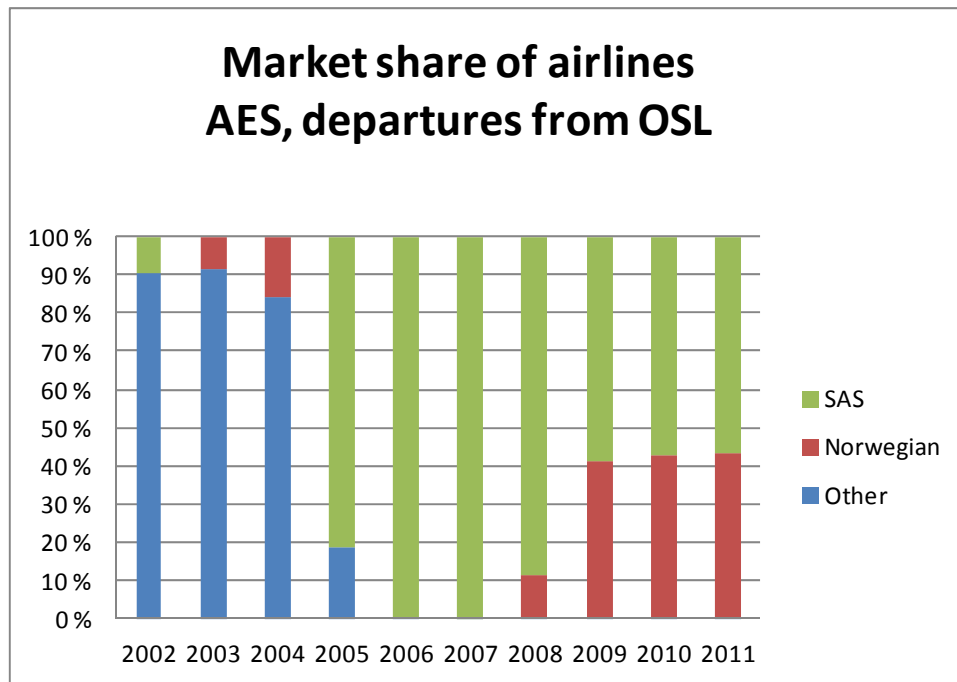


Figure 2.10 Market shares, Oslo-Ålesund (passengers=288 000). (Source: Avinor)

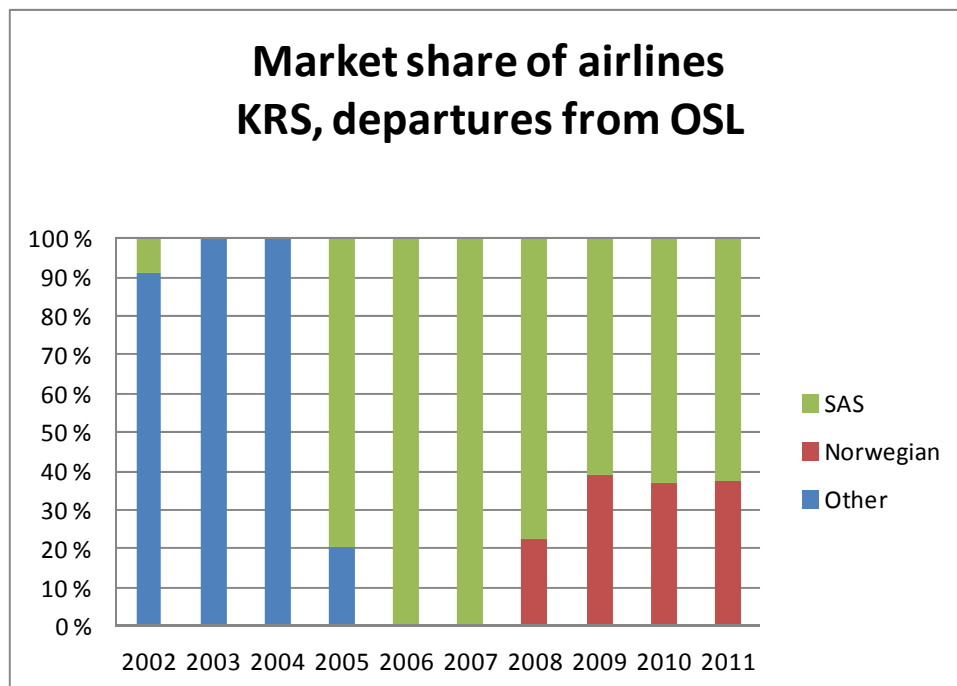


Figure 2.11 Market shares, Oslo-Kristiansand (passengers=243 000). (Source: Avinor)

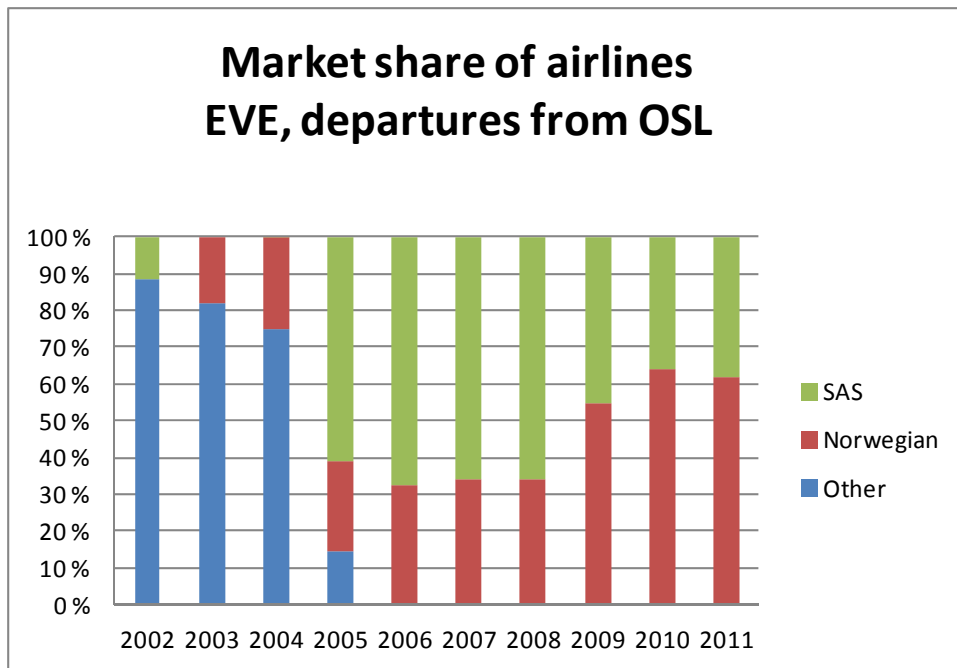


Figure 2.12 Market shares, Oslo-Evenes (passengers=251 000). (Source: Avinor)

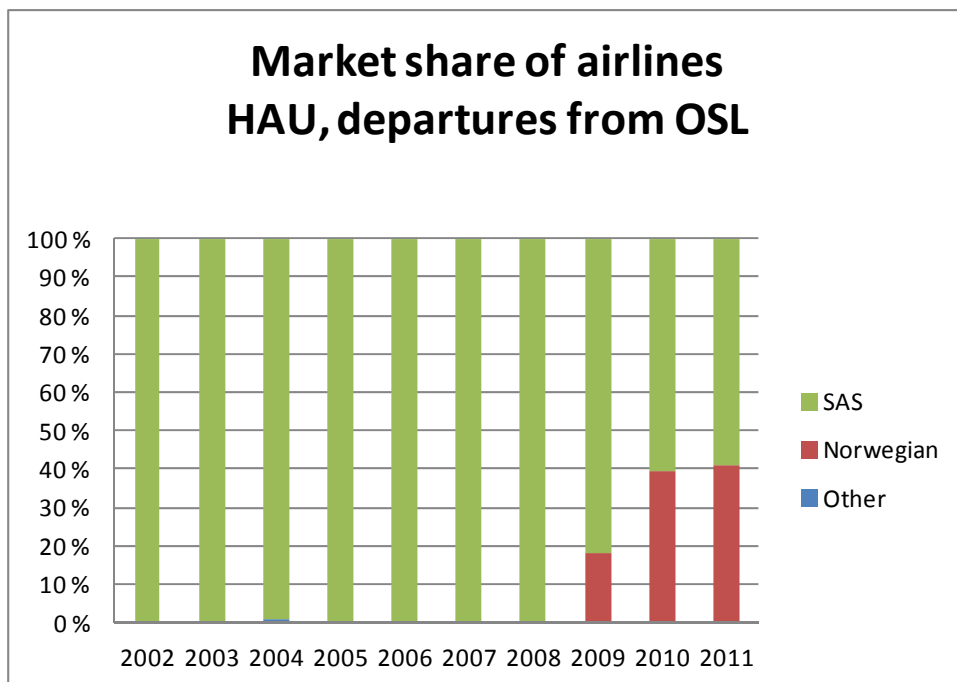


Figure 2.13 Market shares, Oslo-Haugesund (passengers=209 000). (Source: Avinor)

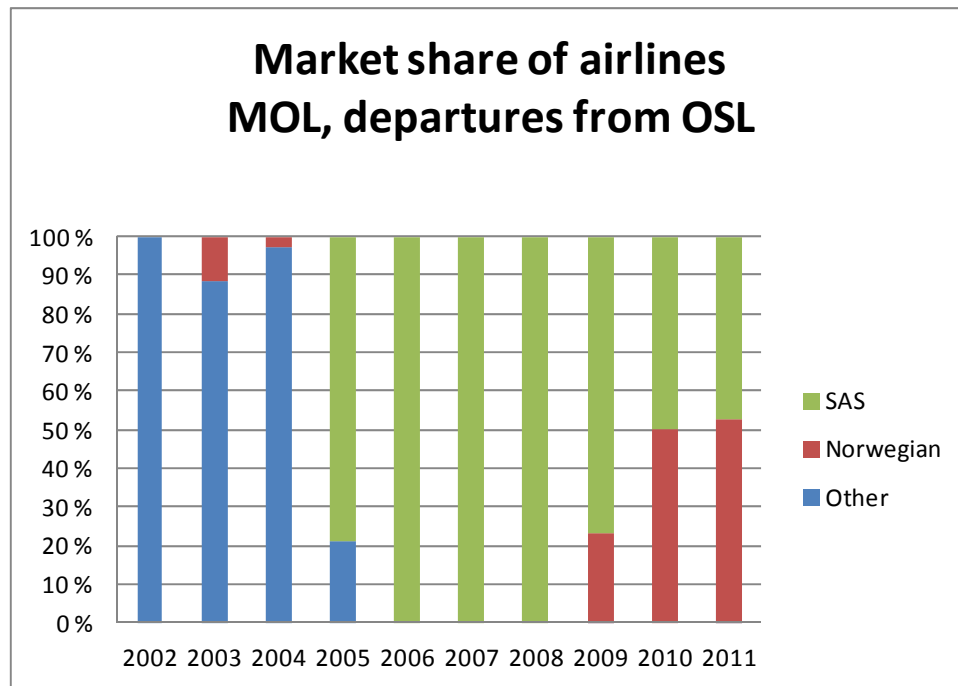


Figure 2.14 Market shares, Oslo-Molde (passengers=166 000). (Source: Avinor)

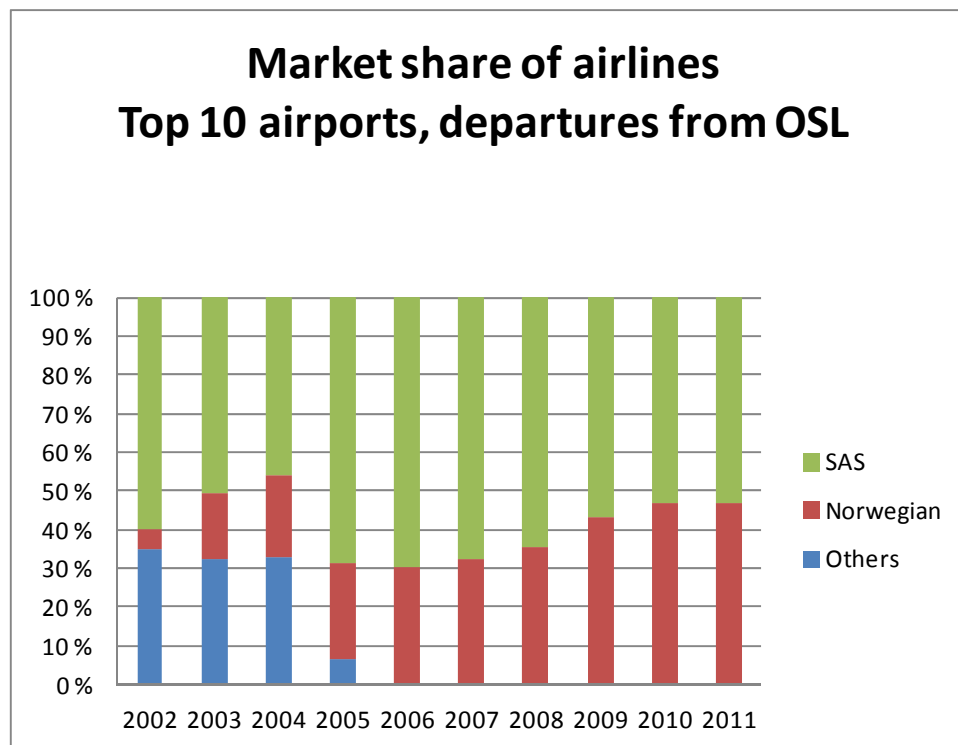


Figure 2.15 Market shares, Oslo - the 10 busiest airports from Oslo (passengers=4.4 millions). (Source: Avinor)

There are reasons to expect that markets below around 250 000 passengers one way from Oslo could become exposed to a certain volatility in the trade-off between aircraft size and the number of departures. On several of these airports, Norwegian has a 40% market share, leaving a market size (in theory) to fill a 186

seat aircraft on two daily departures with a payload of 73% or less. If a unit fleet of B-737/800 will be the future for Norwegian, it is likely that they may either reduce their number of departures on this group of airports or they may want to become the dominant operator on a larger number of these medium-sized airports to take advantage of the scale effects from larger aircraft operations. With two players on relatively thin routes, there are reasons to expect clustering of departures around the morning and afternoon peaks, as pointed out in Bjerkvik (2012). What could be the likely outcome will depend on a number of factors like aircraft size, market size and composition of the market (business/leisure and the daily and weekly distribution of demand). Airline business models and strategies will be further discussed in the subsequent chapters.

3 FACTORS AFFECTING THE NORWEGIAN AIR TRANSPORT MARKET

This chapter investigates factors affecting the Norwegian air transport market. The chapter is in three main parts. The first part provides a brief summary of the macro-environmental factors that affect the market. The second part provides a discussion of key issues relating to the main airlines that operate in the market. The third part provides a brief summary of potential barriers to entry in the market.

3.1 Macro-environmental factors

PESTEL analysis provides a framework for investigating macro-environmental factors affecting an industry and influencing companies in that sector. PESTEL is an acronym for political, economic, socio-cultural, technological, environmental and legal/regulatory. Table 3.1 provides a PESTEL analysis for the Norwegian air transport market. Some factors listed in Table 3.1 are inter-related and could therefore be placed under multiple headings. The analysis identifies factors that specifically affect the Norwegian air transport market. However, the macro-environmental nature of the analysis means that many of the factors listed also affect air transport markets worldwide. Separate columns have been included to indicate whether each factor is a threat or an opportunity for airlines. Some factors offer both threats and opportunities. However, the most likely impact over the short-term is indicated.

From Table 3.1, it can be seen that many opportunities exist including the high GDP per capita and high propensity to travel, growing and increasingly diverse population, and increased demand for air travel and tourism. However, there are also many threats. High and fluctuating fuel prices and the global economic situation, especially in the Eurozone, are key challenges faced by airlines serving the Norwegian air transport market at the moment. These challenges are likely to continue into and beyond 2012.

The analysis in Table 3.1 focuses on macro-environmental factors affecting the Norwegian air transport market and influencing the airlines in that market. However, there are also a number of key issues relating to the internal air transport market in Norway that may have implications for the future. These issues are related to the ownership, operations, strategy and financial performance of the main airlines that operate in Norway.

Table 3.1 PESTEL analysis for the (Norwegian) air transport market

Political Factors	Opportunity	Threat
Efficiency savings may be offered by the introduction of the Single European Sky.	☑	
Unclear framework conditions relating to airspace closure (i.e. due to the Icelandic ash cloud in April 2010).		☑
New and increased taxes, especially for environmental reasons e.g. recent increase in Air Passenger Duty in the UK, German air passenger tax introduced in January 2011, and Austrian air passenger tax introduced in April 2011. The Dutch air passenger tax was introduced in July 2008 but abolished in January 2010 after it was found that it damaged the national economy.		☑
Exposure to conflicts in the labour market in Norway and abroad.		☑
Compared to inflation, Avinor airport charges will be reduced by 1.3% in 2012.	☑	
Most of the airports in Norway are owned and operated as part of a national airport system meaning that there is limited competition between airports in Norway		☑
Economic Factors	Opportunity	Threat
According to the World Bank, global economic growth is projected to remain strong from 2011 through 2013. After expanding 3.8 percent in 2010, global GDP is projected to have slowed to 3.2 percent in 2011 before levelling off at 3.6 percent in 2012 and 2013. Forecast growth varies by region and country with a number of Eurozone countries experiencing ongoing concerns.	☑	☑ (Europe)
Norway has one of the strongest economies of the world. GDP of NOK 2.5bn in 2010 (increase of 0.7% from 2009). 2nd highest GDP p/capita in Europe after Luxembourg. Low unemployment (3.4%). This compares to unemployment of 9.3% for the EU. Also, a high propensity to travel by air in Norway. Norwegians took an average 2.3 domestic and 1.6 international trips in 2009.	☑	
Norway has a very export oriented industry; third largest exporter of oil and gas and second largest exporter of fish in the world. Key sectors such as oil and gas, shipbuilding/equipment, energy and fish farming contribute a lot of business travel. Norway is an attractive country for trade and investment and is ranked among the top performers for ease of doing business.		
2011 ended on a positive note for IATA airlines with passenger demand up 5.9% compared to 2010. However, growth in air freight contracted 0.7% and growth in passenger and freight demand was slower than growth in capacity resulting in downward pressure on load factors. IATA's recent Airline Business Confidence survey reported a significant decline in profitability expectations over the next 12 months and an expectation that unit costs will increase but with little change in yield. IATA is expecting profitability to decline from \$16.0 billion in 2010 and \$6.9 billion in 2011 to just \$4.9 billion in 2012.		☑
IATA figures for 2011 show RPK growth for European airlines of 9.5%, which is slightly lower than ASK growth of 10.2%. In addition, FTK growth of 1.5% was accompanied by AFTK growth of 6.4%. Load factors are therefore reduced.		☑
A number of Eurozone countries are experiencing ongoing financial concerns that are reflected by reduced demand for air travel. However, 2011 figures for the Norwegian market are promising with growth compared to 2010 of 9.6% for total terminal passengers, although growth in demand for freight/mail was just 0.1%.	☑	☑ (Europe)
Airlines typically have high levels of uncertainty and risk exposure as a result of their large proportion of fixed costs combined with exposure to external variables such as currencies, interest rates, jet fuel prices, mega trends and events. Some variables such as currencies and jet fuel can be managed through hedging but not all, as demonstrated by the Icelandic ash cloud in April 2010.		☑
Higher (& fluctuating) jet-fuel prices pose a risk. IATA estimate that the average jet-fuel price for 2012 will be \$129.5 per barrel; \$32 billion higher for IATA airlines in 2012 compared to 2011.		☑

