

Differences in harvesting and marketing strategies between Iceland and Norway

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Abstract in English:

For decades, whitefish industries in Iceland and Norway have produced similar products and have exported to the same global markets. Nevertheless, there are indications that the Icelandic industry has been more profitable than the Norwegian industry over the same time period. Therefore, this study aims to determine if the two competing industries pursue different marketing and harvesting strategies to maximise their take of one of the region's most valuable natural resources. To test the hypotheses, raw material supply data and product sales data were collected and analysed. The results revealed that Iceland was pursuing a differentiation strategy by exporting more high-priced, fresh whitefish fillets. This marketing strategy was aligned with a procurement strategy that focused on obtaining fresh, high-quality raw materials caught by hook. In contrast, the Norwegian industry was following a low-price strategy by catching more fish with gillnets and selling the unprocessed fresh or frozen fish at a low price. It has been argued that the superior harvesting and marketing strategies of the Icelandic industry may be rooted in factor conditions that are difficult to duplicate and a rigid institutional framework in Norway. This framework is related to the freedom to organise the value chain (i.e. by vertical integration) and the transfer of licences to vessels that can continuously supply high-quality raw materials. However, to adopt the Icelandic institutional framework, Norwegian authorities must take pivotal steps.

Abstract in Norwegian:

Norge og Island har lenge vært konkurrenter. De fanger mange av de samme artene og produserer like produkter som eksporteres til et globalt marked. Flere forhold tyder på at islandsk fiskeindustri har hatt bedre lønnsomhet enn den norske. Denne analysen retter derfor oppmerksomheten mot om industrien på Island og i Norge har valgt ulike høstings- og markedsstrategier. I analysen benyttes data fra fangst og produksjon av hvitfisk i de to landene. Resultatene i analysen viser at islandsk fiskeindustri har valgt en annen markedsstrategi enn den norske. Islendingene produserer langt mer høyt priset ferske filetprodukter enn nordmennene. Denne markedsstrategien er godt koordinert med høstingsstrategien som er valgt. Særlig påfallende er det at en langt større andel av fisken fanges med krokredskaper enn i Norge. I Norge er det valgt en lavprisstrategi. Her fanges fisken i en intens vintersesong og garn er et effektivt og dominerende fangstredskap. Den norske produktporteføljen er da også dominert av konvensjonelle produkter. I tillegg eksporteres det en stor andel ubearbeidet rund hvitfisk – både fersk og rundfrossen. I analysen diskuteres det om nordmenn kan kopiere islendingenes fangst – og produksjonsstrategi. Det konkluderes med at det er mulig å kopiere islendingens forvaltning av fiskeressursene og regler for økonomisk organisering. Islendingene har imidlertid bestander med et annet vandringmønster enn de norske. Det vil derfor være vanskelig for nordmenn å kopiere islendingens suksess – selv om det blir gjort forsøk på å kopiere islandsk forvaltning.

Keywords:

Differentiation strategy; low-price strategy; procurement strategy, factor conditions

Introduction

The Nordic countries of Iceland and Norway have in common the control over extremely valuable fishing grounds. Geographically, Iceland is an island situated in the North Atlantic Ocean, while Norway is a part of continental Europe. In addition, Iceland pursues fishing in its surrounding waters, while Norway practices fishing off its western and northern coasts. Both countries harvest the same type of natural resources, with the most valuable whitefish species being cod, haddock and saithe, which are processed and primarily exported to the same global markets.

In Iceland, fishing has been the most prominent industry for decades (Knutsson, 2001). However, the importance of the fishing industry in Norway has diminished since the 1970s when valuable oil fields were discovered. The revenue from exporting fish from Iceland contributes to approximately one-third of the total value of exports, while in Norway, the proportion is around 5% (Björgvinsson, 2014). Therefore, it seems reasonable to state that the fishing industry is more important to Icelanders than Norwegians.

Firms within the whitefish industry in Norway and Iceland have both been through substantial structural changes over the past few decades. In Norway, the whitefish fillet industry, characterised by weak profitability, has been forced to close its plants. According to Finstad *et al.* (2012), the number of plants has decreased from approximately 100 in the 1970s to a total of 10 in 2010. Conversely, in Iceland, the fishing industry as a whole has been relatively profitable since the early 1990s (Knútsson *et al.*, 2011). This is mainly because of deregulations and other legislative changes, which have resulted in a more consolidated industry. Many firms in the fishing industry have been acquired or merged primarily using the Icelandic Stock Exchange as their funding source (Einarsson, 2003; Knútsson *et al.*, 2008; Pétursson, 2013). Moreover, Björgvinsson (2014) found that his sample of 10 Icelandic firms outperformed the entire Norwegian whitefish fillet processing industry.

This study is motivated by the question of why sustainable performance differences occur

among the same type of industry located in different countries. This study continues by reviewing strategy literature and developing working hypotheses. Subsequently, the research design and results are presented, followed by the discussion and conclusion.

Theory and hypotheses

Strategy theory, which explains why some firms in a particular industry are more profitable than others in the same industry, often asserts that firms that achieve higher or superior returns have some type of advantage over their competitors. According to Porter (1979; 1980; 2008), strategy refers to making choices that lead to sustainable superior performance. A firm's strategy is also shaped by external forces and firms that are more capable of minimising external threats (e.g. the entrance of a new competitor) and exploiting opportunities may achieve competitive advantages.