Table 3.1 PESTEL analysis for the (Norwegian) air transport market continued

Socio-cultural Factors	Opportunity	Threat
Norway's population is currently just under 5 million. Population growth in the 3rd quarter of 2011 was the second highest ever recorded in any quarter, increasing by 20,050 persons. 70% of the growth was due to net immigration which will no doubt contribute to a rapidly growing VFR market. The strongest net immigration was experienced from Poland, Baltic countries and the Philippines.	☒	
Population growth is forecast to continue, passing 5 million in 2012 and 6 million in 2028 representing 22% growth between 2011 and 2028. The largest growth will come from the 67 years and older group (55% growth between 2011 and 2028).	☒	
There were 6.6 million tourist arrivals to Norway in 2010 (12.6% increase since 2004). The proportion arriving by air has increased from 24.4% in 2004 to 33.2% in 2010. Growth in demand is strongest from leisure markets versus business (e.g. 62.8 of total overnight guests to Norway in 2010 were leisure versus 58.9% in 2004). This trend is expected to continue.	☒	
Similar trend (to the previous point) in terms of trips taken by Norwegians. Norwegians took 22.9 million trips abroad in 2010 (10.1% increase since 2004). 36.6% were by air in 2010 and while there was zero growth in trips taken by air by Norwegians between Q1 and Q2 of 2010 and 2011, there was an -8.2% decline trips for business purposes compared to 5.8% growth in trips for leisure purposes. Also, there was a -7.4% decline in domestic trips compared to 7.4% growth in international trips. This trend is expected to continue in the 2010s.	☒	
Sharp growth in demand for low-cost carriers was experienced in Europe during the 2000s. Growth is now easing within Europe but remains relatively strong for Norwegian.	☒	
Seasonal fluctuations in demand are experienced in Norway (e.g. lower demand in December-February, higher demand in September-November, peak demand in April-June). Therefore, airlines need to dynamically adjust capacity to demand on a monthly but also weekly basis (e.g. SAS capacity was 24% lower in December-February 2009-2010 compared to September-October 2010).		☒
Intercontinental coverage (e.g. of SAS) but also Norwegian (e.g. OSL-DXB) results in worldwide geographic exposure. This exposes the airlines to risks abroad such as economic problems or political events but also spreads risk as business cycles are often phase-shifted in different economic markets.		☒
There has been a continued long-term growth in use of the Internet (e.g. for travel planning and purchasing). 92% of households in Norway have access to the Internet (as of Q2 2011), 34% have access to mobile broadband.	☒	
There is a growing demand in use of social media in Norway (about 3 in 5 people in Norway participated in social networks over the Internet during Q2 2011).	☒	
Technological Factors	Opportunity	Threat
Advances in aircraft design are likely to offer cost savings for airlines (e.g. from fuel efficiency).	☒	
The introduction of renewable jet fuel (e.g. Jet A-1 50/50 blend is currently seeking certification) may reduce emissions and costs for airlines.	☒	
Airlines face an increased level and risk of IT-based criminality involving hacking and sabotage of IT systems, especially credit card fraud, junk mail and viruses. This can result in the repayment of revenue that is fraudulent (called Charge Back).		☒
Airlines need to comply with standards set by major credit card companies (i.e. the Payment Card Industry Data Security Standard).		☒

Table 3.1 PESTEL analysis for the (Norwegian) air transport market continued

Environmental Factors	Opportunity	Threat
The Emissions Trading Scheme (ETS) will be introduced in 2012; promoting unity regarding a global trade system for emission rights where airlines will be allocated emission rights based on traffic volume in 2010. Airlines can achieve expansion and keep costs for emission rights down by improving fuel efficiency. The system is being legally challenged by US airlines and more than 100 non-European states are against it.		☑
Ambitious targets agreed at the UN conference in Copenhagen in 2009 and the climate meeting in Cancun (where it was decided that a fund should be created to finance climate change in developing countries – it is unclear how this will be financed and there is a risk that aviation may become a source of income).		☑
Legal/Regulatory Factors	Opportunity	Threat
EC consultations are underway on regulations for slot allocation at airports and for passenger rights in the event of cancellation or delayed flights. This could have implications for the Norwegian air transport market but also markets served by airlines in Norway.		☑
Increasingly complex and costly EU regulations may conflict with national legislation in countries outside the EU and weaken the competitiveness of the European airline industry.		☑
New air services agreements have been reached between Scandinavia and China.	☑	
The EU completed air service agreement negotiations with the US and initiated new negotiations with Brazil and Israel.	☑	
Air service consultations at ICAN2011 in October took place between Scandinavia and Australia, Ethiopia, India, Iraq, Iran, Kenya, Oman, Pakistan, Sri Lanka, Turkmenistan, Uganda, United Arab Emirates and Zambia.	☑	
New flight safety demands are rising infrastructure costs may impact on airline financial performance.		☑
The ban on frequent flyer programmes for domestic flights in Norway has been under review (investigation initiated by the Norwegian Competition Authority in December 2010). The decision is that FFPs can now be re-introduced on the three main trunk routes OSL-BGO/SVG/TRD.	☑	

Data sources: World Bank, Statistics Norway (SSB), Transport Economics Institute (TØI), Innovation Norway, Avinor, and the 2010 annual reports of SAS, Norwegian and Widerøe.

3.2 Key airline issues

Four main airlines operate in Norway. SAS and Norwegian serve the main domestic routes and a large number of international routes. The routes served by both airlines are mainly short-haul Nordic and intra-European. However, SAS serves intercontinental routes from Scandinavia to Asia (Bangkok, Beijing, Tokyo and Shanghai) and the USA (Chicago, New York and Washington D.C.). Norwegian serves intercontinental routes from Scandinavia to North Africa (Morocco) and the Middle East (Israel and Dubai). Widerøe and Danish Air Transport (DAT) serve mainly domestic routes within Norway including local routes that come under the scope of the PSO regime. Widerøe also serves other parts of Scandinavia and the UK. DAT also serves Denmark.

There are a number of foreign operators serving international routes to/from Norway including Ryanair, Lufthansa, KLM and British Airways. However, the focus of this chapter is largely on the four main airlines that serve the domestic market in Norway; SAS, Norwegian, Widerøe and DAT.

3.2.1 Ownership

The ownership structure of the four airlines is summarised in Table 3.2.

Table 3.2 Ownership structure of the main airlines operating in Norway

Airline	Ownership
SAS	50% government, 50% private investors
Norwegian	100% private investors
Widerøe	100% SAS Group
DAT	60% Rungholm family, 40% private investors

The SAS Group is a consortium of taxable entities under which SAS Norway, SAS Sweden and SAS Denmark belong. It is through the SAS Group that the SAS airline business operates, and the financing and leasing of aircraft is carried out. The consortium also holds the Air Operator Certificate (AOC) and traffic rights for SAS. The SAS Group owns Blue1 (Finnish regional airline serving around 1.5mn passengers and 20 destinations in Finland, Scandinavia and other parts of Europe), Widerøe, and the SAS Cargo Group. Figure 3.1 shows the legal structure of the SAS Group as of 15 March 2011 including operations that have, or are due to be, divested. Spanair ceased operations on 27 January 2012 while the SAS Group still had a 10.9% stake in the airline.

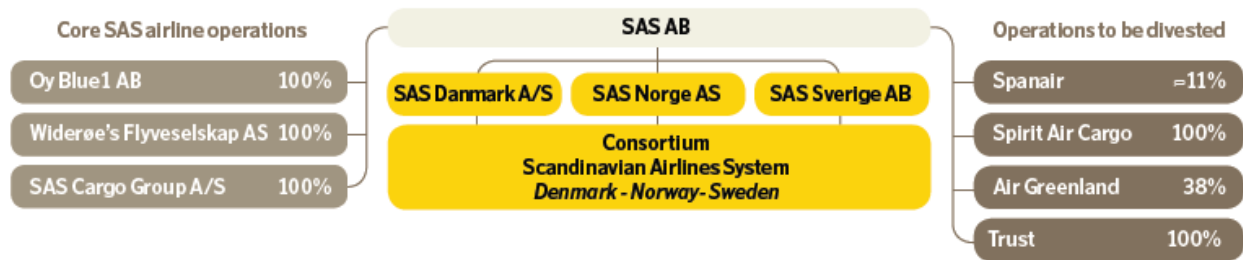


Figure 3.1 SAS Group's legal structure, 15 March 2011

Source: SAS Group (2011)

The SAS Group is owned 50% by private interests and 50% by the Scandinavian governments of Norway (14.3%), Sweden (21.4%) and Denmark (14.3%). The SAS Group is listed on three stock exchanges (Oslo, Stockholm and Denmark). As of 31 December 2011, there were 66,917 shareholders. Table 3.3 lists the principal shareholders as they appear in the shareholder register. The list does not include institutions/banks with multiple holdings in the SAS Group controlling a larger share than presented in the list. Under Danish law, disclosure of Danish registered shareholders is permitted only when the stake exceeds 5%.

Table 3.3 Principal shareholders in the SAS Group, 31 December 2011

Shareholder	Total	Accumulated
The Swedish government	21.4%	21.4%
The Danish government	14.3%	35.7%
The Norwegian government	14.3%	50.0%
Knut and Alice Wallenberg's foundation	7.6%	57.6%
A.H Värdepapper AB	1.4%	59.0%
Försäkringsaktiebolaget, Avanza Pension	1.4%	60.4%
Unionen	1.4%	61.8%
Denmark's National Bank	1.4%	63.2%
Robur Försäkring	0.9%	64.1%
Andra AP-fonden	0.5%	64.6%
Nordnet Pensionsförsäkring AB	0.5%	65.1%
JPM Chase NA	0.5%	65.6%
Ponderus Securities AB	0.4%	66.0%
Swedbank Robur Sverigefond	0.4%	66.4%
Swedbank Robur Sverigefond Mega	0.3%	66.7%
Handelsbanken Sverigefond Index	0.3%	67.0%
AMF Aktiefond Småbolag	0.3%	67.3%

Source: SAS Group (2012)

The Norwegian Group consists of the parent company Norwegian Air Shuttle and the fully-owned subsidiaries Norwegian Air Shuttle Polska (a company based in Warsaw that manages administrative services for the parent company) and Norwegian Air Shuttle Sweden (a company based at Stockholm Arlanda Airport that supplies crew and provides technical services, but flight operations in Sweden are

operated by the parent company). Additionally, Norwegian Air Shuttle owns 100% of the communication services company Call Norwegian, 99.9% of NAS Asset Management, 100% of NAS Asset Management Norway and 20% of Norwegian Finans Holding. NAS Asset Management Ireland owns the remaining 0.1% in NAS Asset Management. Figure 3.2 shows the legal structure of Norwegian Air Shuttle as of 31 December 2011.

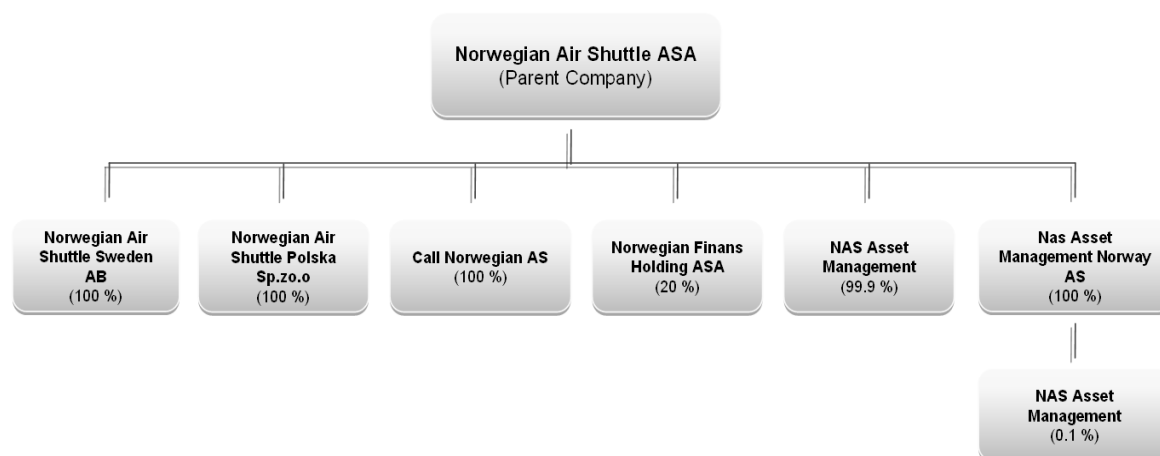


Figure 3.2 Norwegian Air Shuttle's legal structure, as of 31 December 2011

Source: Norwegian (2012)

Norwegian Air Shuttle is listed on the Oslo Stock Exchange. At the end of 2010, the company had 4,598 shareholders consisting of institutional and private investors. 80% of the shareholding is with Norwegian investors, 6% British, 5% Finnish (Finnair), 5% American, 3% Swedish and 1% other. The principal shareholders are listed in Table 3.4.

Table 3.4 Principal shareholders in Norwegian Air Shuttle, 31 December 2010

Shareholder	Total	Accumulated
HBK Invest AS	27.5%	27.5%
Awilco Invest AS	6.5%	34.0%
Skagen Kon-Tiki	4.9%	38.8%
Finnair PLC	4.8%	43.5%
Vital Forsikring ASA	4.3%	47.9%
Skagen Vekst	3.8%	51.7%
JPMorgan Chase Bank	2.7%	54.4%
DNB NOR Norge (IV) V	2.4%	56.8%
State Street AN	2.0%	58.8%
Goldman Sachs Int.	1.6%	60.5%

Source: Norwegian (2011)

DAT is 60% owned by the Rungholm family and 40% by private investors. DAT owns 100% of DOT LT (a Lithuanian airline that offers ACMI services with a small fleet of passenger and cargo aircraft) and owned 15% of Vildanden (a virtual, regional

airline that was based at Skien Airport from 2005 with operations to Bergen Flesland Airport, Trondheim Værnes Airport and Stavanger Sola Airport but ceased operations on 16 January 2011).

3.2.2 Operations

Between them, the four main airlines serve 201 non-stop destinations (see Figure 3.3). 39% of those destinations are within Norway, a further 13% are within Scandinavia, and a further 42% are within Europe. The remaining 6% are to/from North America, Asia-Pacific, Africa and the Middle East. SAS serves 37% of the destinations, Norwegian 35%, Widerøe 23% and DAT 5%. Widerøe is the largest operator of non-stop destinations in Norway, serving 41 of the 79 non-stop destinations in Norway. SAS and Norwegian both serve 15 non-stop destinations in Norway, DAT serves eight. Figure 3.3 does not include destinations served by interlining, code-share or alliance partners, which includes a significant number of destinations worldwide in the case of SAS and Widerøe because of their Star Alliance membership. In addition, Figure 3.3 only shows non-stop destinations served by scheduled services and not those served by charter services.

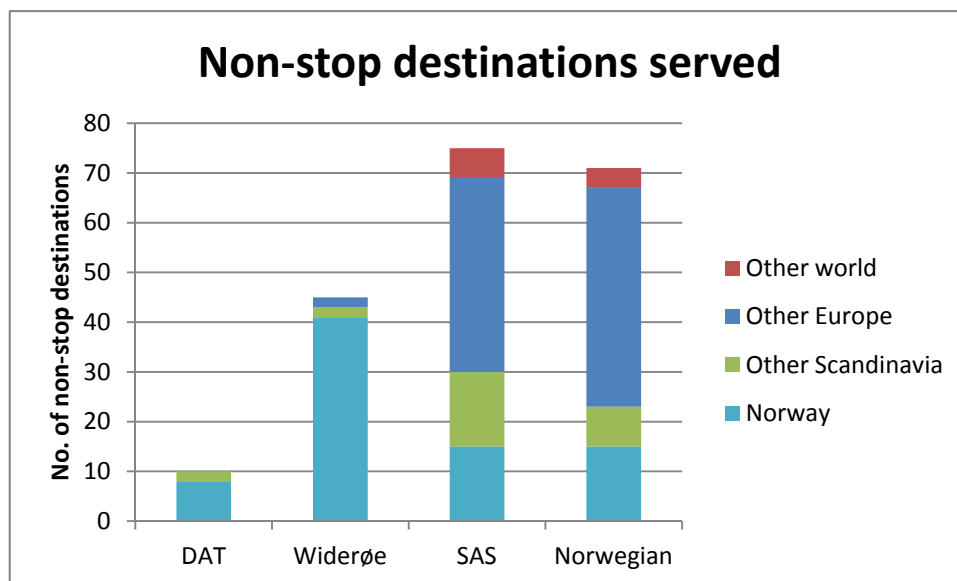


Figure 3.3 Non-stop destinations served, 11-17 January 2012

Data source: Flightglobal Pro

Between them, the four main airlines have 242 aircraft in-service (see Figure 3.4). SAS operates 57% of those aircraft, Norwegian 26%, Widerøe 14% and DAT 3%. Widerøe and DAT only operate turboprops while SAS and Norwegian only operate jet aircraft with the majority being narrowbody aircraft.

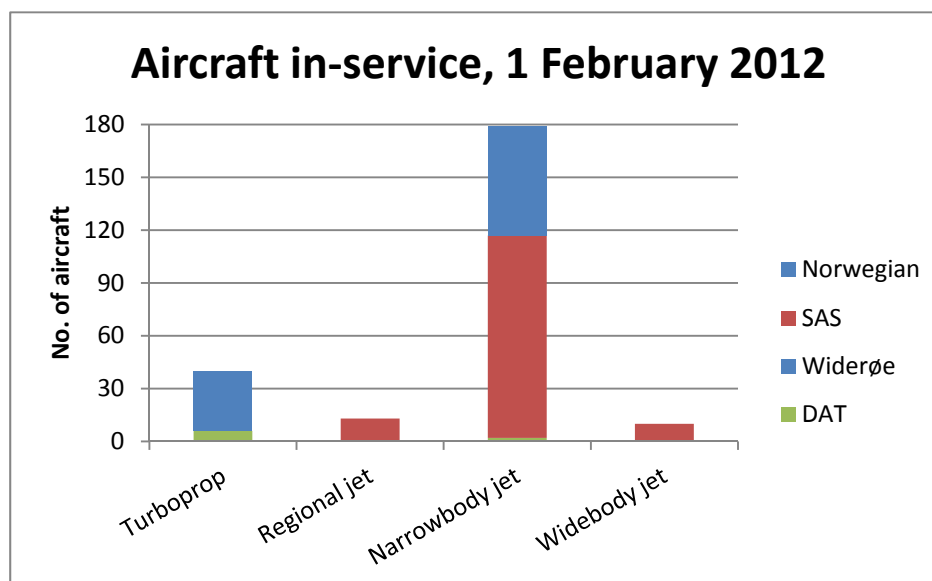


Figure 3.4 Aircraft in-service, 1 February 2012

Data source: Flightglobal Pro

Fleet size and composition has an impact on capacity provided by the respective airlines. Data on available seat kilometres (ASK's) by airline from 2003-2011 is provided in Figure 3.5. ASK data is not available for DAT.

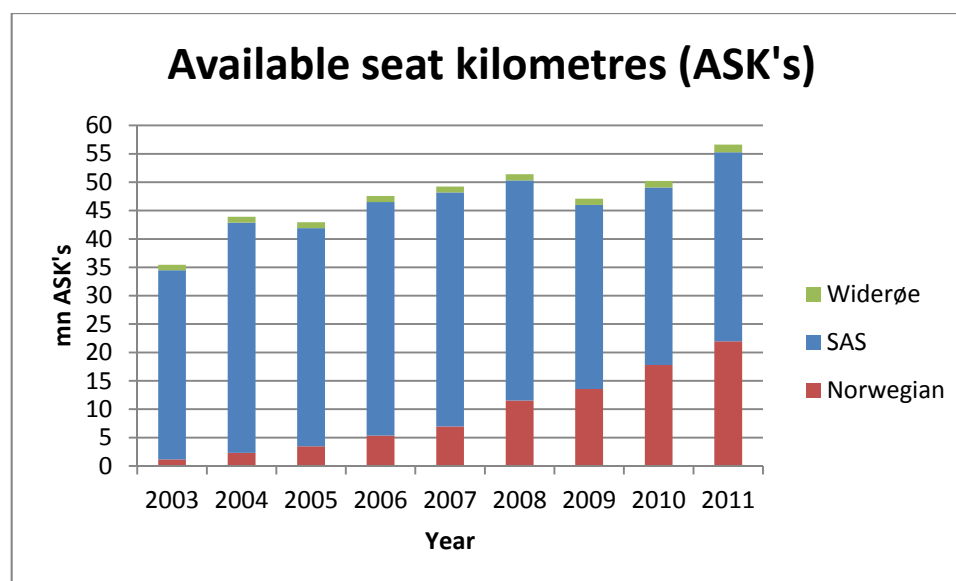


Figure 3.5 Available seat kilometres (ASK's)

Data source: Flightglobal Pro

The three airlines in Figure 3.5 provided a total of 56.6mn ASK's in 2011. This is an increase of 21.2mn ASK's since 2003. 59% of ASK's in 2011 were provided by SAS, 39% by Norwegian and 2% by Widerøe. Norwegian's share of total ASK's has increased from just 3% in 2003 to 39% in 2011. Widerøe's share has reduced from

3% to 2%, SAS's share has reduced from 94% to 59%. In 2011, passenger load factors were 59.9% for Widerøe, 74.6% for SAS and 79.3% for Norwegian.

Competition from Norwegian, but also from other European carriers in what has traditionally been the main market for SAS (to/from and within Scandinavia) can be seen in Figure 3.6. ASK's have increased from 161bn in 2000 to 364bn in 2011; an increase of 203bn. 90% of that growth has been provided by four low-cost carriers; Ryanair 47%, easyJet 24%, Air Berlin 13% and Norwegian 6%.

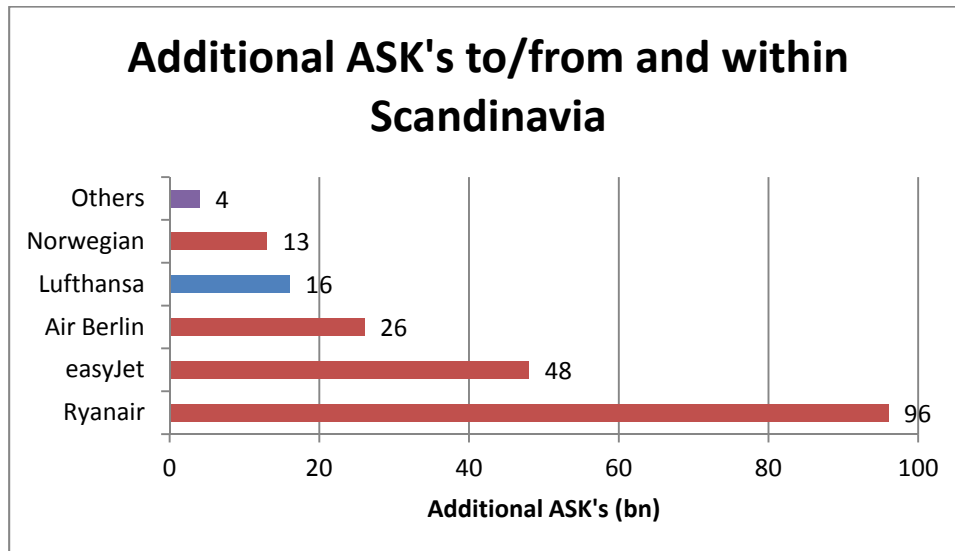


Figure 3.6 Additional ASK's to/from and within Scandinavia, 2000-2011

Source: data extracted from Gustafson (2011)

Figure 3.7 shows the share of SAS short-haul revenues that are exposed to competition according to each of the main competitors. About 70% of SAS's short-haul revenues are exposed to competition from low-cost carriers including Norwegian, Ryanair, easyJet and Air Berlin. Norwegian alone competes for about 60%. Mega carriers including British Airways, Air France, Lufthansa and KLM compete for about 18%, other network carriers including Brussels Airlines, Swiss and Finnair compete for about 6%, and regional carriers including Cimber Sterling and Malmö Aviation compete for about 10%.

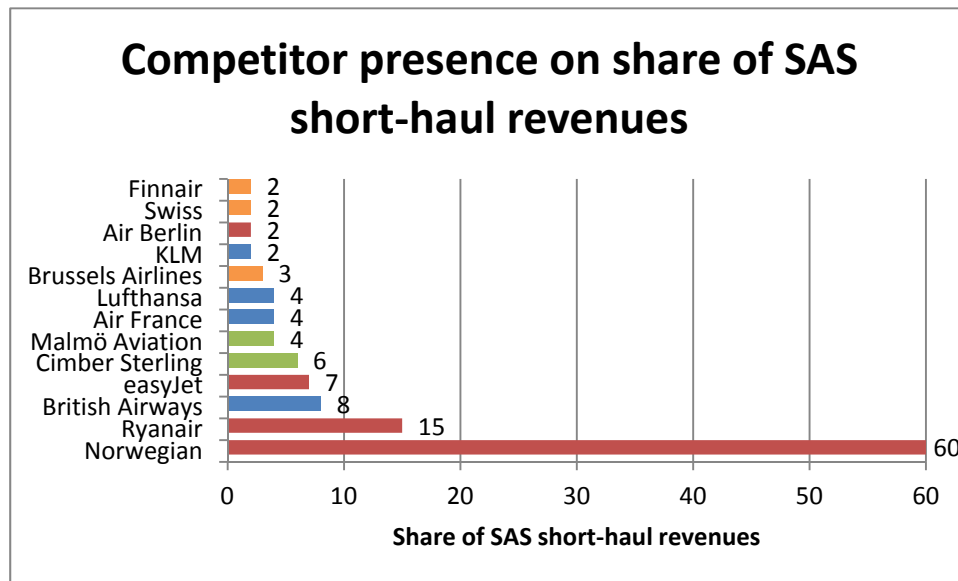


Figure 3.7 Competitor presence on share of SAS short-haul revenues, April 2011

Source: data extracted from Gustafson (2011)

Note: Shares are not mutually exclusive and therefore do not need to equal 100%

Figures 3.8 and 3.9 further emphasise the increased competition for SAS from Norwegian in recent years. Norwegian has stimulated new demand for air travel but also increased its share of the market for passengers and RPK's.

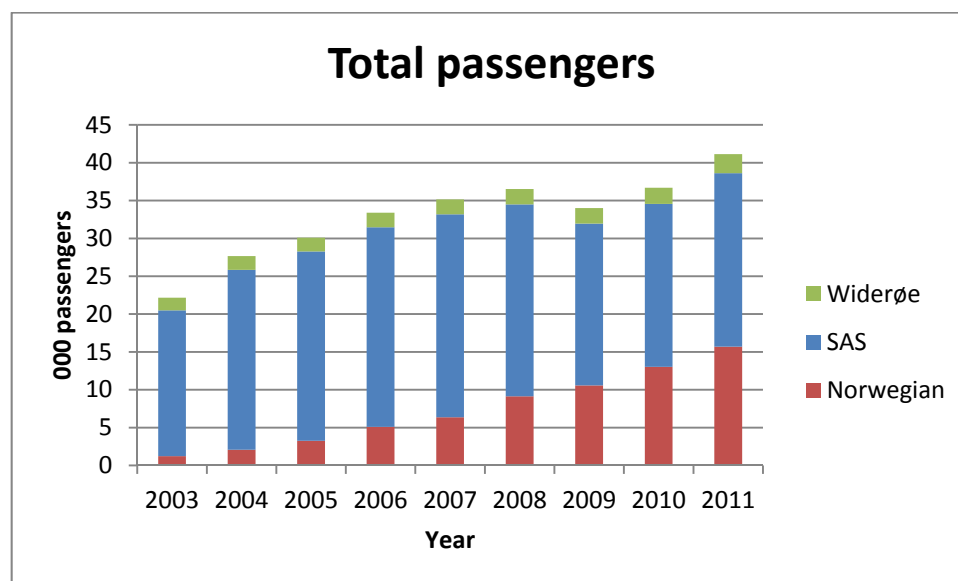


Figure 3.8 Total passengers

Data source: Flightglobal Pro

Note: data not available for DAT

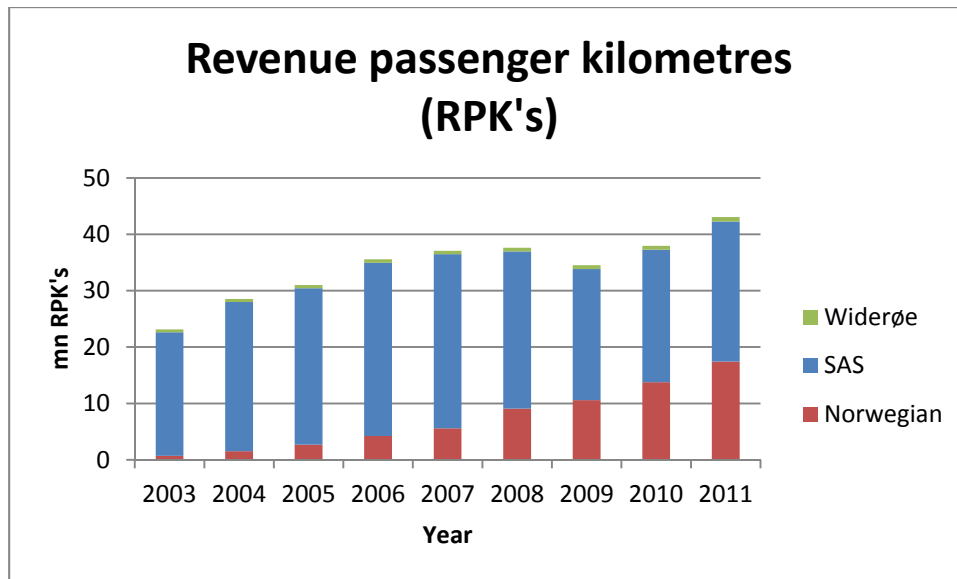


Figure 3.9 Revenue passenger kilometers (RPK's)

Data source: Flightglobal Pro

Note: data not available for DAT

3.2.3 Strategy

When considering future prospects for the air transport market in Norway, it is useful to discuss the route and fleet plans of the main airlines, and their general strategy for future operations.

DAT has six ATR turboprop aircraft in-service (four ATR-42 200's and two ATR-72 200's) and two narrowbody MD-80 aircraft. DAT is currently expanding its presence in Europe and will launch a twice-weekly service between Blackpool International Airport in the UK and Albert-Picardie Airport in France using an ATR-72. In addition, DAT will stop operating the PSO routes Florø-Bergen/Oslo from 1 April 2012 but will instead operate PSO routes in Lofoten (Bodø-Leknes/Narvik/Røst/Svolvær), probably with leased Dash-8 aircraft. The Lofoten routes are currently operated by Widerøe. If DAT is successful on those routes, there might be increased competition on PSO routes in Norway in the future, which is important because competition may help to reduce the level of subsidy needed for PSO routes. DAT is also extending their presence at airports in and around the Oslo fjord area including at Moss Rygge Airport, Oslo Gardermoen Airport and Skien Airport.

Widerøe currently has 34 Dash-8 turboprop aircraft in-service with options on a number of Dash-8 400's. The airline plans to replace older models in its fleet with newer models available from the used market. The airline has not announced whether it plans to expand its total fleet size, or the timescale or targets for

replacing older aircraft in its fleet. However, the replacement plan is likely to consist of replacing older Dash-8's with newer models available from the used market, carrying out mid-life extension on their newer Dash-8 100's, and increasing the number of Dash-8 400's, if good market conditions prevail (Sanders, 2011). Widerøe is likely to continue to focus on defending and growing its domestic network in Norway including PSO and commercial routes, and international routes (e.g. to/from the UK). The airline has increased its presence at Oslo Gardermoen Airport and Sandefjord Torp Airport in recent years providing both domestic and international services to/from those airports.

SAS is currently in the process of harmonising its fleet and as part of that process; SAS announced an order for 30 new A320 next generation aircraft on 20 June 2011 (see CAPA, 2011). From 2015, SAS plans to operate two types of short range aircraft; Airbus A320's at Copenhagen Airport and Boeing 737NG's at Stockholm Arlanda Airport and Oslo Gardermoen Airport. The MD-80's that SAS currently operates at Copenhagen Airport will be replaced by leased Airbus A320's by the end of 2014 and those leased aircraft will be replaced from 2016 by the 30 Airbus A320neo aircraft that are on-order. The MD-80's that SAS currently operates at Stockholm Arlanda Airport will be replaced by leased Boeing 737NG's by 2013 and the Boeing 737 Classics that SAS operates at Oslo Gardermoen Airport will be replaced by Boeing 737NG's by 2014.

SAS launched a strategy called Core SAS in 2008 that targeted cost reductions of SEK 7.8bn by 2012, increased commitment to business travellers, and a more streamlined organisation. Core SAS was very much targeted on business passengers. The airline has, along with its subsidiary Widerøe, claimed top places in European and world rankings for punctuality in recent years. The airline also claimed about 55% of the business travel market in the Nordic region in 2010, giving the airline substantial reach and pricing power (CAPA, 2011). A focus on high yield business passengers makes sense given that SAS is infamous in the airline industry for having high costs. However, the airline's share of the business travel market in the Nordic region has declined to 55% in 2010 from 63% in 2006, reflecting additional capacity added by competing airlines but also a growing trend for low-cost airlines to target the business travel market. In addition, SAS forecast that future growth in the Nordic region will be strongest in the leisure market (see Figure 3.10). The Nordic market is expected to grow from 90mn passengers in 2010 to 134mn in 2020. The leisure market is expected to grow from 57mn to 91mn passengers (average annual growth of 6.0%) while the business market is expected to grow from 32mn to 42mn passengers (average annual growth of 3.1%). The leisure passenger share of total passengers is therefore expected to increase from 63% in 2010 to 68% in 2020.

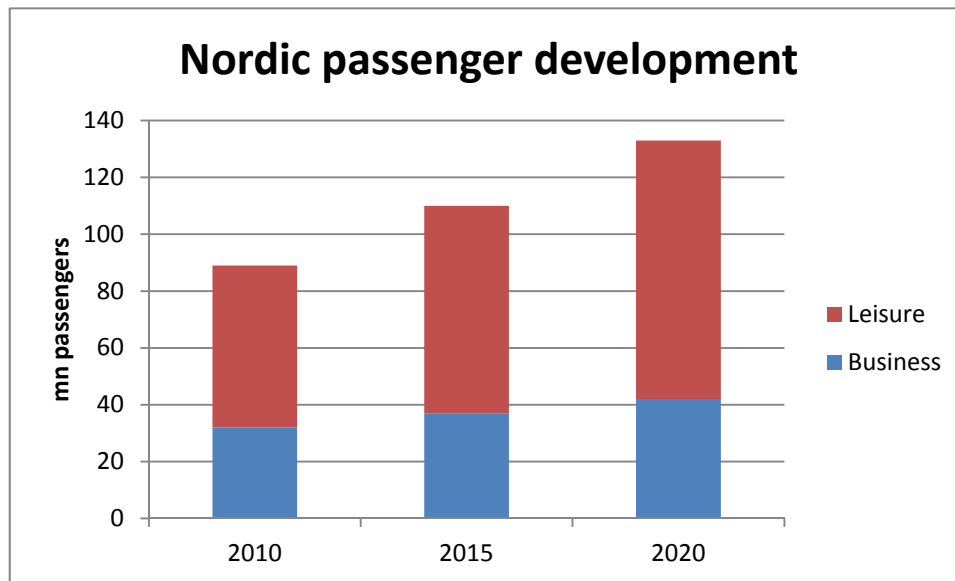


Figure 3.10 Nordic passenger development per segment, 2010-2020

Source: data extracted from Gustafson (2011)

Norwegian and Ryanair are two of Europe's most efficient airlines. They dominate the leisure market in Scandinavia and as has been shown in Figure 3.7, SAS is already heavily exposed to competition from such airlines on short-haul routes in that market. SAS's increased focus on the short-haul leisure market will therefore mean that further cost reduction will be necessary in order for them to be competitive. Renewal of their ageing and relatively inefficient fleet will help but the airline will also focus on implementing an improved network, offering lower headline fares, facilitating more efficient distribution including online sales, and an increased use of ancillary services (CAPA, 2011).

Since evolving into a low-cost airline in 2002, Norwegian has become quite a force and will continue with their rapid expansion during the next few years. On 25 January 2012, the airline announced an order for 222 new aircraft worth US\$ 21.1bn (see Parker, 2012). The order includes 100 Boeing 737 MAX aircraft, 22 Boeing 737-800's and 100 Airbus A320neo's. The order is Boeing's largest ever European deal and the first European order for Boeing's 737 MAX aircraft. The new aircraft will replace some of Norwegian's existing aircraft. However, they will also help the airline to achieve its expansion plans increasing its fleet size from 62 to 150-200 by 2020. This is a large expansion plan compared to that of SAS and will no doubt have an impact on the proportionate share of ASK's that the respective airlines offer. Some analysts such as Andrew Lobbenburg at the Royal Bank of Scotland (RBS) says that Norwegian's order looks like a "gamble on SAS failing" (Parker, 2012; p1). The airline is focused on expanding in the Nordic countries and plans to open a new operating base in March 2012 in Malaga, Spain. Norwegian

also has plans to launch a long-haul operation in 2013, possibly serving New York and Bangkok from a base in Scandinavia.

Low-cost long-haul is yet to be proven as a viable business model. A number of airlines have tried but ended in failure, e.g. Laker Airways Skytrain between 1977 and 1982, Zoom Airlines between 2006 and 2008, and Oasis Hong Kong Airlines between 2006 and 2008. A number of low-cost long-haul services are currently operated by airlines in Asia but without much success. AirAsia X launched low-cost long-haul services in 2007. However, on 12 January 2012, AirAsia X announced that it was withdrawing its low-cost long-haul services to Europe (London Gatwick and Paris Orly) and India (Mumbai and New Delhi) because of continued high jet fuel prices and exorbitant government taxes. Many airlines have plans for low-cost long-haul services. Singapore-based Scoot plans to introduce services from Singapore Changi Airport to destinations in Australia (Sydney Airport by April 2012 and Gold Coast Airport at a later date). Philippine-based Cebu Pacific plans to launch services to Australia, the Middle East, parts of Europe and the USA by 2013. Another airline called Feel Air had been planning to launch services from Scandinavia to the USA and Asia in 2010 but has not yet done so because of the risky nature of the current economic climate. Despite the uncertainty surrounding low-cost long-haul operations, Norwegian believes that they can be successful, especially given the cost- and fuel-efficiency of the six Boeing 787's that they plan to use for their intercontinental routes. Joining a global airline alliance such as Oneworld may be something that Norwegian needs to consider if they are to be successful with rapid expansion and a move into low-cost long-haul operations.

3.2.4 Financial performance

The mixed fortunes of Norwegian and SAS are to some extent reflected by their financial performance. Figure 3.11 shows the operating result for Norwegian, SAS and Widerøe from 2003 to 2011. Figure 3.12 shows the net result over the same period and for the same airlines. Data is not available for DAT. A more detailed analysis of operating costs and revenues for the respective airlines, in addition to other airlines in Europe, is provided in Chapter 4 of this report.

SAS has not recorded a positive net result since 2007 and has only been in the black two times since 2003. The airline has been struggling for years with high costs and strong competition from low-cost airlines such as Norwegian who has recorded positive net results for the last three years and only marginal net losses compared to SAS since 2003. Widerøe has maintained a positive operating and net result between 2003-2011, although the gains are relatively small compared to Norwegian and SAS.