Barney (1991), on the other hand, claimed that internal resources can explain the performance differences between firms that operate in the same industry. Barney also argued that firms that repeatedly achieve superior returns utilise a resource portfolio, which is heterogeneous and immobile between firms. In addition, if such a portfolio cannot be matched or surpassed by competing firms, then the firms holding this unsubstitutable resource portfolio are said to have a sustained competitive advantage. Furthermore, empirical studies have indicated that both industry- and company-specific attributes may influence firms' financial performance (Rumelt, 1991; Schmalense, 1985). Consequently, it can be argued that the industry perspective of Porter and the firm perspective of Barney are complementary.

Firms can also gain competitive advantages by adapting to dynamic changes in the environment (Teece *et al.*, 1997), cooperating with other firms in different industries (Lavie, 2006) or possessing knowledge that is considered more valuable than the knowledge within competing firms (Grant, 1996). All of these theories are almost without exception based at the firm level.

However, when comparing industries at the national level, certain approaches must be adapted to national differences. For industries based on natural resources, the resources in terms of accessibility, quality and volume obviously differ. In addition, the cost of input factors, such as labour and capital, may differ between nations (Hunt & Morgan, 1995). Furthermore, the competitive climate may differ due to, for example, legislative dissimilarities and how intermediate markets are organised.

In general, all firms that strive for a profit by selling their products in global markets must base their strategies on resources and capabilities that give them sustainable competitive advantages. Even though organisational-specific advantages are important, a competitive advantage in a global context may depend on country-specific or geographical advantages.

According to Porter's diamond theory (1990), the recipe to gain a national competitive advantage in an industry is through searching for innovative ways to keep the industry upgraded with the best production processes available compared to competing nations. However, in order to gain a competitive advantage at a broad national level, it will take a significant amount of time. Thus, if the innovation processes slow down or even stop in an industry, then the competing nations will take advantage of this gap.

Advantages related to factor conditions at the national level can be a source of sustained competitive advantages for national firms in global markets (Porter, 1991). In regard to the present paper, access to abundant marine resources maintained under national control can be a source of competitive advantages.

Another important issue for understanding the national differences between firms' performance is the capability differences that impact the way strategies are chosen. For example, in this paper, both nations have access to the same fish species, but attributes, such as fish migration patterns or national infrastructure and logistics, may impact strategic capability alignment (Luo *et al.*, 2011). In addition, governments are responsible for making laws and regulations that all firms in an industry must comply with on a continuous basis (Joshi & Dixit,

2011). The government will therefore always have a significant impact on the conditions that create competitive advantages at the national level (Porter, 1991).

Finally, national environmental differences (i.e. economic, institutional, socio-cultural and industrial) have an impact on the strategic alignment of firms and their performance (Luo *et al.*, 2011). The present study examines how two competing industries exploit a renewable resource. More specifically, it focuses on how they harvest and process a common national wild fish resource when access is limited by a number of institutional barriers. The licenses to harvest are, for example, allocated differently in the two nations along with the degree of freedom in terms of organising the value system both horizontally and vertically.

Working hypotheses

Since the turn of the millennium, the Icelandic whitefish processing industry has provided higher margins (EBIT/Revenue) than the Norwegian industry (NOU 2014:16). After the financial crisis in Iceland, which occurred in 2008, this difference has been substantial (Iceland > 12% vs. Norway < 2%). Previous studies regarding the profitability of the fishing industry in Iceland and Norway have pointed in the same direction. According to a report by Íslandsbanki (2012), the profitability of the fishing industry in Iceland was described as 'increasing' from the year Iceland implemented its quota system. The report further stated that the average EBITDA margin for the fishing industry as a whole was 29% in 2010, compared to 16% in 2004. A possible explanation for this increasing margin is due to the dramatic fall in the exchange rate as one of the consequences of the financial crisis. Conversely, in Norway, there was a different story in regard to profitability in the whitefish industry (Grimsmo & Digre, 2012).

As stated earlier, Björgvinsson (2014) found that his Icelandic sample of 10 firms outperformed the entire Norwegian whitefish fillet processing industry. His Icelandic sample included one global firm, four diversified and ver-

tically integrated firms, two specialised and vertically integrated firms and three specialised firms that were comparable to the firms in the Norwegian population. Moreover, the performance differences decreased when less relevant strategic groups were removed from the Icelandic sample, since the large vertically integrated and diversified companies were the better performers in Iceland. The performance differences also decreased when financial matters, such as depreciation, amortisation, interests and taxes were considered.

Now that all of the performance differences have been disclosed, we will continue by developing working hypotheses related to the indus-

tries' strategic orientations and factor conditions in order to explain the variations in profitability between the two nations.

The research questions in this study are as follows:

Does the Icelandic whitefish industry have superior factor conditions and/or superior marketing and harvesting strategies over the Norwegian industry?

If so, are the advantages duplicable?

Working hypotheses related to these research questions will be presented and connected to this study's theoretical framework, as illustrated in Figure 1.