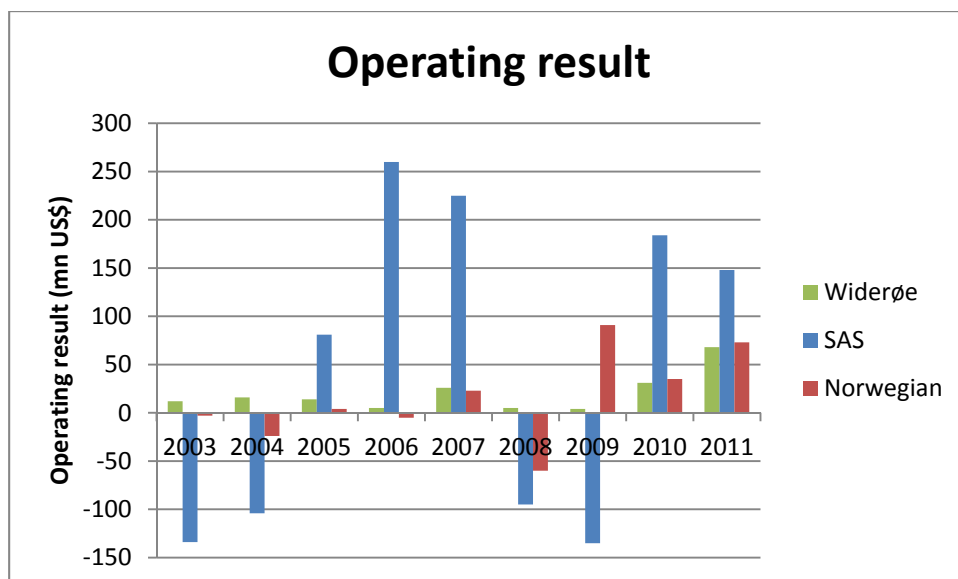


Figure 3.11 Operating result

Data source: Flightglobal Pro

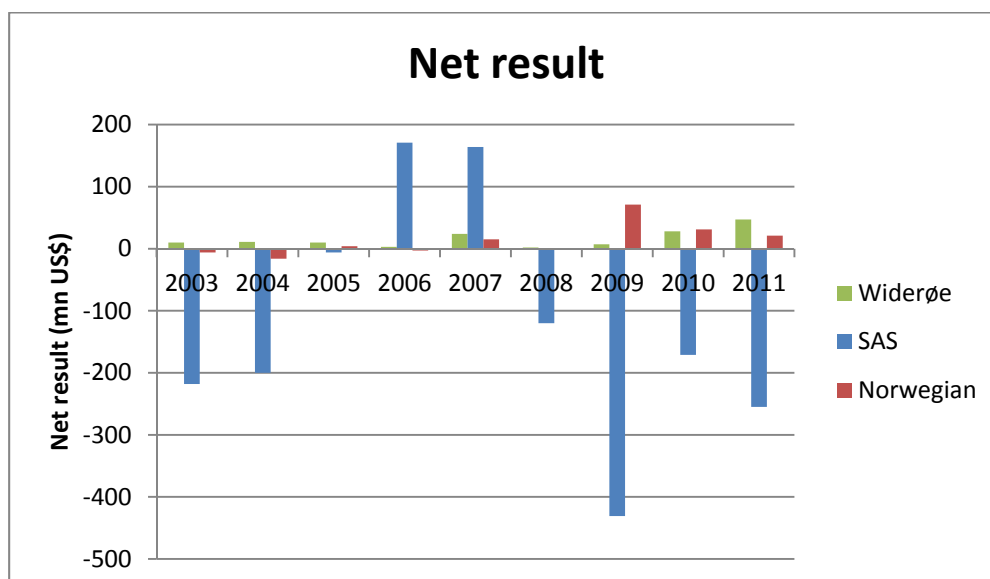


Figure 3.12 Net result

Data source: Flightglobal Pro

The SAS Group made a pre-tax profit of SEK 276mn in the third quarter of 2011 against a loss of SEK 1bn in the third quarter of 2010. In addition, the Group's pre-tax profit from the first to third quarter of 2011 was SEK 448mn compared with a loss of SEK 2.6bn for the previous year. However, the third-quarter pre-tax profit for 2011 was below expectations and resulted in them lowering their full year outlook due to jet fuel costs, competition and global economic developments, particularly in Spain where the SAS Group owned a 10.9% stake in the struggling airline Spanair. The SAS Group was set to struggle to make a profit in 2011 and the bankruptcy of Spanair on 27 January 2012 while they still had a 10.9% stake in the

airline, led to the announcement of a profit warning in January 2012 with the bankruptcy of Spanair resulting in a SEK 1.7bn write-down for 2011.

The SAS Group reported a net loss of SEK 1.7bn for 2011. The write-down of SEK 1.7bn for Spanair obviously had a significant impact on the results. However, fourth quarter results were poor with the SAS Group sustaining a net loss of SEK 2.1bn and earnings for 2011 would still have been very marginal without the bankruptcy of Spanair. Widerøe recorded a net result of NOK 267mn for 2011 while Norwegian recorded a net result of NOK 122mn.

The share price of SAS and Norwegian has generally declined during 2011 amidst the global economic slowdown. However, recent events with the profit warning from SAS in the aftermath of Spanair going bankrupt and Norwegian's record-breaking aircraft order set share prices for the two airlines on a different course (see Figure 3.13). Share prices on the Oslo Stock Exchange opened at NOK 8.05 for SAS and NOK 79.00 for Norwegian on 15 February 2012.



Figure 3.13 5-year share price for SAS and Norwegian, as of 15 February 2012

Source: created using <http://bors.e24.no>.

3.2.5 Future prospects

Restructuring programmes such as Core SAS have made SAS more competitive in recent years. As CAPA (2011; p6) state: "The one-time basket case of Europe, SAS has emerged, particularly in 1H2011, as one of the strongest performers in Europe". The airline has taken steps to harmonise its fleet, sell non-core operations

and negotiate more efficient working practices with unions, bringing down its costs. However, as previously mentioned in this chapter of the report, SAS has struggled for years with high costs and growing competition from low-cost airlines such as Norwegian. The global economic downturn and high jet fuel prices in recent years have added to the airlines problems and it is likely that tough times are ahead. The International Air Transport Association (IATA) has predicted that airline industry profits in 2012 will fall 29% to US\$ 4.9bn from US\$ 6.9bn in 2011.

Large deficits in 2008 and 2009 resulted in the Board of SAS proposing equity extensions in 2009 and 2010 respectively. As shareholders, the Norwegian government took part for its proportionate share of the extensions, both equity securities amounting to NOK 709mn and NOK 582mn respectively. In addition, the Norwegian government supported the establishment of a convertible bond issued in April 2010 for SEK 1.6bn that can be converted to shares in 2015. The basis for the equity extensions was the Core SAS strategy that targeted cost reductions of SEK 7.8bn by 2012, increased commitment to business travellers, and a more streamlined organisation. Core SAS, led to savings of around SEK 7.6bn by the third quarter of 2011 and cut unit costs by more than 20%. In September 2011, SAS said it would cut unit costs by an additional 3-5% annually until 2015 as part of their 4Excellence strategy that seeks to achieve excellence in four key areas (Commercial Excellence, Sales Excellence, Operational Excellence, and People Excellence). 4Excellence has been met with a fair degree of scepticism by industry analysts, especially in light of strong competition from Norwegian (e.g. see Thomas, 2011).

In the case of SAS, the three Scandinavian governments own shares in a publicly traded company and covered their stakes in previous rights issues. As owners, and in line with other owners, they simply raised equity for the airline. This is not the same as state aid. However, competing airlines such as Norwegian claim that the support provided by the governments to SAS is distorting competition. easyJet go a step further branding it as illegal state support (Steinmetz, 2010).

State-aid is sometimes provided to European airlines within the interpretation of European Union (EU) law but the European Commission (EC) is under increasing pressure to be more stringent, especially with state-aid for national airlines. Hungarian flag carrier Malev ceased operations on 3 February 2012. Malev had approached its owner, the Hungarian government, with a request to do everything possible to save the airline. However, the Hungarian government was unable to offer support due to EC rules on state aid. The commission ruled on 9 January 2012 that Malev would have to pay back about US\$ 406mn that it received from the government between 2007 and 2010 (Perry, 2012). The Maltese government's plan to provide restructuring aid to Air Malta is currently under investigation by the EC.

The current economic situation in Europe means that many governments are looking to reduce their debts so state-ownership in airlines is increasingly viewed as a saleable asset, especially given the amount of state-aid that is being provided in some cases to persistently struggling airlines and in countries where competition from commercially viable airlines exists. There is also a trend towards consolidation that has gathered pace in Europe in recent years initially with Air France-KLM and more recently British Airways-Iberia. Poland's government is currently in talks with potential bidders including Turkish Airlines for its stake in LOT Polish Airlines. The Irish government is interested in selling its 25% stake in Aer Lingus. The Portuguese government is interested in privatising TAP and interest has been shown from IAG (holding company for British Airways and Iberia) and unnamed Gulf Carriers.

Of course, attracting investors is difficult, especially for airlines that have been struggling despite continued efforts to restructure. Traditional flag carriers will need to offer something special to attract investors given the level of competition from newer airline business models that have not been constrained by a history of national ownership and were effectively able to start-up with a relatively clean sheet of paper including with lower costs and a less heavily unionised workforce. This has been highlighted by the recent collapse of Spanair that ceased operations and filed for bankruptcy on 27 January 2012 after its largest shareholder, the regional government of Catalonia, announced that no further loans would be forthcoming following the end of talks with Qatar Airways over a potential rescue deal.

SAS has emerged from the Core SAS strategy as a much leaner and more efficient business and continues to address key weaknesses compared to their competitors through fleet renewal and cost reduction. The increased focus on leisure markets and exposure to competition still pose a risk to the airline, as do labour relations issues resulting from having a heavily unionised workforce. Another key issue for the airline and its owners is whether the three governments should retain their 50% share in the airline.

Norway's white paper on state ownership was released on 4 April 2011. The paper outlines the goal of the state's ownership in SAS as being "to promote an efficient route network for domestic and international travel to and from the country through a Scandinavian cooperation¹" (Norwegian Ministry of Trade and Industry, 2011; p84). The white paper mentions that state ownership in the future will be considered in relation to the changes that have occurred in the air transport market in recent years and that this includes consideration for the sale of shares in SAS, in

¹ The quote is based on a translation by the authors from Norwegian to English.

connection with an industrial solution. The target is that the company is operated on a commercial basis and in line with this, the white paper sought approval from parliament to sell its shares in the SAS Group, which has since been approved. The Swedish government also has approval to sell its shares. Approval has not been sought by the Danish government and this may prove to be a stumbling block for any potential sale in the future, partly because any sale is likely to be dependent on agreement from all three governments, but also because of the importance of Copenhagen Airport to Denmark in terms of its contribution to jobs and the national economy, and the importance of SAS to the airport.

If SAS is sold to another airline such as the Air-France-KLM group or Lufthansa, it is possible that hub activities at Copenhagen Airport would be replaced by existing hubs e.g. at Amsterdam Schiphol Airport or Frankfurt Airport. Oslo Gardermoen Airport and Stockholm Arlanda Airport may be less affected by such a sale because of their geographical location and importance for providing connections to their domestic markets. The situation concerning Copenhagen Airport means that IAG (British Airways-Iberia) or a Middle East carrier may be a more desired consolidation option for SAS. Rumours did in fact circulate in January 2011 of a bidding war for SAS shares held by the three Scandinavian governments by Air-France-KLM, Lufthansa and British Airways but nothing materialised, at least in the public domain, to suggest that a genuine interest was present. There were also media reports in March 2011 that Qatar Airways was interested in buying SAS shares as part of their global expansion plans but again, nothing materialised.

Rumours about the sale of government shares in SAS were raised yet again by the media on 15 February 2012 with Lufthansa, Finnair and Qatar Airways being mentioned as most likely candidates to buy the shares (see Kaspersen, 2012). As with earlier rumours, the governments of Norway, Sweden and Denmark do not confirm that they have taken steps to sell their shares in SAS. In addition, SAS will not comment on rumours that the Scandinavian governments are preparing to sell their shares in SAS.

Ideally, government shares in SAS would not be sold until the financial performance of SAS improves. Short-term forecasts are not too positive given the losses incurred from the failure of Spanair but also the high and fluctuating fuel costs, current economic situation and increased competition. SAS also needs to include pensions and the redemption of 'Bonus Points' from their EuroBonus Frequent Flyer Programme (FFP) on their accounts from next year so the short-term forecast, for 2012 at least, is fairly bleak. This is despite making important steps to reduce costs in recent years. There is also the need for an industrial solution at SAS and from the Norwegian government's perspective; an agreement to sell is likely to be

dependent on securing a deal for long-term investment, a commitment to maintaining services to Norway, and the protection of jobs in Norway.

No airlines are immune from financial turmoil so any of the airlines operating in the Norwegian air transport market could experience financial crisis that leads to them ceasing operations. DAT's presence in the Norwegian market is fairly limited and any withdrawal from the market would probably be quickly replaced by Widerøe, especially the PSO routes. As seen in Figures 3.11 and 3.12, Widerøe has experienced long-term financial stability; something that is quite rare in the airline industry. A change in ownership of SAS would of course have implications for Widerøe however; it is unlikely that subsequent owners would want to make major changes to the airlines operation, as long as it remains part of the SAS Group. Norwegian has performed well in recent years and will continue with their expansion plan. New and larger aircraft will be good for cost-efficiency but the need to find routes with sufficient demand for their increased fleet could be a challenge. The planned move into low-cost long-haul operations is also a significant risk. The situation for SAS is fairly precarious. The airline needs to start making money and to develop a commercially-viable business model that is not dependent on raising equity from its owners. Future scenarios for the airline are that it can turn its business around and start to make a profit. The governments may then decide whether to sell their shares and if so, under what conditions. An alternative scenario is that the airline continues to make a loss and requests further equity from its owners, which if not forthcoming, may eventually result in bankruptcy.

Bankruptcy of SAS or Norwegian would have quite an impact on the Norwegian air transport market, leaving a big gap in the domestic and international route network. It is possible that an SAS Norway type operation would emerge to replace SAS if they went bankrupt but if not; it is likely that Widerøe would survive as an independent airline (that is perhaps sold to private investors) or as a subsidiary of another airline. Widerøe would probably expand their domestic network, and a Widerøe that is freed from the SAS Group might be seen to expand into the medium-sized regional jet aircraft market. Norwegian would probably replace SAS on thicker routes where they don't already compete, and may increase frequency on thicker routes where they previously competed with SAS. Marginal routes may be vulnerable and may result in the need for PSO imposition, reduced frequency, or a loss of route altogether. The latter has implications for the airport system in Norway because some smaller airports, especially those where airport substitution is viable, may no longer have air service connections. There would be reduced competition on some routes where SAS and Norwegian currently compete but the overall impact on the network is not likely to be that great. Norwegian may need to

join an alliance in order to connect with other world regions as this would be greatly reduced if SAS ceased operations.

A similar situation could be expected if Norwegian ceased operations in that SAS (or Widerøe) would probably increase frequency on routes where they currently compete and replace Norwegian on routes where they do not currently compete. Services to a number of leisure destinations would probably be lost or replaced by foreign airlines but overall network coverage to/from and within Norway would be retained.

In the event of airline failure, it is likely that gaps in the network would be plugged fairly quickly although question marks would remain for marginal commercial routes in Norway and a number of international routes to leisure destinations. Evidence of the speed with which other airlines step in to fill the gaps left by a failed airline is available from the recent collapses of Spanair (ceased operations 27 January 2012) and Malev (ceased operations 3 February 2012). For instance, in the case of Malev, Ryanair announced 26 new routes from Budapest within a week of Malev failing and plans a further five routes to be operated by April. Ryanair plans to base four aircraft in Budapest. Wizz Air provided flights for stranded passengers affected by the failure of Malev and increased its Budapest-based fleet from three to five aircraft. Lufthansa added a daily flight from Hamburg and Berlin to Budapest within a few weeks of the Malev failure. Air Berlin added a flight from Berlin to Budapest. SmartWings started flights from Budapest to Tel Aviv within weeks of the airline failure and plan to serve Paris by April and several other European destinations by May. Of course, some routes may never be served by other airlines and it is estimated that Budapest Airport may lose about 20 routes as a result of the failure of Malev (Dunai and Szakacs, 2012).

At present, Danish airline DAT is the only foreign airline operating scheduled domestic routes in Norway. Approximately 30 foreign airlines operate scheduled international routes to/from Norway, mainly to/from Oslo Gardermoen Airport but also to/from other airports in the Oslo fjord area and the larger regional airports such as Bergen Flesland, Trondheim Værnes and Stavanger Sola. It is likely that the number of foreign airlines serving scheduled international routes to/from Norway, and the range of routes offered, will increase in the future as demand for air travel within and to/from Norway continues to grow. It is also possible that more foreign airlines will enter the scheduled domestic market in Norway. However, this will be subject to a number of potential barriers to market entry.

3.3 Barriers to market entry

The Norwegian air transport market, especially the domestic market, might be considered to be a relatively difficult market for foreign airlines to enter. SAS, along with Widerøe, provide an extensive network of domestic and international routes. In addition, Widerøe has years of experience with the PSO tendering process and with operating Norway's extensive network of PSO routes. Norwegian is a strong and successful airline that has grown rapidly in recent years and has established itself as one of Europe's leading low-cost airlines. The current presence of strong competition in Norway may therefore act as a barrier to foreign airlines seeking to enter the air transport market in Norway. However, there are also more general barriers to entry that typically affect air transport markets worldwide.

3.3.1 Air services agreements (ASAs)

The European air transport market is fully deregulated so there are no barriers relating to ASAs on intra-European routes. ASAs still limit market access on intercontinental routes to/from Norway. There are 55 ASAs between Norway and foreign signatories (see Figure 3.14) although roughly half of them are with European States and are therefore succeeded by EC Regulation 1008/2008 on access for Community air carriers to intra-Community routes. ASAs effectively trade restrictions and the need for national control of airline ownership in ASAs acts as a barrier to entry for foreign, non-signatory airlines that might be interested in serving intercontinental routes to/from Norway. Nationality provisions in ASAs also act as a major constraint to cross-border airline consolidation and investment and potentially have implications for the sale of government shares in SAS.

Lufthansa purchased Austrian Airlines in 2009. A 100% Lufthansa-owned subsidiary based in Austria owns 49.8% of a separate company that has 96.55% of Austrian Airlines' shares. The remaining 50.2% is owned by a private foundation, registered and domiciled in Austria. The airline operating rights in ASA's are not automatically transferred to the new company post-merger. However, governments generally allow airlines to keep flying without objection. This was believed to be the case with the countries that Austrian operated in, except for Russia who forced Austrian to use a temporary permit at times in winter for its 44 weekly flights to Russian cities including Moscow and St Petersburg. Austrian also needed to submit a plan for the Russian government to approve for its summer flights. In the meantime, Russia's transport ministry asked their Austrian counterparts for information proving Austrian is still an Austrian-controlled company (see Clark, 2010).

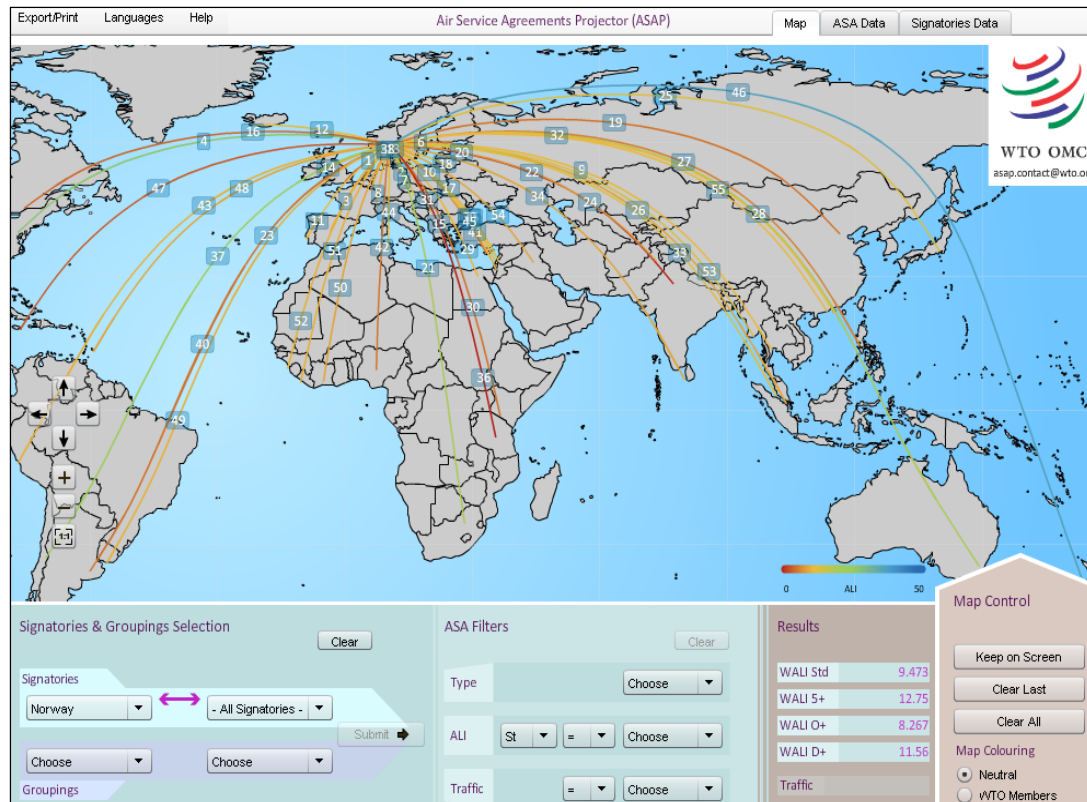


Figure 3.14 ASA's between Norway and signatory states, as of 16 February 2012

Source: map compiled using WTO's Air Service Agreements Projector (ASAP)

3.3.2 Global airline alliances

Global airline alliances bypass constraints of ASA's and rules that prevent cross-border mergers. More generally, alliances (but also mergers and acquisitions) may act as a barrier to entry because they allow airlines to:

- Achieve economies of density, size and scope by expanding and potentially dominating their overall market and network coverage.
- Expand operational capabilities in terms of improved frequency, schedules and connections available.
- Reduce costs by sharing airport facilities, staff, check-in, lounges, etc with alliance members.
- Exploit joint marketing and purchasing opportunities e.g. by dominating computer reservations systems (CRS's), combining FFP's, and joint purchasing of aircraft.