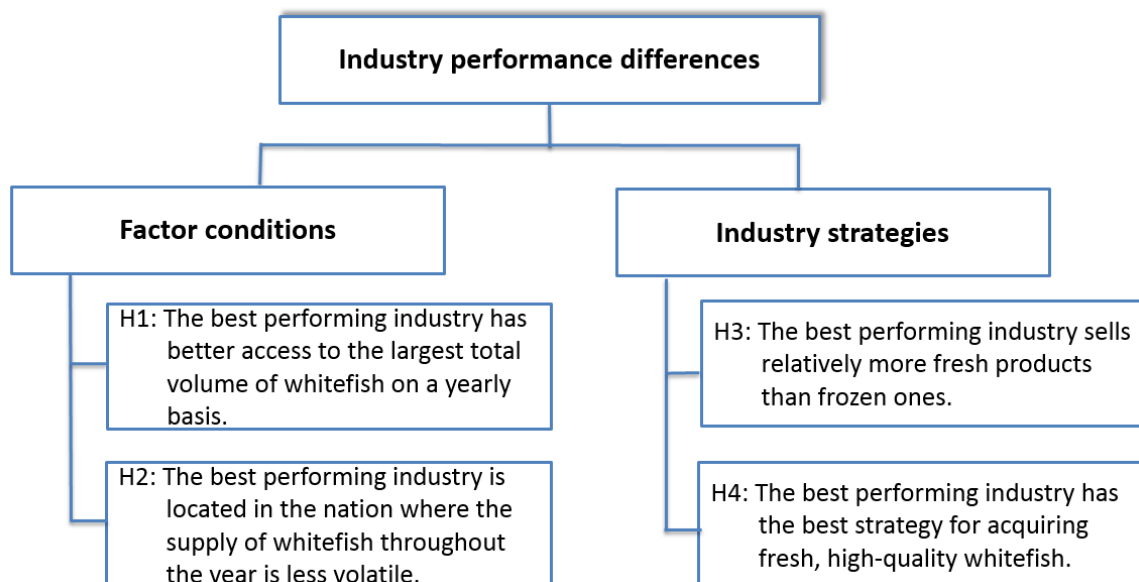


Figure 1 Working hypotheses

We will continue by first developing working hypotheses related to factor conditions (see H1 and H2 in Figure 1).

Access to whitefish resources

Both Iceland and Norway have introduced 200-nautical-mile zones to protect their fish stocks against overfishing by foreign vessels. Moreover, they have introduced a quota system based on the total allowable catch (TAC) in order to prevent overfishing. However, the migration patterns of the species have created an uneven

access to the wild fish resources for the industries in both countries. This resource access is based on biological factors as well as other factors that are beyond the companies' control (Milliken, 1987).

The main input required to keep the whitefish processing firms in operation is the sufficient supply of whitefish. However, one problem that both of these nations face is that whitefish is a resource that lives wild in the ocean. In order to supply it onshore, it must be harvested offshore, given the rules and regulations of the fisheries management system. The processing industry in the nation that catches

the most whitefish is expected to have the largest throughput and with it, an economics of scale advantage over its rival. Therefore, the following hypothesis is posited:

Hypothesis 1: *The best performing industry has access to the largest total volume of whitefish on a yearly basis.*

Supply patterns throughout the year

The variation in production volumes over the year is one of the greatest challenges for fillet companies (Lorentzen *et al.*, 2006). In Norway, there is a distinct seasonal landing pattern throughout the year (Nilssen *et al.*, 2015; Dreyer & Grønhaug, 2004), whereas there is less seasonal variation in the whitefish species in Iceland, although there is a seasonal peak in the winter (Knutsson *et al.*, 2011). In Norway, approximately 63% of the cod is landed during the first four months of the year, compared with 42% for Iceland (see Table 2 for detailed information on the monthly landing of raw fish in Iceland and Norway).

If the supply varies from month to month, then the production capacity will not be utilised efficiently given that the capacity is fixed (as usual over the short term). It is also problematic for companies to continuously supply the market if the supply of raw materials varies widely (Dreyer & Grønhaug, 2004; Ottesen & Grønhaug, 2003). It is especially important to be able to deliver fresh fish in the fall when the supply is limited and the prices are higher (Björgvinsson, 2014). An even supply throughout the year would be more optimal for the industry, both from a cost and price perspective. The present study expects that the best performing industry will have a more evenly distributed and stable supply of whitefish throughout the year. Therefore, the following hypothesis is posited:

Hypothesis 2: *The best performing industry is located in the nation where the supply of whitefish throughout the year is less volatile.*

Marketing strategies

Historically, the unique access to whitefish resources has been the primary competitive advantage for Iceland and Norway. However, the raw material market for fish has gradually become globalised, partly due to new freezing and thawing technology as well as cheaper transportation. As a result, international players with low labour costs and access to frozen whitefish can produce frozen fillets and outstrip Iceland and Norway on price (Egeness, 2013). Nevertheless, the geographical location of the industry plays a pivotal role for the competition since proximity to valuable fishing grounds makes it possible for the whitefish processing industry in both countries to implement fresh fish strategies and differentiate themselves from the frozen fish produced abroad (Iversen, 2003). A differentiated marketing strategy, such as the production of fresh whitefish fillets, can therefore be adequate to overcome the competition from frozen fillets since such products are difficult to duplicate by countries that cannot harvest whitefish species on their own (Dreyer & Grønhaug, 2004; Lorentzen *et al.*, 2006). Fresh whitefish fillets are more valuable than frozen fillets and fresh whole whitefish. However, producing such differentiated products comes with a cost. Nevertheless, as long as the additional revenue is greater than the cost, it will be profitable to produce fresh fillets. Therefore, the following sub-hypothesis is posited:

Hypothesis 3a: *The best performing industry sells relatively more fresh fillets than frozen fillets.*

As discussed in the Introduction, the migration patterns of the whitefish species has resulted in seasonally based fishing in Norway due to economic reasons (Nilssen *et al.*, 2015). The season occurs during the first half of the year when most of the harvesting (of cod at least) takes place. In the second half of the year, the supply is limited, which raises the prices of fresh fillets (Björgvinsson, 2014). This may result in better profits for the producers that are able to supply the market during this time of product shortage. In Iceland in 1990, the quota year was moved

from the calendar year to a specific quota year, which lasted from 1 September to 31 August in the following year. One reason for changing the quota year was to motivate more fishing in the second half of the year. Therefore, the following sub-hypothesis is posited:

Hypothesis 3b: *The best performing industry sells more fresh fillets in the second half of the year.*

Raw material procurement strategies

A differentiated marketing strategy (high quality/high price) requires the firms in the processing industry to be supplied with high-quality raw fish. In this regard, fishing gear employed to catch the whitefish is important. Studies have shown that high-quality raw materials provide more product options and better prices in the market (Henriksen & Sogn-Grundvåg, 2011; Henriksen & Svorken, 2011; Heide & Henriksen, 2013). In addition, whitefish caught by hook is considered more suitable for processing as fresh fillets than whitefish caught with nets (Heide & Henriksen, 2013), especially since bottom trawling, Danish seines and gillnets are more likely to damage the fish (Akse *et al.*, 2013; Rotabakk *et al.*, 2011). In the important UK retail market, a recent study showed that the attribute "line-caught" gives cod and haddock price premiums of 18% and 10%, respectively (Sogn-Grundvåg *et al.*, 2013). In some cases, customers demand that whitefish fillets are processed from line-caught whitefish (Hagfræðistofnun, 2011). Therefore, the following hypothesis is posited:

Hypothesis 4: *The best performing industry acquires more whitefish that is caught by hook.*

Research design

This empirical study with the chosen theoretical perspective requires in-depth knowledge of the

marketing and harvesting strategies pursued by the whitefish industry in Iceland and Norway. The industries must be studied over time to determine whether the attributes they possess can be sources of sustainable competitive advantages. Industries that experience a high level of uncertainty in the environment require a shorter time span for analysis than more stable industries. The chosen time period (2003–2012) exemplifies the structural turbulence in the fillet industry in Norway. In such a volatile setting, the prospects are better to uncover which strategic choices may explain the variability in the firms' performances.

In this study, the Norwegian whitefish industry constitutes one performance group and the Icelandic industry is the other. Data for the supply of raw materials in Norway at the industry level was obtained from Statistic Norway and the Norwegian Directorate of Fisheries. Similar data for Iceland was obtained from Statistic Iceland and the Directorate of Fresh Fish Prices in Iceland. Data regarding the exports of products from Norway was obtained from the Norway Seafood Council, while similar data from Iceland was acquired from the Federation of Icelandic Fish Processing Plants.

Results

In this section, the empirical findings are presented in the same order as in the analytical model (Figure 1).

Supply accessibility

Hypothesis 1: *The best performing industry has better access to the largest total volume of whitefish on a yearly basis.*

As stated in Hypothesis 1, access to whitefish is expected to be an important value driver for the fillet companies.

Table 1 Raw fish catch (in tons) for Iceland and Norway.

	Cod			Haddock			Saithe		
	Iceland	Norway	Diff.	Iceland	Norway	Diff.	Iceland	Norway	Diff.
2003	200 443	217 362	-16 919	59 984	59 329	655	51 855	212 228	-160 373
2004	220 057	230 746	-10 689	83 696	64 932	18 764	62 631	211 267	-148 636
2005	206 376	225 775	-19 399	95 839	63 337	32 502	67 274	230 567	-163 293
2006	193 404	221 299	-27 895	96 101	71 412	24 689	75 204	256 856	-181 652
2007	167 159	217 789	-50 630	108 199	73 286	34 913	64 008	225 464	-161 456
2008	143 860	215 444	-71 584	101 606	74 299	27 307	69 992	227 295	-157 303
2009	181 322	243 659	-62 337	81 388	106 324	-24 936	61 115	202 377	-141 262
2010	167 547	283 481	-115 934	63 880	124 696	-60 816	53 718	228 114	-174 396
2011	169 300	340 167	-170 867	49 316	159 550	-110 234	50 387	190 344	-139 957
2012	193 560	357 951	-164 391	45 670	160 977	-115 307	50 848	176 471	-125 623
Acc.	1 843 028	2 553 673	-710 645	785 679	958 142	-172 463	607 032	2 160 983	-1 553 951
Mean	184 303	255 367	-71 065	78 568	95 814	-17 246	60 703	216 098	-155 395
Std.	22 703	53 474	59 896	22 479	39 663	58 477	8 725	22 823	16 826
Significance*			***			-			***

Source: Statistic Iceland and Statistic Norway.