The three main global airline alliances are listed in Table 3.5 along with their members and share of world scheduled ASK's. SAS is a founding member of the Star Alliance that was launched in May 1997 and currently serves about a quarter of world scheduled ASK's. Through the Star Alliance, SAS is able to offer a

worldwide network covering about 1,160 destinations in more than 180 countries. This compares to 75 non-stop destinations served by SAS by itself.

Table 3.5 Global airline alliances 2011

Alliance	Europe	N America	S America	Asia Pacific	Africa/ M. East	% world scheduled ASK's*
Oneworld	Air Nostrum, BA, Finnair, Iberia, Malev, S7, Air Berlin	American	LAN	Cathay Pacific, JAL, Qantas, <i>Kingfisher</i> , <i>Malaysia</i>	Royal Jordanian	13.7
Star	Adria, Aegean, Austrian, Blue 1, bmi, brussels, Croatia, LOT, Lufthansa, SAS, Spanair, Swiss, TAP, Turkish	Air Canada, United - Continental, US Airways	TAM	Air China, Air NZ, All Nippon, Asiana, Singapore, Thai, <i>Shenzen</i>	Egyptair, Ethiopian, SAA	25.2
Sky Team	Aeroflot, Air Europa, Air France – KLM, Alitalia, Czech, Tarom	Delta	Aeromexico, <i>Aerolineas Argentinas</i>	China Airlines, China Eastern, China Southern, Korean, Shanghai, Vietnam, <i>Garuda</i>	Kenya Airways, <i>MEA</i> , <i>Saudi</i>	15.7

*Source: Airline Business (2011)

Italic – currently negotiating membership

3.3.3 Frequent Flyer Programmes (FFP's)

SAS and Widerøe use a FFP called EuroBonus. The award-winning scheme has almost 3mn members that can earn and redeem 'Bonus Points' with Star Alliance airlines and other selected partners. Norwegian use a FFP called Norwegian Reward that allows members to earn and redeem 'Cash Points' with Norwegian and other selected partners.

FFP's and other corporate discount schemes act as a barrier to entry. Scheme benefits are typically progressive meaning that they have a 'lock-in' effect. Business-orientated schemes may price-out price-elastic leisure travellers causing a net welfare loss.

The Norwegian Competition Authority banned FFP's for domestic flights in Norway. This was largely because SAS was so dominant in Norway having jointly founded the Star Alliance in 1997, acquired Widerøe in 1998 and merged with Braathens in

2007. The ban applied to any carriers so that SAS was not disadvantaged but the ban has recently been reconsidered. In February 2012, the Norwegian Competition Authority recommended continuing the ban on FFP's for most domestic routes in Norway, but is proposing to repeal the ban on the three largest city pairs, Oslo-Bergen, Oslo-Trondheim and Oslo-Stavanger (Norwegian Competition Authority, 2012).

Repealing the ban on FFP's on the three largest city pairs in Norway may be viewed as a means for stimulating competition by making the routes more attractive to new entrants that have a FFP that they can use on the routes. However, it is unlikely that the opportunity to use their FFP will act as an incentive to market entry. Instead, the dominant position of incumbents; SAS and Norwegian is likely to act as a disincentive to market entry as the respective airlines already offer high frequency and capacity on the routes, and would be quite a force to compete with for a foreign entrant that is likely to have other routes that it can consider where there is less competition. There is also the issue of slot availability during peak times at Oslo Gardermoen Airport, which will be considered in Chapter 3.3.6. However, in the event that one of the incumbents should be forced to reduce its activity, the FFP may give a stronger incentive for a foreign airline to enter.

3.3.4 Pricing and state aid

Predatory pricing, collusion and price leadership are always a concern and potential barrier to entry. Collusion is illegal where there is formal agreement or real communication between airlines. For instance, SAS was fined SEK 660mn by the EC in 2010 for air-cargo price fixing (Hofmann and Blachly, 2010).

State aid (grants, interest or tax relief, preferential terms, etc – also known as 'rent seeking') extracts uncompensated value from others such as government without making a contribution to productivity. State aid for airlines is prohibited in Europe unless it is part of a regional development programme that is available to all airlines. However, as mentioned in Chapter 3.2.4, interpretation of the law seems to vary and the EC is under increasing pressure to be more stringent about it.

As was also mentioned in Chapter 3.2.4, the three Scandinavian governments that own shares in SAS have, in line with other owners, raised equity for the airline in the past. This is not the same as state aid. However, competing airlines in Norway and abroad have claimed that the support provided by the governments to SAS is distorting competition. It may therefore subsequently act as a barrier to market entry.

State aid for routes in Europe is permitted under the PSO scheme, subject to competitive tendering and review. PSO's can be imposed on routes that serve a peripheral or development region, or are considered vital for the economic and social development of the region. However, European experience with PSO's suggests that:

- Only a very small number of airlines submit tenders.
- New-comers are often not successful (not familiar with 'the art of tendering').
- A wide variation is apparent in the levels of subvention required by tendering airlines for a PSO.
- Expectations as to the likelihood of other airlines submitting a tender may influence an incumbent's indirect cost allocation.
- Economic advantage lies with the experienced airlines, especially for PSO's imposed on routes connecting more remote airports.
- The contracted airline is awarded a monopoly on the route for 4-5 years. This partly explains why in some of the more remote low traffic density PSO markets, long-established local carriers such as Widerøe in Norway continue to dominate, nationally.

PSO's imposed on thicker routes in Europe such as between mainland Italy and the island of Sardinia have been challenged in recent years (see easyJet, 2012). The EC is under increasing pressure to investigate possible abuse of the PSO scheme. However, it is unlikely that the PSO's currently imposed on routes in Norway will be subject to investigation given that they are fairly thin routes.

3.3.5 Sunk costs and operational challenges

There are often sunk costs associated with accessing knowledge about a market and its operational characteristics that act as a barrier to market entry. This may be the case with PSO routes in Norway, especially regarding the 'art of tendering' (where ability to start operations on short notice after the tender is awarded is one factor²) and the challenges associated with establishing a remote operation with few aircraft and a low frequency of services, at short take-off and landing (STOL) airports with specific navigational requirements (e.g. satellite navigation SCAT-1 on some of the airports) and training of staff often for demanding operating conditions

² On the last published tender for operations starting 1st April 2012, the tender was announced on 25th August 2011 with deadline for tender on 25th October 2011. The bids were opened on 27th October 2011 and the tender awards were known on 19th January 2012. The operations start 1st April 2012.

(weather etc). The lack of production of aircraft with STOL performance replacing the Dash-8 100/200 may also become an issue in the future.

However, in general, it is unlikely that sunk costs or operational challenges act as a major barrier to market entry elsewhere in Norway, especially on larger domestic routes.

3.3.6 Airport slots and competition

Grandfather Rights mean that traditional flag carriers dominate the main hub airports in Europe. This is the case to some extent with SAS at Oslo Gardermoen Airport although Norwegian also has a large presence at the airport. The share of total passengers at Oslo Gardermoen Airport in 2010 was 40% SAS, 38% Norwegian and 28% other (Oslo Gardermoen Airport, 2012).

The scarcity of available slots at Oslo Gardermoen Airport during peak times is a possible barrier to entry for foreign airlines seeking to enter the domestic market in Norway. Foreign low-cost airlines may consider establishing a base at Oslo Gardermoen Airport however; interest is currently limited because of the lack of available slots during peak times, especially in the morning. As mentioned in Chapter 3.3.3, there is also strong competition from present incumbents such as SAS and Norwegian, and foreign low-cost airlines have many options available to them for new routes in Europe where there might be less competition. Norway might also be considered to be a 'high cost' option compared to other countries in Europe where rules regarding working conditions and employing staff on short-term contracts may be more relaxed. In addition, few airports are independently operated in Norway meaning that foreign airlines may be deterred by the lack of airport competition.

3.3.7 Ground Handling Services (GHSs)

Many GHSs were owned by flag carriers or airports so new entrants would need to gain access to, and pay them for such services. Indeed, GHSs in Norway have traditionally been provided by SAS Ground Handling that has been one of Europe's largest providers of GHSs and previously owned by SAS. This barrier has been reduced to a large extent by EC Directive 96/67 on access to the ground handling market at Community airports, and the presence of additional GHSs in Norway such as Røros Flyservice (established in Norway in 2001) and Menzies Aviation (established in Norway in 2006). More recently, and as part of the Core-SAS strategy formed by the SAS Group in February 2009, some of SAS Ground Handling operations are being divested or outsourced. For instance, SAS Ground Services

Finland was divested to ISS Palvelut in July 2009. SAS Ground Services UK was divested to ASIG in June 2010.

3.3.8 Computer Reservation Systems (CRSs)

CRSs may favour specific airlines, especially given the level of integration amongst airlines, CRS providers, travel agencies and websites. For instance, Amadeus is a CRS formed in 1987 by an alliance between SAS, Lufthansa, Air France and Iberia. The CRS has been operating since 1992 and is currently the largest CRS in terms of number of bookings worldwide with an estimated market share of 37% (Amadeus, 2012). Amadeus is used by over 90,000 travel agencies and 62,000 airline sales offices worldwide. It gives access to bookable content from more than 425 airlines, 30 car rental companies (representing over 36,000 car rental locations), 21 cruise lines, 287 hotel chains and more than 90,000 hotels, 203 tour operators, 103 rail operators and 23 travel insurance companies with a wide range of local affiliates (Amadeus, 2012).

Other CRSs include:

- SABRE (created by American Airlines, All Nippon Airways, Cathay Pacific Airways, China Airlines and Singapore Airlines).
- Worldspan (created by Delta, Northwest and TWA).
- Galileo (created by Aer Lingus, Air Canada, Alitalia, BA, Swissair, TAP, United Airlines and US Airways).
- Patheo (created by Finnair, KLM and Virgin Atlantic).
- Abacus (created by All Nippon Airways, Cathay Pacific Airways, China Airlines, Dragonair, EVA Airways, Garuda Indonesia, Malaysia Airlines, Philippine Airlines, Royal Brunei Airlines, SABRE, SilkAir and Singapore Airlines).
- KIU (created by Sol Lineas Aereas, Aerogal, Star Peru, LC Busre, Peruvian Airlines, Cielos Andinos, Easyfly, Laser Airlines, LADE, Amazonas and Maya Air).

CRSs favour their airline users and do not therefore provide a true reflection of the flight options available to potential air transport users. Concerns about this have been reduced to some extent in Europe by EC Regulation 2299/1989 code of conduct for use of CRSs. In addition, many airlines now focus on direct bookings, largely online via their own website. For instance, according to their annual reports, Norwegian's Internet bookings have increased from 20% of total bookings in 2003 to 87% in 2011.

4 AIRLINE BUSINESS MODELS SERVING THE NORWEGIAN MARKET

Three distinct business models³ are currently employed by the airlines serving the domestic market in Norway (see Table 2.2 for routes departing from the larger airports). SAS, whilst unique in terms of being Europe's only multi-national airline is a classic example of a network carrier featuring all of the characteristics associated with this type of operator. Norwegian exhibits all of the features of the low cost airline business model, but has some network carrier characteristics (e.g. interlining and a FFP). The remaining players in the domestic market are regional carriers and feature the main characteristics associated with this type of airline business model. The largest by far, Widerøe, operates an extensive route network throughout Norway using turbo-prop aircraft seating between 37 and 78 passengers. The smallest aircraft used by the company are employed on a large number of PSO services. Danish Air Transport also operates a number of PSO routes. In addition, Helitrans, operates a commercial service between Trondheim and Molde using a 19 seat BAe Jetstream 31 aircraft, as does Air Norway between OSL and Ørland using a 19 seat Swearingen Metro. A PSO service is also provided between Bodø and Værøy by Lufttransport using helicopters.

The international market is also served by carriers who use one or other of the three business models referred to above (Table 4.1).

Table 4.1 International Routes from OSL Winter 2011/12

Destination	Network Carrier	Low Cost Carrier	Regional Airline	Rygge/Sandefjord
Aalborg			Cimber	
Aarhus			Sun Air	
Agadir		Norwegian		
Alicante	SAS	Norwegian		Ryanair/Norwegian
Amsterdam	SAS/KLM	Norwegian		
Antalya		Norwegian/Corendon		
Bangkok	Thai			
Barcelona	SAS	Norwegian		Ryanair / -
Belgrade		Norwegian		
Berlin		Norwegian/Air Berlin		Ryanair / -
Billund		Norwegian	Cimber	
Bremen				- / Ryanair

³ Several of the features associated with low cost carriers (LCC) have been adopted by network airlines, while a number of LCC have incorporated certain of the product elements of network carriers. This has resulted in some degree of convergence in the two business models.

Destination	Network Carrier	Low Cost Carrier	Regional Airline	Rygge/Sandefjord
Brussels	SAS/Brussels			Ryanair / -
Budapest		Norwegian		
Copenhagen	SAS	Norwegian		- / Widerøe
Dalaman		Corendon		
Doha	Qatar			
Dubai		Norwegian		
Dublin	SAS	Norwegian		Ryanair / -
Dusseldorf	SAS/Lufthansa	Norwegian		
Edinburgh		Norwegian		- / Ryanair
Faro		Norwegian		
Farøe	Atlantic			
Frankfurt	SAS/Lufthansa			Ryanair / -
Funchal		Norwegian		
Gdansk	SAS	Norwegian		Ryanair / Wizz
Geneva		Norwegian		
Goteborg			Widerøe	
Helsinki	Blue1/Finnair	Norwegian		
Islamabad	Pakistan			
Istanbul	Turkish			
Katowice		Wizz		
Kaunas				Ryanair / -
Klaipeda	SAS	Norwegian		
Krakow		Norwegian		Ryanair / -
Lahore	Pakistan			
Lanzerote		Norwegian		
Larnaca		Norwegian		
Las Palmas	SAS	Norwegian		
Lisbon	TAP			
Liverpool				Ryanair / Ryanair
London	SAS/BA	Norwegian		Ryanair / Ryanair
Madrid		Norwegian		
Malaga	SAS	Norwegian		Ryanair/Norwegian
Manchester	SAS	Norwegian		Ryanair / -
Marrakech		Norwegian		
Milan		Norwegian		- / Ryanair
Moscow	SAS/Aeroflot			
Munich	SAS/Lufthansa	Norwegian		
Newcastle				Ryanair / -
New York	SAS/United			
Nice	SAS	Norwegian		
Paris	SAS/Air France	Norwegian		Ryanair / -
Poznan		Norwegian		Ryanair / Wizz
Prague		Norwegian		- / -
Reykjavik	SAS/Icelandair			
Riga	Air Baltic	Norwegian		Ryanair / Wizz

Destination	Network Carrier	Low Cost Carrier	Regional Airline	Rygge/Sandefjord
Rome	SAS	Norwegian		Ryanair / -
S Petersburg		Norwegian		
Stockholm	SAS	Norwegian		
Szczecin		Norwegian		
Tallinn	Estonian	Norwegian		Ryanair / -
Tenerife		Norwegian		
Vienna	Austrian	Norwegian		
Vilnius		Norwegian		
Warsaw		Norwegian		- / Wizz
Wroclow				Ryanair / Wizz
Zurich	SAS/Swiss			

Network Carrier Operations

The main features of the business model typically employed by network carriers are summarised in the table below.

Table 4.2 Business model for network carrier operations

Operations	Product	Product adopted from LCC business model
Short and long haul	Low fare that increases closer to departure	✓
Several aircraft types	GDS, Internet and Travel Agency sales	Internet
Hub and spoke / connecting traffic	<i>Free in-flight meals and drinks</i>	Some airlines now charge for meals and drinks
Passengers, Freight & Mail	Two (or three) classes of service	
Lower short haul aircraft utilisation than LCC	Airport lounges for business class passengers	
Major airports focus		
Longer turnarounds than LCC		
Low staff productivity		

In the event of SAS reducing or withdrawing services within Norway a number of network carriers based in the Nordic and Baltic regions may be attracted to enter the market. It is also possible that network carriers based further afield would choose to enter the domestic Norwegian market. It is also possible that a new carrier would be established by Norwegian interests, perhaps using some of the

assets of a defunct SAS. All in all it would seem highly unlikely that the route network currently served by 100+ seat jet aircraft in Norway would be without services in the event of SAS reducing or closing its domestic operations. Some such domestic routes could be operated only by LCC⁴, but given sufficient demand competition would still likely be evident.

As for international routes, operators based in other countries would undoubtedly increase their flights to make up any reduction in services operated by SAS. The importance of traffic feed to their main hubs may well result in more direct services being operated from the larger regional airports (e.g. Trondheim – Frankfurt). Some of this increased provision would also come from LCC based outside of Norway.

Three potential network carrier entrants are given particular attention, namely: Finnair, Air Baltic and Estonian. Details are given of each company's fleet (current and planned), financial and operating performance, route network strategy, ownership, alliance membership and code-sharing arrangements. Comparison is then made with similar data in respect of the existing main air service providers in Norway, Norwegian and SAS. Lufthansa is also included in this analysis.

Finnair has a modern fleet of 65 jet aircraft, of which 15 are used on long-haul services to Asia, Middle East and US.⁵ The fleet ranges in size from the 76 seat Embraer 170 to the 297 seat Airbus A330-300. The airline operates an extensive network of services in Europe from its Helsinki hub. The airline's recent financial performance is shown in the table below and reflects the difficult operating conditions faced by small and medium-sized network carriers in Europe. A further loss is expected for 2011. It is a member of the oneworld alliance and has extensive code-sharing arrangements with fellow members. The Finnish Government has a 57% shareholding in the airline.

⁴ Bardufoss is now served from Oslo by only Norwegian, while in the recent past SAS provided services on the route.

⁵ A further 17 aircraft are on order.

Table 4.3 Finnair's Financial Results (US\$ million)

	2007	2008	2009	2010
Total revenue	3001	3356	2558	2671
Operating result	195	-85	-160	-17
Net result	148	-68	-133	-30
Net margin %	4.68	-2.01	-5.18	-1.13

Lufthansa is Europe's largest network carrier. The airline's recent financial performance is shown in the table below. It is a founder member of the Star Alliance and code-shares extensively with SAS.

Table 4.4 Lufthansa's Financial Results (US\$ million)

	2007	2008	2009	2010
Total revenue	21954	26977	23379	27603
Operating result	n.a.	n.a.	n.a.	n.a.
Net result	n.a.	n.a.	n.a.	n.a.
Net margin %	n.a.	n.a.	n.a.	n.a.

(Data shown is for Lufthansa's own operated passenger services.)

Air Baltic operates a mixed fleet of 32 jet and turbo-prop aircraft. The fleet ranges in size from the 50 seat Fokker 50 to the 200 seat Boeing 757-200. The airline operates a growing network of services in Europe from its Riga hub. The airline's recent financial performance is shown in the table below. Rapid expansion of the carrier in 2010 produced poor financial results, which has subsequently resulted in the company returning to full state ownership. The company indicated in December 2011 that it would reduce its fleet to 24 aircraft during 2012. Its aim is to operate only two aircraft types, the Bombardier Dash 8-400 and either the Airbus A320 or Boeing 737-800.

Table 4.5 Air Baltic's Financial Results (US\$ million)

	2007	2008	2009	2010
Total revenue	312	422	429	506
Operating result	3.6	-5.8	89.5	n.a.
Net result	3.1	-58.1	20.9	n.a.
Net margin %	1.0	-13.8	4.9	n.a.

Estonian operates a small fleet of jet and turbo-prop aircraft to European destinations from its base at Tallinn. Many of these services are code-shared with SAS, owner of 10% of the carrier's shares. The remaining 90% is owned by the Estonian Government. The airline's recent financial performance is shown in the table below and reflects the difficult operating conditions faced by small and medium-sized network carriers in Europe. The carrier recently announced its intention to replace its existing fleet with Embraer 170 and 190 aircraft.

Table 4.6 Estonian's Financial Results (US\$ million)

	2007	2008	2009	2010
Total revenue	121	136	87	90
Operating result	-4.6	-16.3	-6.2	-3.0
Net result	-4.6	-16.0	-6.2	-3.5
Net margin %	-3.8	-11.8	-7.1	-3.8

The following charts compare the five carriers referred to above (Air Baltic, Estonian, Finnair, Lufthansa, Norwegian and SAS) in terms of a number of key financial and operating metrics (Unit Cost per available seat kilometre (ASK), Aircraft Productivity, Employee Productivity, Average Distance Flown and Average Aircraft Size). The data shown is for 2009.

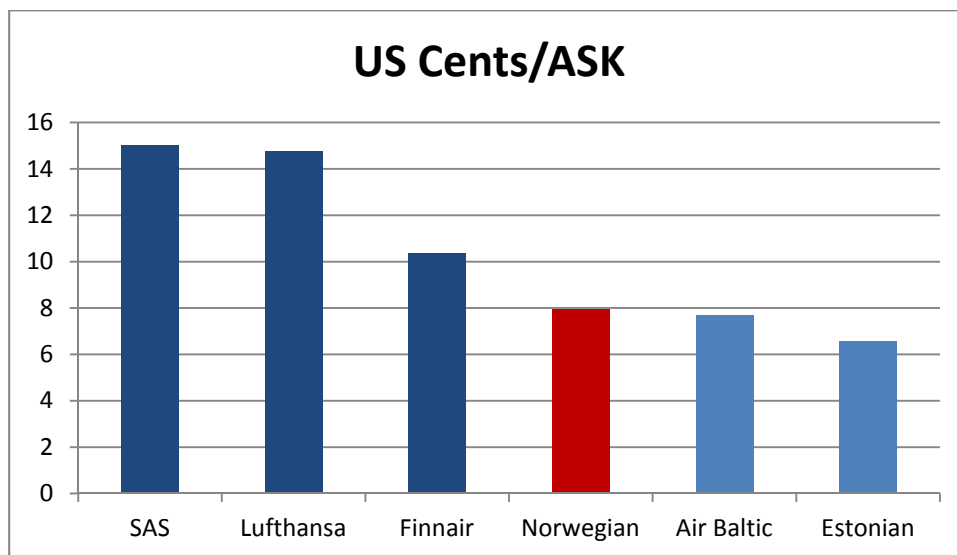


Figure 4.1 Unit costs per ASK

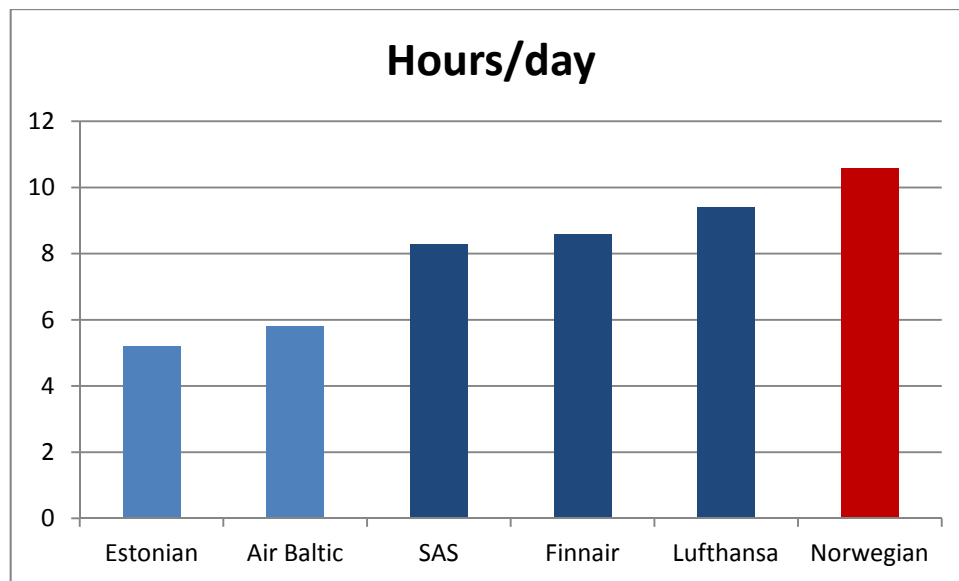


Figure 4.2 Aircraft productivity (hours per day)

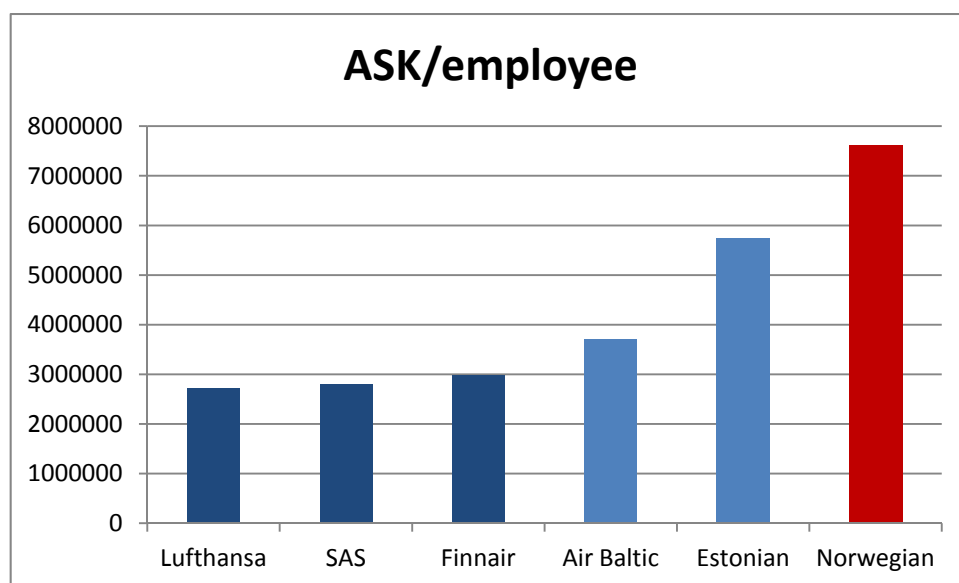


Figure 4.3 Employee productivity (ASK per employee)

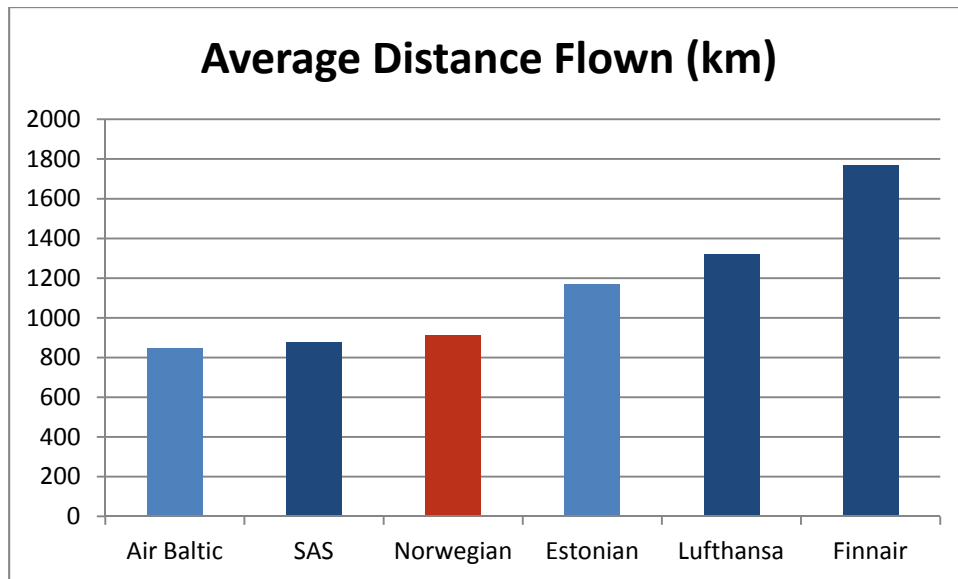


Figure 4.4 Average distance flown

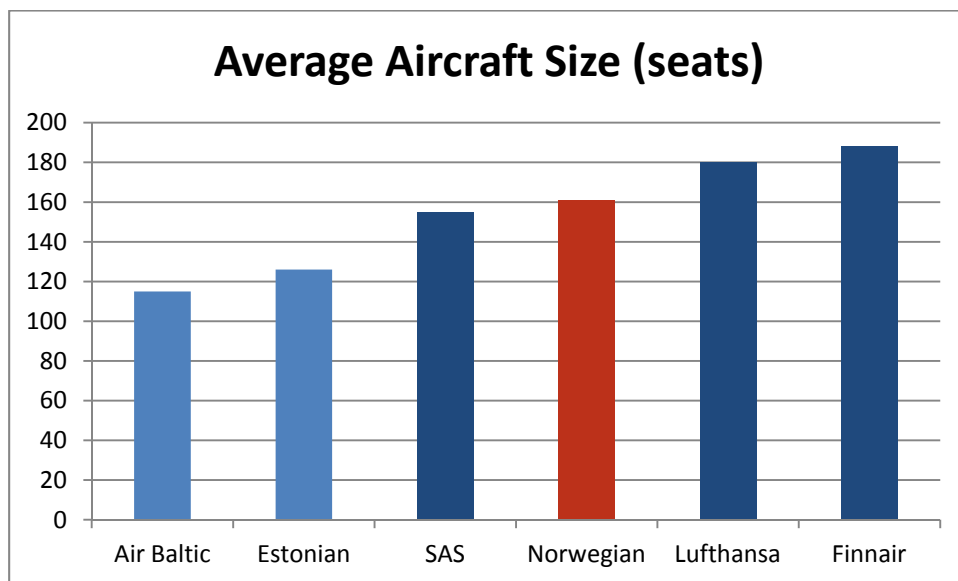


Figure 4.5 Average aircraft size

Low Cost Carrier Operations

The main features of the business model typically employed by low cost carriers are summarised in the table below.

Table 4.7 The Low Cost Carrier business model

Operations	Product	Ancillary Revenue Sources
Short haul	Low fare that increases closer to departure	Hold baggage
Single aircraft type	Internet sales	Seat assignment
No connections	No free in-flight meals or drinks	Extra seat pitch
Passengers only	Single class of service	Check in
High aircraft utilisation	High density seating	Onboard meals and drinks
Uncongested airports		Hotels, car hire bookings
Fast turnarounds		Surface transport
High staff productivity		

Three potential low cost carrier entrants are given particular attention, namely: easyJet, Ryanair and Wizz. Details are given of each company's fleet (current and planned), financial and operating performance, route network strategy, ownership, alliance membership and code-sharing arrangements. Comparison is then made with similar data in respect of the existing main low cost air service provider in Norway, Norwegian, and easyJet, Europe's second largest low cost carrier.

easyJet carried 55 million passengers in 2011. Together with its subsidiary easyJet Switzerland it operates a fleet of 200 aircraft, comprising 165 Airbus 319 (156 seats) and 35 Airbus 320 (180 seats). The carrier's recent financial performance is shown in the table below.

Table 4.8 easyJet's Financial Results (US\$ million)

	2007	2008	2009	2010
Total revenue	3551	4649	4101	4632
Operating result	340	179	92	270
Net result	301	164	109	189
Net margin %	8.5	3.5	2.7	4.1

Ryanair is the largest and longest established low cost airline in Europe. The carrier operates a fleet of 281 Boeing 737-800 aircraft and has the lowest unit operating costs of any EU based airline. It sets the benchmarks that other carriers seek to emulate.

Table 4.9 Ryanair's Financial Results (US\$ million)

	2007	2008	2009	2010
Total revenue	3875	4141	4222	4807
Operating result	767	130	568	647
Net result	687	-238	431	496
Net margin %	17.7	-5.8	10.2	10.3

Wizz is the largest low cost carrier based in Eastern Europe. It operates a fleet of 40 Airbus A320 aircraft. The little financial information that is available about Wizz is shown in the table below.

Table 4.10 Wizz's Financial Results (US\$ million)

	2008	2009	2010
Total revenue	563	614	800
Operating result	n.a.	n.a.	n.a.
Net result	n.a.	n.a.	n.a.
Net margin %	n.a.	n.a.	n.a.

The following charts compare Norwegian with easyJet and Ryanair in terms of a number of key financial and operating metrics (Unit Cost, Aircraft Productivity, Employee Productivity, Average Distance Flown and Average Aircraft Size). The data shown is for 2009.

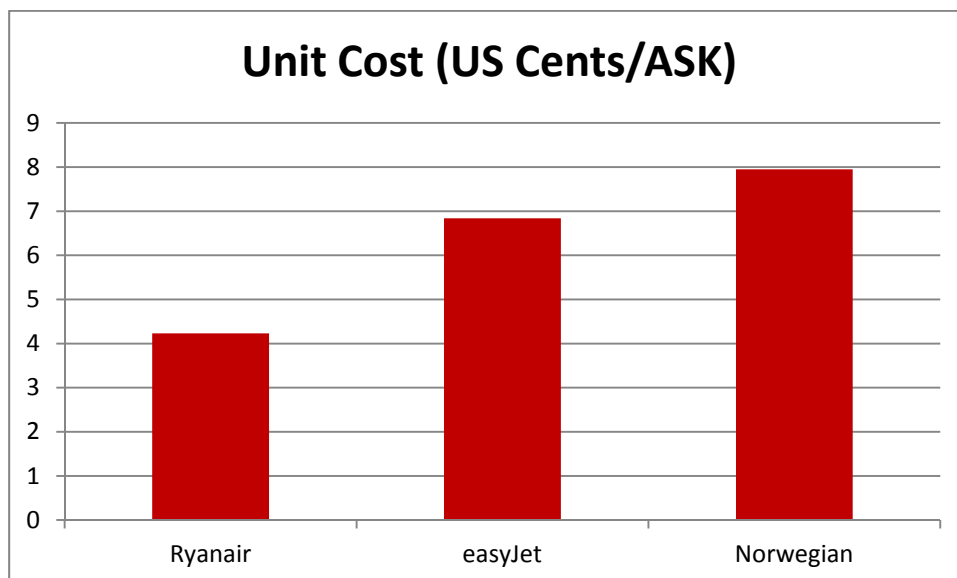


Figure 4.6 Unit costs per ASK, low cost carriers

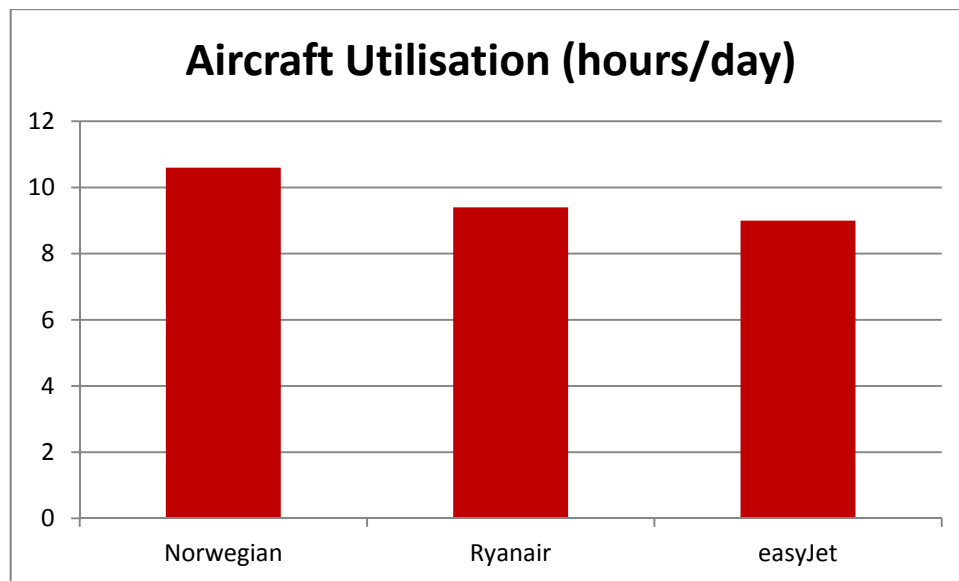


Figure 4.7 Aircraft productivity (hours per day), low cost carriers

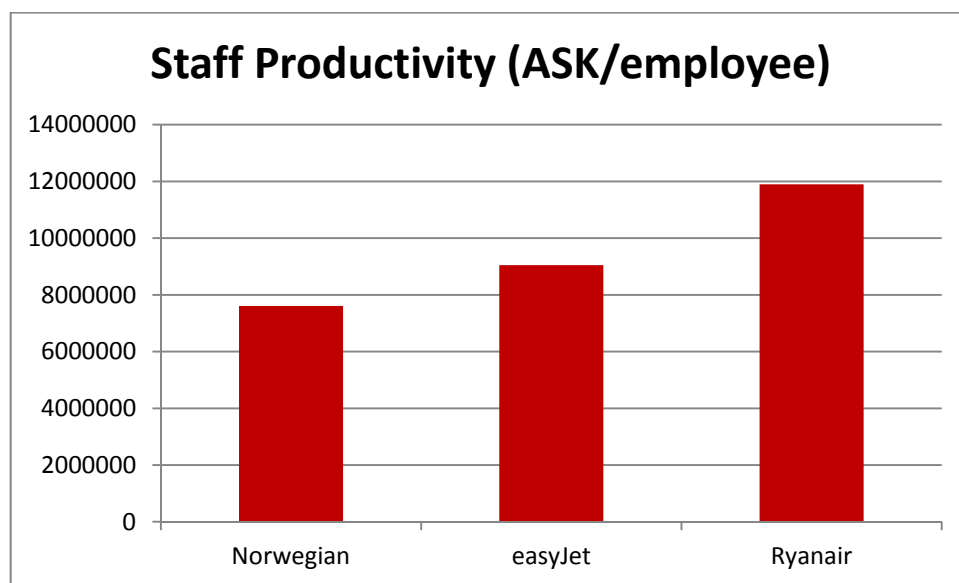


Figure 4.8 Employee productivity (ASK per employee), low cost carriers

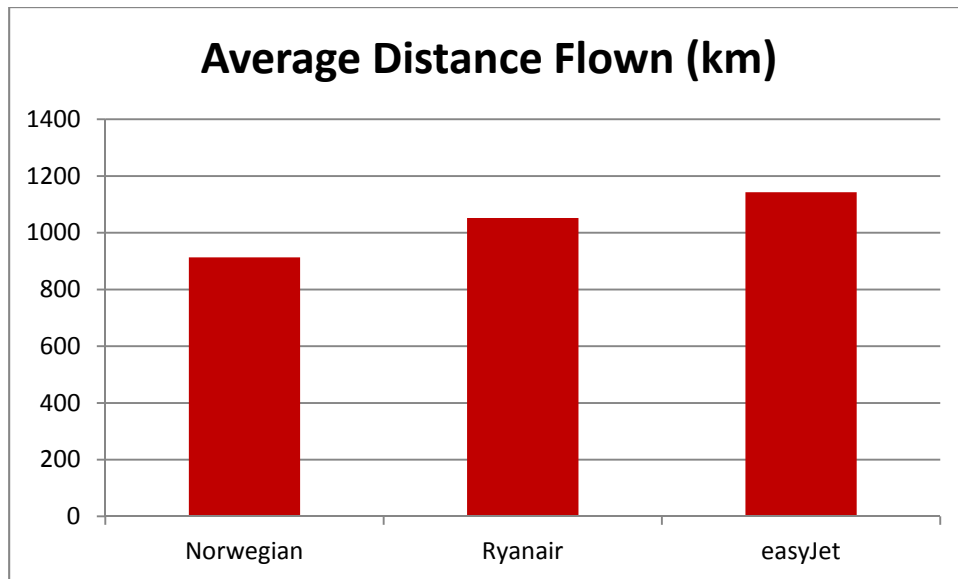


Figure 4.9 Average distance flown, low cost carriers

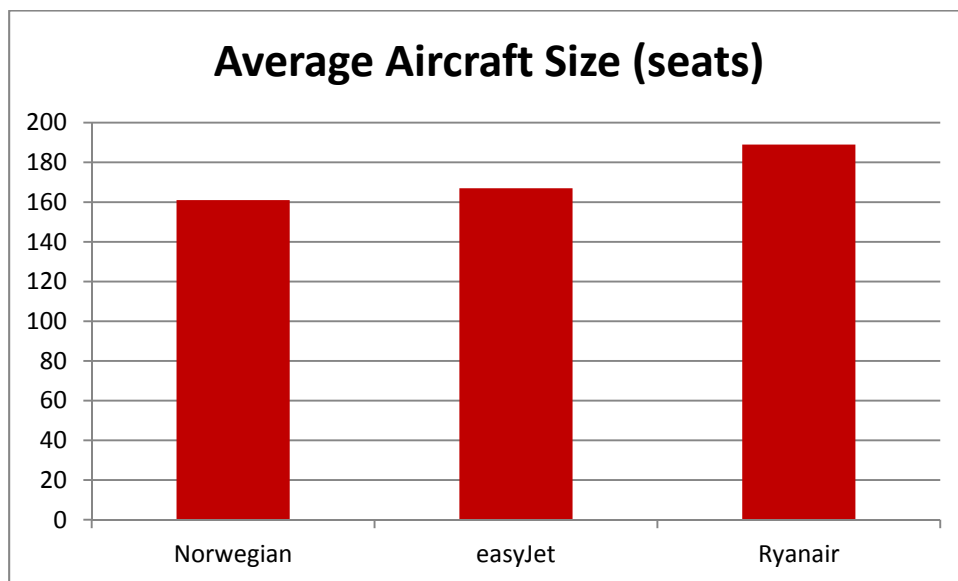


Figure 4.10 Average aircraft size, low cost carriers

Regional Carrier Operations

The main features of the business model typically employed by regional airlines are summarised in the table below.