* Two-tailed t-test: Two-sample assuming equal variances. *** $p < 1\%$.

Table 1 illustrates the yearly catch of cod, haddock and saithe in the two performance groups during the analysis period. From 2003 to 2006, Iceland caught less cod than Norway, but since 2007, Norway significantly caught more cod than its counterpart. This indicates that Norway had better supply conditions for cod on a yearly basis, while the standard deviation indicates more volatility in Norway. Overall, the cod trend for Iceland slightly decreased, whereas the trend for Norway dramatically increased.

Moreover, Table 1 shows that Iceland caught more haddock than Norway from 2003 to 2008, but since 2009, Norway gradually caught more haddock than Iceland. This indicates that Norway had better supply conditions for haddock on a yearly basis, even though Iceland had a better supply between 2003 and 2008. The standard deviation indicates more volatility in Norway on a yearly basis. As with cod, the total catch of haddock in Norway increased significantly from 2008 to 2012. The standard deviation indicates that the haddock supply in Norway was more volatile than in Iceland. Overall, the trend for Iceland slightly decreased,

whereas the trend for Norway sharply increased.

Norway caught up to four times more saithe than Iceland. This indicates that Norway had significantly better supply conditions for saithe on a yearly basis than Iceland, but again, the standard deviation indicates more volatility in Norway. Overall, the trend for both countries decreased, with Norway showing a slightly steeper decrease than Iceland.

Finally, Norway caught significantly more cod and saithe than Iceland ($p < 1\%$). However, in regard to haddock, the difference was not significant. Based on the results in Table 1, it is reasonable to reject Hypothesis 1 since the best performance group was not located in the nation where access to whitefish on a yearly basis was the highest.

Supply volatility

Hypothesis 2: *The best performing industry is located in the nation where the whitefish supply throughout the year is less volatile.*

Table 2 Monthly landing patterns of raw fish (2003–2012) for Iceland and Norway.

	Cod				Haddock				Saithe			
	Iceland	SD	Norway	SD	Iceland	SD	Norway	SD	Iceland	SD	Norway	SD
Jan	8.0%	1.0%	10.1%	2.4%	8.0%	1.6%	6.2%	2.1%	5.0%	0.6%	4.4%	0.6%
Feb	11.1%	1.4%	15.5%	2.5%	10.1%	1.4%	7.7%	2.8%	6.2%	0.9%	13.6%	2.1%
Mar	13.9%	1.3%	23.9%	3.7%	12.0%	2.0%	9.0%	2.8%	8.1%	0.7%	15.8%	1.8%
Apr	8.8%	1.2%	13.8%	2.4%	9.4%	1.3%	11.7%	1.8%	8.6%	1.6%	7.6%	1.5%
May	8.7%	1.2%	5.6%	1.2%	8.8%	1.5%	7.1%	2.2%	8.7%	2.1%	9.5%	2.3%
Jun	5.7%	0.6%	4.5%	1.1%	4.9%	1.3%	6.1%	1.5%	7.5%	2.0%	9.0%	1.5%
Jul	4.8%	0.4%	3.4%	0.7%	5.4%	1.1%	7.0%	2.6%	9.7%	2.4%	6.6%	2.4%
Aug	5.9%	0.6%	3.0%	0.7%	7.7%	2.1%	8.3%	2.2%	10.3%	1.6%	8.7%	2.0%
Sep	7.2%	1.0%	2.6%	0.6%	7.7%	0.7%	7.2%	2.1%	8.5%	2.4%	8.0%	0.6%
Oct	8.7%	1.3%	3.4%	1.0%	9.2%	1.9%	9.2%	2.9%	9.9%	1.7%	6.2%	1.7%
Nov	9.4%	1.2%	6.6%	1.2%	9.6%	2.2%	11.3%	2.5%	9.5%	1.5%	5.6%	1.5%
Dec	7.9%	0.7%	7.7%	1.4%	7.2%	1.6%	9.0%	1.2%	8.0%	1.5%	4.9%	0.8%
Sign.*			**					-				*

Source: Statistic Iceland and the Norwegian Directorate of Fisheries.

* Two-tailed t-test: Two-sample assuming equal variances. ** $p < 5\%$, * $p < 10\%$.

For a fillet business, the regular supply of raw materials is a prerequisite for achieving good capacity utilisation and profitable production (Lorentzen *et al.*, 2006). Table 2 presents the monthly landing patterns of the three main whitefish species for the two performance groups.

Table 2 indicates that the supply of cod was significantly ($p < 5\%$) more stable in Iceland throughout the year than in Norway. In addition, Norway's catch of cod mainly occurred in the first half of the year. In fact, approximately 73% of the total catch for the year occurred during this time period. In Iceland, approximately 56% of the total catch was landed in the first half of the year, which supports the indication that Iceland has a more stable supply of cod throughout the year. The standard deviations of the mean supply of cod was roughly 2.5% for Iceland and 6.5% for Norway.

Table 2 does not indicate whether Iceland or Norway had a more stable supply of haddock throughout the year. Iceland's catch of haddock in the first half of the year was approximately 53% of the total catch, while that for Norway

was 48%. The standard deviation of the mean supply of haddock was around 2% for Iceland and approximately 1.8% for Norway.

Morover, Table 2 indicates that Iceland had significantly ($p < 10\%$) more stable supplies of saithe throughout the year. Norway's catch of saithe in the first half of the year was approximately 60% of the total catch for the year, while for Iceland, it was roughly 44%. The standard deviations of the mean supply of saithe was approximately 1.5% for Iceland and 3.4% for Norway, which might indicate that Iceland had better supply conditions for saithe throughout the year.

Finally, Table 2 shows that both performance groups utilised raw materials according to season-based fishing. However, the firms in the best performance group experienced significantly less seasonal variation for cod and saithe than the weakest performing group, while there was no significant difference for haddock. Based on these results, it is reasonable to affirmatively respond to Hypothesis 2 since the best performance group had a more stable supply of raw materials throughout the year.

Table 3 Annual sales volumes (in tonnes) of fresh and frozen fillets for Iceland and Norway.

	Cod						Haddock						Saithe					
	Volume fresh			Volume frozen			Volume fresh			Volume frozen			Volume fresh			Volume frozen		
	Iceland	Norway	Diff.	Iceland	Norway	Diff.	Iceland	Norway	Diff.	Iceland	Norway	Diff.	Iceland	Norway	Diff.	Iceland	Norway	Diff.
2003	7 830	1 948	5 882	21 938	23 454	-1 516	2 628	765	1 863	5 136	6 570	-1 434	198	1 431	-1 233	5 796	16 360	-10 564
2004	11 336	3 056	8 280	24 373	20 620	3 753	4 017	1 416	2 601	7 124	6 454	670	197	2 066	-1 869	7 330	14 557	-7 227
2005	11 131	4 197	6 934	21 623	19 947	1 676	6 323	1 691	4 632	7 345	5 461	1 884	196	2 069	-1 873	7 423	15 630	-8 207
2006	11 467	4 776	6 691	21 098	18 953	2 145	6 818	1 420	5 398	6 560	6 432	128	270	1 833	-1 563	8 186	12 694	-4 508
2007	8 973	4 770	4 203	20 072	15 184	4 888	6 076	1 141	4 935	8 243	4 981	3 262	176	2 068	-1 892	7 574	10 176	-2 602
2008	8 849	4 434	4 415	10 693	14 327	-3 634	6 460	1 211	5 249	6 651	6 223	428	368	1 250	-882	6 391	14 330	-7 939
2009	13 129	7 037	6 092	90 44	15 331	-6 287	5 809	1 021	4 788	5 836	9 784	-3 948	656	573	83	5 919	6 852	-933
2010	13 113	6 416	6 697	10 344	20 087	-9 743	4 882	1 711	3 171	6 977	10 370	-3 393	1 303	787	516	6 432	7 195	-763
2011	13 346	5 708	7 638	18 205	17 615	590	4 142	1 519	2 623	5 820	8 944	-3 124	1 321	351	970	6 448	4 287	2 161
2012	16 566	5 409	11 157	16 681	14 629	2 052	4 202	1 660	2 542	4 622	7 225	-2 603	1 001	219	782	5 566	4 015	1 551
Acc.	115 740	47 751	67 989	174 071	180 147	-6 076	51 357	13 555	37 802	64 314	72 444	-8 130	5 686	12 647	-6 961	67 065	106 096	-39 031
Mean	11 574	4 775	6 799	17 407	18 015	-608	5 136	1 356	3 780	6 431	7 244	-813	569	1 265	-696	6 707	10 610	-3 903
Std.	2 610	1 508	1 991	5 514	3 086	4 669	1 366	315	1 340	1 087	1 832	2 448	471	739	1 169	871	4 731	4 441
Sign.			***			-			***			-			**			**

Source: Statistic Iceland and the Norwegian Directorate of Fisheries.

* Two-tailed t-test: Two-sample assuming equal variances. *** $p < 1\%$, ** $p < 5\%$.

Marketing strategy

Hypothesis 3a: *The best performing industry sells relatively more fresh products than frozen ones.*

Hypothesis 3a expects that the volumes of differentiated fish products sold will be an important value driver for the fillet companies.

Table 3 presents the total volume of exported fresh and frozen fillets (in tonnes) on a yearly basis for Iceland and Norway, respectively. The Icelandic industry exported significantly more fresh cod fillets compared to the Norwegian industry ($p < 1\%$). However, it varied when considering the nation that exported the most frozen cod fillets. The Icelandic industry exported significantly more fresh haddock fillets during the study period ($p < 1\%$), while the result for the frozen haddock fillets was not significant. In addition, the Norwegian industry exported significantly ($p < 5\%$) more fresh saithe fillets than the Icelandic industry. However, since 2009, the Icelandic industry exported even

more fresh saithe fillets than the Norwegian industry. For the frozen fillets, the Norwegian industry exported significantly more ($p < 5\%$) than Iceland. Based on the results presented in Table 3, it is reasonable to accept Hypothesis 3a since the best performance group sells significantly more fresh products than frozen ones.