Table 4.11 Business model, regional carriers

Operations	Product
Short haul	Low fare that increases closer to departure, but in many cases is constrained by PSO set maximum fares.
Two or three aircraft types (up to 80 seats)	GDS, Internet and Travel Agency sales
Connections to network carrier services	Free in-flight meals and drinks on some services
Passengers, Freight & Mail	In some cases, two classes of service
Low aircraft utilisation	
Short sectors	
Regional airport focus	
Low staff productivity	

While the profitability of regional carriers has generally been amongst the best in the airline industry, this has not been true of all regional operators in Scandinavia. A number of developments have occurred in 2011 however which aim to rectify this loss-making situation, whilst at the same time exploring opportunities for new routes. Three initiatives in particular may over time have an impact on the air transport market in Norway. The first involves the Skyways Group, which now comprises City Airline⁶ (based in Goteborg), Cimber Sterling (based in Copenhagen) and Skyways (based in Stockholm). The Group, owned by Ukranian entrepreneur, Igor Kolomoysky, through a company based in Cyprus called Mansvell Enterprises Ltd., is headed by Jan Palmér who has extensive managerial experience in the regional airline sector. Given the disparate nature of these three airlines, turning round loss-making Cimber and City will undoubtedly be challenging, but assuming this can be achieved the potential for cost economies from the consolidation could well provide the basis for an expanding regional network of services across Scandinavia.

The second development concerns Flybe Nordic, formerly the Finnair subsidiary Finncomm, now jointly owned by the large UK based regional carrier Flybe (60%) and Finnair (40%). The Flybe Nordic fleet currently comprises ten ATR 72-500, four ATR 42-500 and two Embraer 170 aircraft. While the initial primary motivation for the joint venture is to address the problems associated with the large decline in Finland's domestic air traffic, the potential exists for the new carrier to grow across

⁶ City Airline was merged with Skyways in late November 2011, all its services since being operated under the Skyways name.

the Nordic and Baltic regions using Flybe's extensive experience of regional operations. An ambitious programme of route development was initiated in October 2011, which included a service between Helsinki and Trondheim. It is worth noting that parent company Flybe, of which British Airways owns 15%, has 35 Embraer 175 jet aircraft (88 seats) on order, some of which could be used for the intra-Scandinavian market.

The third and most recent development has been the acquisition of Golden Air, a regional carrier based in Stockholm, which has been acquired by Braathens Aviation, owners of Malmö Aviation.

Commercially viable regional routes are unlikely to be without viable entrants in the event of the withdrawal of services by existing operators. As for the directly subsidised routes, their continuation rests very much in the hands of the Norwegian Government both in respect of future levels of subvention and the provision of regional airports. A key issue for airports with runways of only 800 metres concerns the issue of suitable replacement aircraft for those currently used. Since Bombardier stopped manufacturing the Dash 8-200 aircraft, the only equipment in production are in the sub-20 seat (Twin Otter and Dornier 228) and 50 seat categories (ATR 42). Both the Twin Otter and the Dornier 228 are unpressurised, while the ATR 42 requires a runway length of around 1200 metres.

Four potential regional carrier entrants are given particular attention, namely: Flybe, Flybe Nordic, Skyways/Cimber and Danish Air Transport. Details are given of each company's fleet (current and planned), financial and operating performance, route network strategy, ownership, alliance membership and code-sharing arrangements. Comparison is then made with similar data in respect of the existing main regional air service provider in Norway, Widerøe.

Flybe is the UK's largest regional airline operating a fleet of 67 aircraft, comprising 14 Embraer 195 (118 seats), 4 Embraer 175 (88 seats) and 49 Bombardier Dash 8-400 (78 seats). The carrier's recent financial performance is shown in the table below.

Table 4.12 Flybe's Financial Results (US\$ million)

	2007	2008	2009	2010
Total revenue	1078	956	912	927
Operating result	199	0	9	-1
Net result	70	7	11	6
Net margin %	6.5	0.7	1.2	0.6

Flybe Nordic, formerly known as Finncomm, operates a growing network of domestic and international services from its Helsinki base. Financial data relating to Flybe Nordic is not publically available.

Skyways & Cimber Sterling

Skyways operates a network of domestic and international services from Stockholm and Goteborg using a mixed fleet of jet and turbo-prop aircraft, comprising 11 Fokker 50, 1 BAe RJ100, 2 Saab 2000, 1 ATR 72, 7 Embraer 145 and 2 Embraer 135. Financial data relating to Skyways is not publically available.

Cimber Sterling operates a mixed fleet of regional jet and turbo-prop aircraft, as well as 6 Boeing 737-700 on charter and low cost scheduled services from Denmark. The carrier has faced difficult financial circumstances since 2008 as is shown in the table below. The airline announced in December 2011 that its fleet of Boeing 737 aircraft is to be withdrawn from service over the coming 12 months, reflecting the difficulties of operating low cost scheduled services with a small fleet in a highly competitive marketplace.

Table 4.13 Cimber Sterling's Financial Results (US\$ million)

	2007	2008	2009	2010
Total revenue	221	243	295	346
Operating result	14.1	-0.4	-43.3	-35.6
Net result	8.2	-7.1	-43.5	-38.0
Net margin %	3.7	-2.9	-14.8	-11.0

Danish Air Transport operates a small fleet of turbo-prop aircraft, as well as 2 MD-80 jets. The carrier operates a mix of scheduled and charter flights, including a number of PSO services in Norway. Financial data relating to Danish Air Transport is not publically available.

The following charts compare Widerøe with Cimber Sterling and Flybe in terms of a number of key financial and operating metrics (Unit Cost, Aircraft Productivity, Employee Productivity, Average Distance Flown and Average Aircraft Size). The data shown is for 2009.

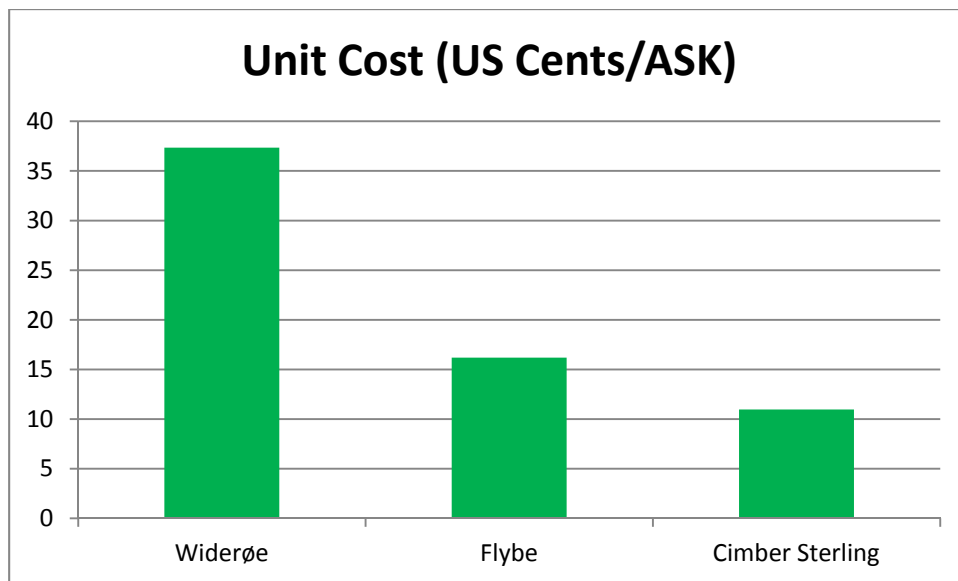


Figure 4.11 Unit costs per ASK, regional carriers

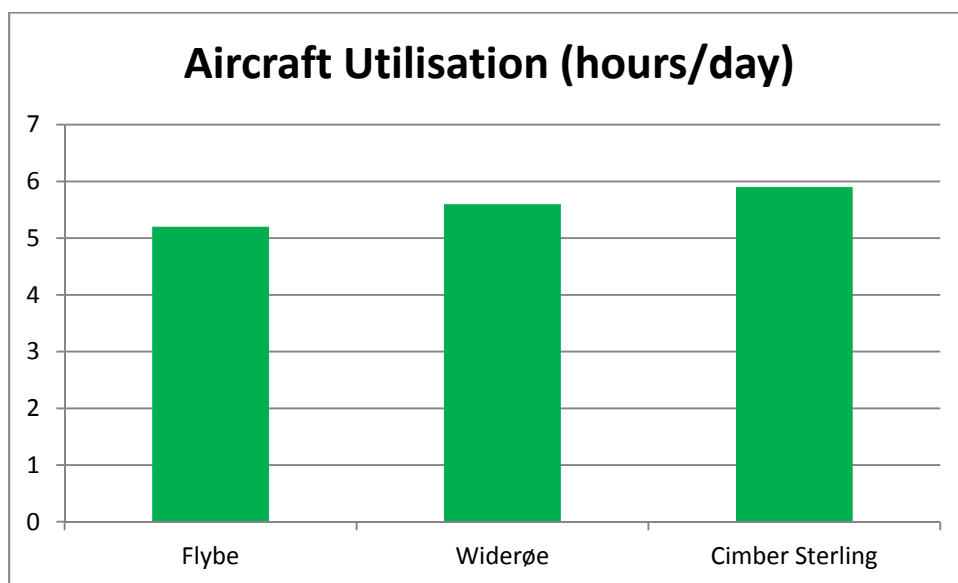


Figure 4.12 Aircraft productivity (hours per day), regional carriers

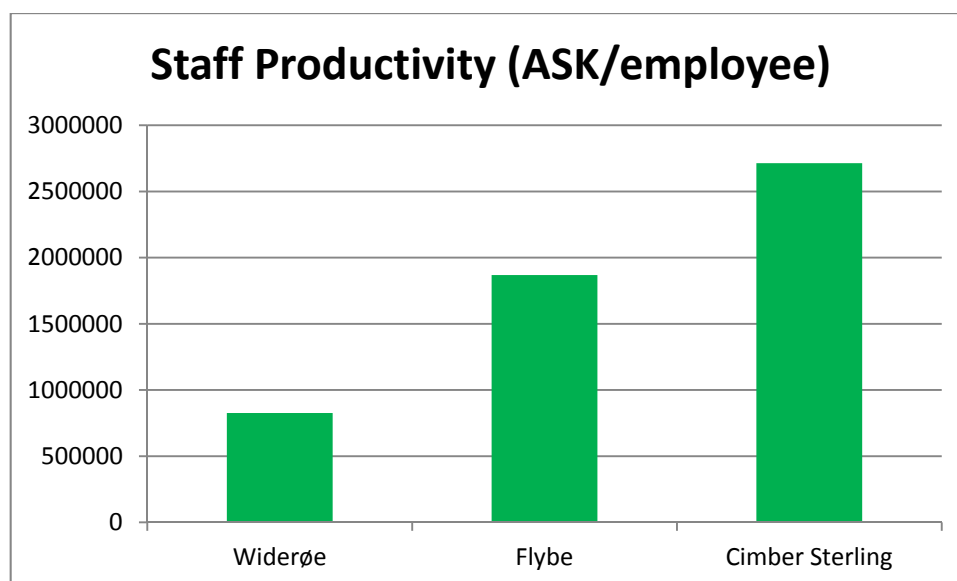


Figure 4.13 Employee productivity (ASK per employee), regional carriers

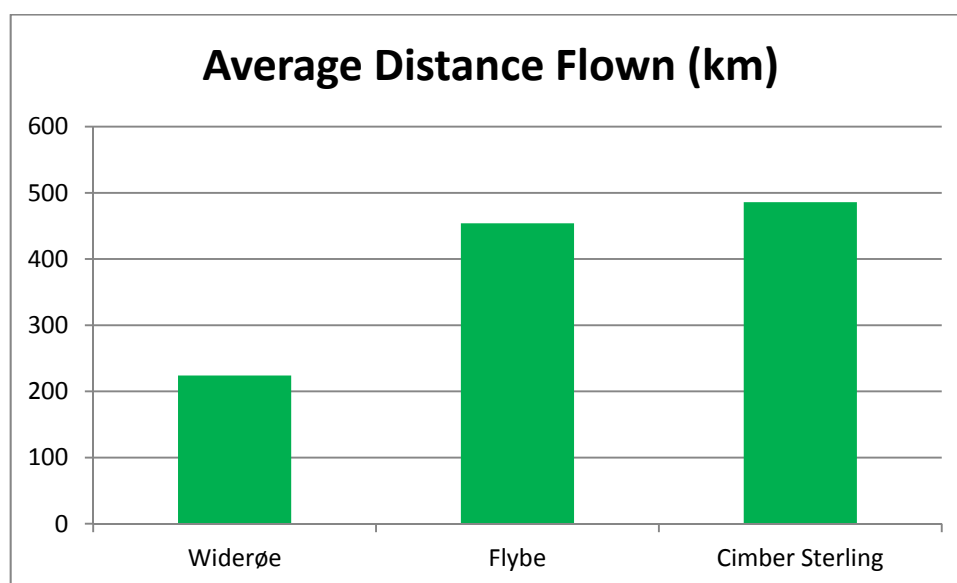


Figure 4.14 Average distance flown, regional carriers

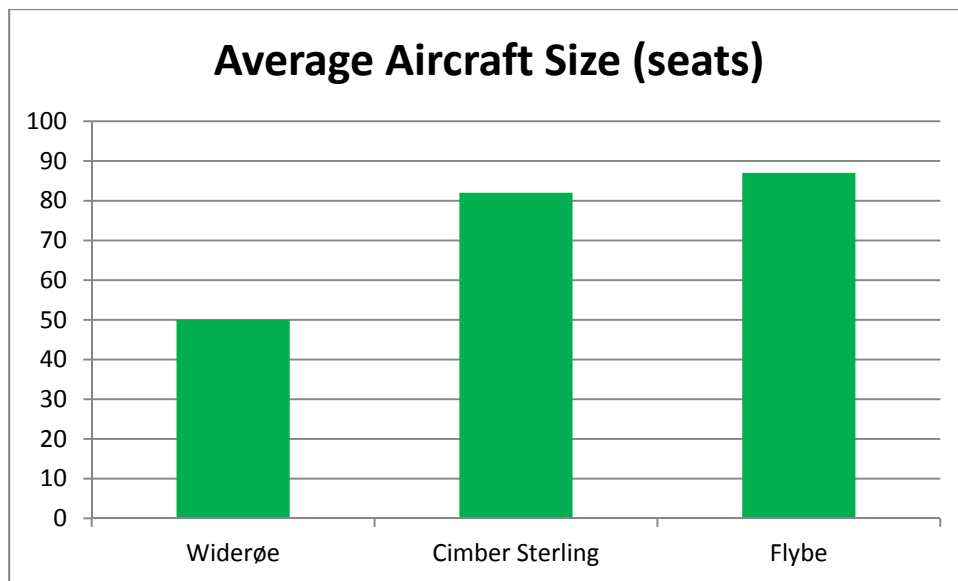


Figure 4.15 Average aircraft size, regional carriers

A more detailed discussion of possible airline entrants to the Norwegian market follows in the next chapter.

5 POSSIBLE SCENARIOS

Three scenarios from a wide range of possibilities are developed here. Scenario A reflects the status quo but also the immediate fleet and route plans of existing airlines in the Norwegian air transport market. Under Scenarios B and C significant changes in terms of which airlines would supply air services in Norway would result.

Scenario A – Status Quo

- SAS continues as a full service network carrier with the current ownership structure.
- Norwegian continues to establish a unit fleet of B-737-800 with 186 seats.
- Norwegian pulls out of the thinner routes in Norway because of the mismatch between aircraft and market size, and focuses on the main trunk routes in Norway along with new short- and medium-haul routes within Europe. Norwegian also attempts to establish long-haul routes to/from Europe e.g. to Asia and the USA.
- SAS and/or Widerøe operate the thin routes, perhaps in competition with regional carriers like DAT or Flybe Nordic.
- Other network and low cost carriers based in Europe provide an increasing number of international services from airports in Norway.
- Additional competition for PSO routes occurs at non-800 metre runway airports.

A variant of Scenario A could be that Norwegian uses their B-737-800s to capture the peak markets on the thinner routes, leaving the remaining parts of the market for SAS and/or Widerøe. The result may be reduced departure frequencies, with uncertain effects on fare levels.

Scenario B - Ongoing Struggle for Profitability

- SAS continues to incur financial losses.
- The Norwegian and Swedish Governments sell their shareholdings in SAS.
- SAS is forced to downsize and drops non-profitable and marginally profitable domestic and international routes.
- Norwegian takes over the domestic and international routes dropped by SAS and continues to grow successfully.
- Other network and low cost carriers based in Europe provide an increasing number of international services from airports in Norway.

- Additional competition for PSO routes occurs at non-800 metre runway airports.

Scenario C - Major Airline Failure

- As a result of its worsening financial position SAS is forced into bankruptcy and its assets are sold.
- Widerøe is bought by investors in Norway.
- Danish investors (including the Government) acquire the Copenhagen operations of SAS.
- Norwegian takes over many of the domestic and international routes previously operated by SAS.
- Another low cost carrier (possibly easyJet) opens a base at Gardermoen and begins operating both international and domestic services.
- Other network and low cost carriers based in Europe provide an increasing number of international services from airports in Norway.
- As a result of the increased competition, Norwegian finds it increasingly difficult to expand profitably.
- Additional competition for PSO routes occurs at non-800 metre runway airports.

The likely impact in the event of SAS contracting its operations or going bankrupt will involve a mixture of existing operators increasing their services and new entrants coming into the Norwegian market. As mentioned in Chapter 3, it is evident from very recent airline failures in Europe, notably Malev and Spanair, that replacement services are rapidly provided by existing carriers and/or new entrants.

Links to International Hub Airports

In terms of the links to international hubs the table below lists the possible outcomes in respect of the carriers likely to serve each hub from OSL.

Table 5.1 Carriers serving different hubs from OSL

Hub	Existing carriers increasing services	New entrant(s)
Amsterdam	KLM / Norwegian	
Brussels	Brussels Airlines	Norwegian
Copenhagen	Norwegian	Finnair
Frankfurt	Lufthansa	Air Berlin / Norwegian
Helsinki	Finnair / Norwegian	
London LHR	British Airways	Norwegian
Munich	Lufthansa / Norwegian	Air Berlin
New York	United	Norwegian
Paris CDG	Air France / Norwegian	easyJet
Rome	Norwegian	Alitalia
Stockholm	Norwegian	Air Baltic / Finnair
Zurich	Swiss	Norwegian

In addition (and independent of the situation for SAS) it could be that Norwegian will be a new entrant on Oslo-Bangkok, which is served by Thai at present.

Links to International non-Hub Airports

In respect of predominantly business destinations it is most likely that in each case replacement services would be provided by the network carrier based at the destination airport or with a significant presence there.

As regards destinations that have a large proportion of non-business traffic (VFR/long and short stay holidays), it is highly probable that any replacement services would be provided by low cost carriers. For example, to Spanish destinations this could involve Vueling and/or easyJet, whilst to Austrian cities it could be FlyNiki. Some routes may be lost.

Domestic Trunk Routes

While it is fairly certain that Norwegian would increase the number of services it provides on these routes, it is very likely that these markets will be entered by other carriers. The possibilities include easyJet, Finnair and Widerøe (assuming that with independence Widerøe acquires jet aircraft). The latter may be well placed to operate services with jets seating no more than 100 passengers, particularly given that Norwegian's fleet will soon comprise only aircraft equipped with 186 seats which may prove too large for some non-peak flights.