Hypothesis 3b: *The best performing industry sells more fresh fillets in the second half of the year.*

Table 4 shows that the Icelandic industry exported significantly more ($p < 1\%$) fresh cod and fresh haddock fillets in the second half of the year during the study period. However, the Norwegian industry exported more fresh saithe fillets from 2003 to 2008 until the Icelandic industry exceeded Norway in 2009.

Based on the results in Table 4, it is reasonable to accept Hypothesis 3b since the best performance group sold significantly more fresh fillets in the second half of the year than the other performance group.

Table 4 The total volume of fresh fillets exported in the second half of the year for Iceland and Norway.

	Cod			Haddock			Saithe		
	Iceland	Norway	Diff.	Iceland	Norway	Diff.	Iceland	Norway	Diff.
2003	4 273	630	3 643	1 274	594	680	83	800	-717
2004	6 364	806	5 558	1 803	1 047	756	96	1 068	-972
2005	5 847	1 332	4 515	3 304	800	2 504	83	954	-871
2006	5 161	1 646	3 515	3 062	738	2 324	99	786	-687
2007	4 482	1 698	2 784	3 030	571	2 459	75	849	-774
2008	3 878	1 816	2 062	2 605	642	1 963	208	624	-416
2009	6 748	2 815	3 933	2 417	596	1 821	337	327	10
2010	6 486	1 961	4 525	2 118	1 134	984	774	333	441
2011	7 440	1 709	5 731	1 985	851	1 134	583	231	352
2012	8 983	1 799	7 184	1 608	979	629	502	152	350
Accumulated	59 662	16 212	43 450	23 206	7 952	15 254	2 840	6 124	-3 284
Mean	5 966	1 621	4 345	2 321	795	1 525	284	612	-328
Std.	1 578	611	1 510	678	203	768	254	327	560
Sign. two-tail*			***			***			**

Sources: Norway Seafood Council, Federation of Icelandic Fish Processing Plants.

* Two-tailed t-test: Two-sample assuming equal variances. *** p < 1%, ** p < 5%.

Table 5 Catch of whitefish supplied by different fishing gears in Iceland (2003–2012) and in Norway (2005–2012). Source: Statistic Iceland and the Norwegian Directorate of fisheries.

	Iceland		Norway		Sign.
	Mean	SD	Mean	SD	
Cod					
Trawl	44.7%	1.7%	31.4%	1.3%	***
Gillnet	11.4%	2.4%	28.7%	1.8%	***
Hand and Long lines	37.5%	1.2%	23.1%	1.2%	***
Danish seine	5.2%	0.4%	16.7%	0.5%	***
Other	1.2%	0.5%	0.1%	0.0%	***
Haddock					
Trawl	49.0%	3.7%	46.7%	7.5%	-
Long line	35.5%	3.5%	34.5%	4.2%	-
Danish seine	14.0%	2.5%	14.7%	3.5%	-
Other	1.5%	0.4%	4.1%	1.7%	***
Saithe					
Trawl	83.2%	4.6%	51.8%	4.8%	***
Purse seine	(<0,1%)	(<0,1%)	23.2%	4.3%	***
Gillnet	7.8%	3.4%	17.0%	2.9%	***
Hand and Long lines	6.2%	1.9%	4.4%	0.8%	**
Other	2.8%	0.9%	3.6%	0.7%	*

Raw material procurement strategy

Hypothesis 4: *The best performing industry acquires more whitefish that is caught by hook.*

To be able to sell differentiated high-quality fresh fillets to customers, the best performance group is expected to acquire relatively more whitefish caught by hook.

Table 5 presents the catch supplied by various fishing gear for the two performance groups in the study period. Trawling, hand line fishing (possibly jigging) and long line fishing were used significantly more ($p < 1\%$) in Iceland to catch cod than in Norway. Conversely, gillnets and Danish seines were used more in Norway compared to Iceland ($p < 1\%$). For haddock, the main fishing gears were used in a similar scale in both nations. For saithe, trawling was primarily used in Iceland, while in Norway, it was more divided between trawling, gillnets and purse seine fishing.

Based on the results in Table 5, it seems reasonable to partially accept Hypothesis 4, which states that the best performance group acquires more whitefish that is caught by hook. The reason being that hand and long lines were used significantly more ($p < 1\%$) in Iceland to catch cod (the most valuable species). However, in regard to haddock and saithe, the differences are minor.

Discussion

This study examined whether the Icelandic and Norwegian firms pursue different marketing and harvesting strategies in order to maximise their take of one of the region's most valuable natural resources, namely whitefish, and export their products to the same global markets. This section considers the types of competitive advantages that might exist among the Icelandic firms compared to the Norwegian firms. Moreover, we will consider the imitability of any competitive advantages identified.

The resource accessibility advantage

The Norwegian industry had better access to whitefish than Iceland for all three species examined during the study period (see Table 1). This advantage may be rooted in better biological factors, improved fishery management or the combination of both. Biological factors are not duplicable nor are fishery management (at least in the short term). Therefore, we can conclude that Norway had an accessibility advantage over Iceland in regard to whitefish resources. However, the Norwegian industry failed to convert this sustainable accessibility advantage into better financial performance.