Secondary Domestic Commercial Routes

A number of regional carriers, such as Air Baltic, Flybe Nordic and an independent Widerøe, are likely to show interest in operating these routes given SAS's

withdrawal from this market. As indicated above, Widerøe or another regional carrier with smaller regional jets may provide a good adaptation to market needs.

PSO Routes

To airports equipped with runways of 1200 metres or more a number of regional carriers, such as Air Baltic, DAT, Flybe Nordic and an independent Widerøe, are likely to show interest in providing services.

To airports with 800 metre runways, only airlines operating Dash 8-100 or 200 aircraft will be possible contenders in cases where more than 19 seats aircraft are demanded. Competition for tenders on such routes is likely to continue to be very limited, given the very few airlines in Europe that operate this type of aircraft, DAT recently being one rare example⁷.

⁷ DAT has been given the right to operate the PSO routes between Bodø and Leknes/Svolvær from 1st April 2012. The incumbent operator Widerøe has made a complaint on this decision with subsequent legal action.

REFERENCES

Airline Business. (2011). Special Report: Alliances, Airline Business, September.

Amadeus. (2012). Amadeus – overview. WWW document. URL: http://www.investors.amadeus.com/media/files/english/column_boxes/amadeus_factsheet_eng_q32011_oct.pdf. Accessed 15 February 2012.

Bjerkvik, B. (2012). Competition in the Norwegian airline industry between 2003 and 2009. MSc Thesis in Logistics, Molde University College, Molde, Norway.

CAPA. (2011). SAS to increase leisure share under 4Excellence strategy. WWW document. URL: <http://www.centreforaviation.com/analysis/sas-to-increase-leisure-share-under-4excellence-strategy-59151>. Published 21 September 2011.

Clark, P. (2010). Russia threatens to ban Austrian flights. WWW document. URL: <http://www.ft.com/intl/cms/s/0/e27168fa-24a2-11df-8be0-00144feab49a.html>. Published 28 February 2010.

Dunai, M. and Szakacs, G. (2012). Rivals swoop in as Hungary's Malev stops flying. WWW document. URL: <http://www.reuters.com/assets/print?aid=USTRE8121JS20120203>. Published 3 February 2012.

easyJet. (2012). Passengers, tax-payers and Sardinians lose out in PSO ruling. WWW document. URL: http://www.easyjet.com/en/news/milan_olbia_abuse_of_public_service_obligation.html. Accessed 15 February 2012.

Gustafson, R. (2011). Scandinavian Aviation in the Future. In: The Sola Conference 2011, 13-14 September, Stavanger, Norway

Hofmann, K. and Blachly, L. (2010). EC fines 11 carriers €799 million for air cargo price fixing. WWW document. URL: <http://atwonline.com/international-aviation-regulation/news/ec-fines-11-carriers-799-million-air-cargo-price-fixing-1109>. Published 10 November 2010.

Kaspersen, L. (2012) Nye rykter om nært forestående SAS-salg. WWW document. URL: <http://www.dn.no/forsiden/naringsliv/article2333547.ece>. Published 15 February 2012.

Lian, J.I., Bråthen, S. Johansen, S. and Strand, S. (2005). Luftfartens samfunnsnytte - Dokumentasjon av nytte og skisse til et løpende rapporteringssystem. TØI report 807/2005. Institute of Transport Economics, Oslo.

Norwegian. (2011). Norwegian Annual Report 2010, Norwegian, Fornebu.

Norwegian. (2012). Organisation. WWW document. URL: <http://www.norwegian.com/en/about-norwegian/our-company/organization/>. Accessed 15 February 2012.

Norwegian Competition Authority. (2012). Split solution for airline loyalty program. WWW document. URL: <http://www.konkurransetilsynet.no/en/news/archive/Split-solution-for-airline-loyalty-program/>. Published 6 February 2012.

Norwegian Ministry of Trade and Industry. (2011). Active Ownership – Norwegian State Ownership in a Global Economy, Norwegian Ministry of Trade and Industry, Oslo.

Oslo Gardermoen Airport. (2012). Statistics. WWW document. URL: <http://www.osl.no/en/osl/businessstobusiness/airlines/60Statistics>. Accessed 15 February 2012.

Parker, A. (2012). Norwegian carrier aims high with 222 aircraft orders. WWW document. URL: <http://www.ft.com/intl/cms/s/0/8da94a54-4741-11e1-b847-00144feabdc0.html#axzz1mSP7FqMD>. Published 25 January 2012.

Perry, D. (2012). Cash strapped Malev ceases operations. WWW document. URL: <http://www.flightglobal.com/news/articles/cash-strapped-malev-ceases-operations-367757/>. Published 3 February 2012.

Sanders, F. (2011). Widerøe acquires Dash 8-200s from Saudi Aramco. WWW document. URL: <http://www.ascendworldwide.com/2011/09/wideroe-acquires-dash-8-200s-from-saudi-aramco.html>. Published 1 September 2011.

SAS Group. (2011). Corporate Governance Report, SAS Group, Stockholm.

SAS Group. (2012). Investor relations: 20 largest shareholders. WWW document. URL: <http://www.sasgroup.net/SASGroup/default.asp>. Accessed 15 February 2012.

Steinmetz, T. (2010). SAS asks for cash, plans job cuts. WWW document. URL: <http://www.eturbonews.com/print/14312>. Published 2 September 2010.

Thomas, A. (2011). SAS Chief on Turnaround Mission, Airline Business, November.

Vågane, L., Brechan, I. and Hjorthol, R. (2011). Den nasjonale reisevaneundersøkelsen 2009 – nøkkelrapport. TØI report 1130/2011, Institute of Transport Economics, Oslo.

Vågane, L. and Rideng, R. (2011). Transportytelser i Norge 1946-2010. TØI report 1165/2011, Institute of Transport Economics, Oslo.

PUBLIKASJONER AV FORSKERE TILKNYTTET HØGSKOLEN I MOLDE OG MØREFORSKING MOLDE AS

www.himolde.no – www.mfm.no

2010 - 2012

Publikasjoner utgitt av høgskolen og Møreforskning kan kjøpes/lånes fra
Høgskolen i Molde, biblioteket, Postboks 2110, 6402 MOLDE.
Tlf.: 71 21 41 61, epost: biblioteket@himolde.no

NASJONAL/NORDISK PUBLISERING

Egen rapportserie

Bråthen, Svein; Halpern, Nigel and Williams, George: *The Norwegian Air Transport Market in the Future. Some possible trends and scenarios*. Rapport / Møreforskning Molde AS nr. 1205. Molde: Møreforskning Molde AS. 82 s. Pris: 100,-

Hervik, Arild; Bræin, Lasse og Bergem, Bjørn G.: *Resultatmåling av brukerstyrt forskning 2010*. Rapport / Møreforskning Molde AS nr. 1204. Molde: Møreforskning Molde AS. 129 s. Pris: 150,-

Rekdal, Jens; Larsen, Odd I.; Løkketangen, Arne og Hamre, Tom N. (2012): *TraMod_By Del 1: Etablering av nytt modellsystem*. Rapport / Møreforskning Molde AS nr. 1203. Molde: Møreforskning Molde AS. 176 s. Pris: 200,-

Bråthen, Svein; Saeed, Naima; Sunde, Øyvind; Husdal, Jan; Jensen, Arne and Sorkina, Edith (2012): *Customer and Agent Initiated Intermodal Transport Chains*. Rapport / Møreforskning Molde AS nr. 1202. Molde: Møreforskning Molde AS. 147 s. Pris: 150,-

Bråthen, Svein; Draagen, Lars; Eriksen, Knut S.; Husdal, Jan, Kurtzhals, Joakim H. og Thune-Larsen, Harald (2012): *Mulige endringer i lufthavnstrukturen – samfunnsøkonomi og ruteopplegg*. Rapport / Møreforskning Molde AS nr. 1201. Molde: Møreforskning Molde AS. 125 s. Pris: 150,-

Kristoffersen, Steinar (2011): *Complete Documentation for Commissioning. Knowledge and document management in ship building*. Rapport / Møreforskning Molde AS nr. 1111. Molde: Møreforskning Molde AS. 32 s. Pris: 50,-

Hervik, Arild; Oterhals, Oddmund; Bergem, Bjørn G. og Johannessen, Gøran (2011): *NCE Maritime klyngeanalyse 2011. Status for maritime næringer i Møre og Romsdal*. Rapport / Møreforskning Molde AS nr. 1110. Molde: Møreforskning Molde AS. 35 s. Pris: 50,-

Fillingsnes, Anne Berit; Sandøy, Marit og Ulvund, Ingeborg (2011): *Ny praksismodell i sykehjem. Rapport fra et samarbeidsprosjekt mellom Molde kommune, Kristiansund kommune og Høgskolen i Molde*. Rapport / Møreforskning Molde AS nr. 1109. Molde: Møreforskning Molde AS. 50 s. Pris: 100,-

Oterhals, Oddmund; Johannessen, Gøran og Hervik, Arild (2011): *STX OSV. Ringvirkninger av verftsvirksomheten i Norge*. Rapport / Møreforskning Molde AS nr. 1108. Molde: Møreforskning Molde AS. 28 s. Pris: 50,-

Hjelle, Harald M. og Bø, Ola (2011): *Implementering av IT-systemer i verdikjeden for frossen fisk. Sluttrapport for FIESTA-prosjektet*. Rapport / Møreforskning Molde AS nr. 1107. Molde: Møreforskning Molde AS. 124 s. Pris: 150,-

Rekdal, Jens (2011): *Konsekvensutredning; Måseide – Vedde – Gåseid. Delrapport: Trafikkanalyse og samfunnsøkonomisk kalkyle for "Borgundfjordtunnelen"*. Rapport / Møreforsking Molde AS nr. 1106. Molde: Møreforsking Molde AS. 112 s. Pris: 150,-

Hjelle, Harald M. og Bø, Ola (2011): *Sporbarhet, RFID og frossen fisk. Om potensialet til innføring av RFID-basert sporingsteknologi i forsyningskjeden for frossen fisk*. Rapport / Møreforsking Molde AS nr. 1105. Molde: Møreforsking Molde AS. 51 s. Pris: 100,-

Sandsmark, Maria og Hervik, Arild (2011): *Internasjonalisering av merkevarer i petroleumsnæringen i Midt-Norge*. Rapport / Møreforsking Molde AS nr. 1104. Molde: Møreforsking Molde AS. 41 s. Pris: 50,-

Bremnes, Helge; Hervik, Arild og Sandsmark, Maria (2011): *Merkevarer i petroleumsnæringen i Midt-Norge*. Rapport / Møreforsking Molde AS nr. 1103. Molde: Møreforsking Molde AS. 41 s. Pris: 50,-

Hervik, Arild; Bræin, Lasse og Bergem, Bjørn (2011): *Resultatmåling av brukerstyrt forskning 2009*. Rapport / Møreforsking Molde AS nr. 1102. Molde: Møreforsking Molde AS. 105,[42] s. Pris: 150,-

Oterhals, Oddmund (2011): *shipINSIDE – Vurdering av et nytt konsept for skipsinnredning*. Rapport / Møreforsking Molde AS nr. 1101. Molde: Møreforsking Molde AS. 25 s. Pris: 50,-

Hervik, Arild; Oterhals, Oddmund; Bjørn G. Bergem og Johannessen, Gøran (2010): *Status for maritime næringer i Møre og Romsdal 2010. Lysere ordresituasjon med utflating av aktivitetsnivået*. Rapport / Møreforsking Molde AS nr. 1011. Molde: Møreforsking Molde AS. 28 s. Pris: 50,-

Oterhals, Oddmund (2010): *Samseiling i Bodøregionen. Pilotprosjekt for utprøving av rederisamarbeid*. Rapport / Møreforsking Molde AS nr. 1010. Molde: Møreforsking Molde AS. 24 s. Pris: 50,-

Hjelle, Harald M. (2010): *FIESTA-skolen. Etterutdanning tett på egen verdikjede*. Rapport/Møreforsking Molde AS nr. 1009. Molde: Møreforsking Molde AS. 25, 91, [7] s. Pris: 150,-

Halpern, Nigel and Bråthen, Svein (2010): *Catalytic impact of airports in Norway*. Rapport/Møreforsking Molde AS nr. 1008. Molde: Møreforsking Molde AS. 112 s. Pris: 150,-

Oterhals, Oddmund; Hervik, Arild; Tobro, Roar og Bræin, Lasse (2010): *Markedskarakteristika og logistikktfordringer ved offshore vindkraftutbygging*. Rapport/Møreforsking Molde AS nr. 1007. Molde: Møreforsking Molde AS. 35 s. Pris: 50,-

Merkert, Rico and Pagliari, Romano (Cranfield University); Odeck, James; Bråthen, Svein; Halpern, Nigel and Husdal, Jan (2010): *Benchmarking Avinor's Efficiency – a Prestudy*. Report / Møreforsking Molde AS no 1006. Molde: Møreforsking Molde AS. 74 p. Price: 100,-

Hervik, Arild; Bræin, Lasse og Bergem, Bjørn (2010): *Resultatmåling av brukerstyrt forskning 2008*. Rapport / Møreforsking Molde AS nr. 1005. Molde: Møreforsking Molde AS. 145 s. Pris: 150,-

Oterhals, Oddmund; Hervik, Arild; Øksenvåg, Jan Erik (Kontali Analyse) og Johannessen, Gøran (2010): *Verdiskaping og samspill i marine næringer på Nordmøre*. Rapport / Møreforsking Molde AS nr. 1004. Molde: Møreforsking Molde AS. 35 s. Pris: 50,-

Oterhals, Oddmund (2010): *Odin Abas. Verdikjedebeskrivelse og styringsmodell for prosjektgjennomføring*. Rapport / Møreforsking Molde AS nr. 1003. Molde: Møreforsking Molde AS. 38 s. KONFIDENSIELL.

Johannessen, Gøran; Hervik, Arild (2010): *Inntektsoverføringsmodell for lokale bil- og båtruter*. Rapport / Møreforsking Molde AS nr. 1002. Molde: Møreforsking Molde AS. 74 s. Pris: 100,-

Bråthen, Svein; Husdal, Jan (2010): *Fjerning av terreng hindre ved Kirkenes lufthavn, Høybuktmoen. Samfunnsøkonomisk analyse*. Rapport / Møreforsking Molde AS nr. 1001. Molde: Møreforsking Molde AS. 53 s. Pris: 100,-

ARBEIDSRAPPORTER / WORKING REPORTS

Rye, Mette (2012): *Merkostnad i privat sektor i sone 1a og 4a etter omlegging av differensiert arbeidsgiveravgift. Estimert for 2012*. Arbeidsrapport / Møreforskning Molde AS nr. M 1201. Molde: Møreforskning Molde AS 19 s. Pris: 50,-

Bremnes, Helge; Kristoffersen, Steinar og Sandsmark, Maria (2011): *Evaluerer av IKT-investeringer – et forprosjekt*. Arbeidsrapport / Møreforskning Molde AS nr. M 1103. Molde: Møreforskning Molde AS. 18 s. Pris: 50,-

Hervik, Arild; Hekland, Jon og Bræin, Lasse (2011): *Fiskeri- og havbruksnæringens forskningsfond (FHF). Screening av eksisterende erfaringer internasjonalt med måling/kartlegging av effekter av forskning innen fiskeri- og havbrukssektoren*. Arbeidsrapport / Møreforskning Molde AS nr. M 1102. Molde: Møreforskning Molde AS. 25 s. Pris: 50,-

Rye, Mette (2011): *Merkostnad i privat sektor i sone 1a og 4a etter omlegging av differensiert arbeidsgiveravgift. Estimert for 2011*. Arbeidsrapport / Møreforskning Molde AS nr. M 1101. Molde: Møreforskning Molde AS. 17 s. Pris: 50,-

Dugnas, Karolis og Oterhals, Oddmund (2010): *Vareflyt og lageroptimalisering i Stokke AS*. Arbeidsrapport / Møreforskning Molde AS nr. M 1003. KONFIDENSIELL. Molde: Møreforskning Molde AS. 52 s.

Hervik, Arild og Bræin, Lasse (2010): *En empirisk tilnærming til kvantifisering av eksterne virkninger fra FoU-investeringer*. Arbeidsrapport / Møreforskning Molde AS nr. M 1002. Molde: Møreforskning Molde AS. 59 s. Pris: 100,-

Bjarnar, Ove; Haugen, Kjetil; Hervik, Arild; Olstad, Asmund, Oterhals, Oddmund ; Risnes, Martin (2010): *Nyskaping og næringsutvikling i næringslivet i Møre og Romsdal. Sluttrapport*. Arbeidsrapport / Møreforskning Molde AS nr. M 1001. Molde: Møreforskning Molde AS. 15 s. Pris: 50,-

ARBEIDSNOTATER / WORKING PAPERS

Ludvigsen, Kristine, Jæger, Bjørn (2011) *Roller og rolleforventninger ved bruk av avatarer i en fjernundervisningskontekst*. Arbeidsnotat / Høgskolen i Molde, nr. 2011:1. Molde : Høgskolen i Molde. Pris: 50. -

Sandsmark, Maria (2011) *A system dynamic approach to competitive advantage : the petro-industry in Central Norway as a case study*. Arbeidsnotat / Høgskolen i Molde, nr. 2011:2. Molde : Høgskolen i Molde. Pris: 50. –

Bremnes, Helge; Bergem, Bjørn; Nesset, Erik (2011) *Coherence between policy formulation and implementation of public research support? : an examination of project selection mechanisms in the Norwegian Research Council*. Arbeidsnotat / Høgskolen i Molde, nr. 2011:3. Molde : Høgskolen i Molde. Pris: 50. –

Olstad, Asmund (2010) *Web-basert IT-system for beslutningsstøtte og kommunikasjon i operasjonell planlegging av prosjektorientert produksjon*. Arbeidsnotat / Høgskolen i Molde, nr. 2010:1. Molde : Høgskolen i Molde. Pris: 50.-

Bjarnar, Ove (2010) *Transformation of knowledge flow in globalising regional clusters*. Arbeidsnotat / Høgskolen i Molde, nr. 2010:2. Molde : Høgskolen i Molde. Pris: 50. -

Helgheim, Berit Irene; Jæger, Bjørn; Saeed, Naima (2010) *Technoological intermediaries as third part service providers in Global Supply Chains*. Arbeidsnotat / Høgskolen i Molde, nr. 2010:3. Molde: Høgskolen i Molde. Pris: 50.-

Angell, Truls; Jansson, Kjell (2010) *Will it be possible to achieve a simpler and efficient fare structure? – Case study Oslo*. Arbeidsnotat / Høgskolen i Molde, nr. 2010:4. Molde : Høgskolen i Molde. Pris: 50.-

Rekdal, Jens; Larsen, Odd I. (2010) *Underlagsmateriale for utredning av marginalkostnadsprising for tunge kjøretøy*. Arbeidsnotat / Høgskolen i Molde, nr. 2010:5. Molde: Høgskolen i Molde. Pris; 100.-

Bremnes, Helge; Sandsmark, Maria (2010) *An interdisciplinary study of competitive advantage*. Arbeidsnotat / Høgskolen i Molde, nr. 2010:6. Molde : Høgskolen i Molde. Pris: 50.-

TFS 12-04-16

© Forfatter/Møreforsking Molde AS

Forskriftene i åndsverkloven gjelder for materialet i denne publikasjonen. Materialet er publisert for at du skal kunne lese det på skjermen eller fremstille eksemplar til privat bruk. Uten spesielle avtaler med forfatter/Møreforsking Molde AS er all annen eksemplarframstilling og tilgjengelighetsgjøring bare tillatt så lenge det har hjemmel i lov eller avtale med Kopinor, interesseorgan for rettshavere til åndsverk.



MØREFORSKING
MOLDE

MØREFORSKING MOLDE AS
Britvegen 4, NO-6410 Molde

Telefon +47 71 21 40 00
Telefaks +47 71 21 42 99

mfm@himolde.no
www.mfm.no



Høgskolen i Molde
Vitenskapelig høyskole i logistikk

HØGSKOLEN I MOLDE
Postboks 2110, NO-6402 Molde

Telefon +47 71 21 40 00
Telefaks +47 71 21 41 00

post@himolde.no
www.himolde.no