The resource stability advantage

A more even supply of whitefish may lead to increased utilisation of production capacity and also enable the firms to continuously supply the market. The monthly landing pattern of cod and saithe throughout each year deviated significantly less in Iceland (from optimal landing patterns) than in Norway (see Table 2). For haddock, the difference was not significant. These results indicate that Iceland had an advantage when it came to the supply of whitefish throughout the year, although both nations pursued seasonal-based cod fishing during the winter (Nilssen *et al.*, 2015; Knutsson *et al.*, 2011).

This resource stability advantage may also be rooted in biological factors or in improved fishery management. The migration patterns of the different whitefish species are a biological factor that cannot be duplicated, thus indicating that the stability advantage is sustainable. If the landing pattern in Iceland is partly motivated by the Icelandic quota year starting 1 September, this is an administrative decision that can also be initiated in Norway. To conclude, we consider Iceland to have a sustainable stability advantage over Norway when it comes to raw material access throughout the year. However, this advantage is also difficult to duplicate. Moreover, the Icelandic industry managed to convert the resource stability advantage into better profitability by selling more fresh fillets in the second half of the year when the supply was limited and the prices were higher (see Table 4).

The marketing strategy advantage

The best performance group (Iceland) created superior values by pursuing a differentiation marketing strategy. In addition, Iceland had a stronger focus than Norway on selling more fresh fillets (see Table 3), especially in the second half of the year when the supply was limited and the prices were higher (see Table 4).

Fresh fillets are, however, vulnerable to the number of days that they can sit on store shelves until they are consumed (Heide & Henriksen, 2013). In this regard, high-quality raw materials have the potential of a longer shelf life than low-quality raw materials (*ibid.*). Moreover, by using air transportation, products can arrive faster to the market, but this speed advantage comes at a higher cost (Jónsdóttir, 2011). In general, fresh whitefish fillets from Iceland are mainly exported by air (Hagfræðistofnun, 2011), while fresh whitefish fillets from Norway are primarily exported by lorries (Egeness *et al.*, 2011).

As long as there is a steady or increasing demand for fresh whitefish fillets from customers with high purchasing power, the differentiating strategy is sustainable (Henriksen & Sogn-Grundvåg, 2011; Henriksen & Svorken, 2011; Heide & Henriksen, 2013). As discussed in the following paragraphs, the differentiating strategy will require pivotal managerial and political actions from Norwegian authorities for the industry to duplicate the Icelandic market-oriented approach.

The procurement strategy advantage

In general, whitefish caught by hook is considered to be of higher quality than fish caught with nets (Akse *et al.*, 2013; Heide & Henriksen, 2013). Line-caught cod and haddock also gain substantial price premiums in the important UK retail market (Sogn-Grundvåg *et al.*, 2013). As a result, the performance group that can acquire more whitefish caught by hook is expected to have an advantage when it comes to the quality of the raw materials. This would also be a prerequisite for pursuing a differentiation marketing strategy based upon fresh, high-quality fillets. This argument is in line with Nilssen *et al.*

(2015) who found that the best performing Norwegian firms acquired more fish caught by hook than firms that performed poorly. Moreover, the results reveal that hooks were used on a larger scale to harvest cod in Iceland compared to Norway (see Table 5). In addition, Icelandic firms had significantly better access to cod, which was caught by hook, throughout the year compared to the Norwegian industry (Björgvinsson, 2014).

The Icelandic firms seemed to pursue a procurement strategy that gave indispensable support to their differentiated marketing strategy. However, the procurement strategy and the marketing strategy were also constructively aligned by the Norwegian industry in that a low-price marketing strategy (exporting significant more whole frozen fish than Iceland (*ibid.*)) was aligned with a procurement strategy mainly based on the use of nets (see Table 5). Nevertheless, Nilssen *et al.* (2015) disclosed that the best Norwegian firms increasingly acquired more raw materials by hook. Therefore, the quality-focused procurement strategy of Iceland may be duplicable in the long term.

Conclusion

This study was motivated by the question of why sustainable performance differences occur among the same type of industry located in different countries. Based on previous studies (Björgvinsson 2014; Grimsmo & Digre, 2012; Íslandsbanki, 2012; NOU 2014:16), we concluded that the industry of Iceland was the better performer. The profit differences also indicate that the industry in one nation had gained competitive advantages over the industry in the other nation.

The results also revealed that the Icelandic industry had a significant resource accessibility disadvantage in regard to whitefish supplies over the years. This disadvantage was considered as sustainable since it was partly rooted in biological factors. This disadvantage was, however, turned into a significant advantage when it came to the landing patterns of the catches throughout the year (except for haddock). With more stable supply conditions, the foundation

may have been laid for better capacity utilisation, which, in turn, paved the way for a more profitable production by the Icelandic firms. Since the stability advantage was at least partly rooted in biological factors (e.g. the migration patterns of the species), it was considered difficult to duplicate.

The Icelandic industry pursued a differentiation marketing strategy that involved processing and selling relatively more fresh whitefish fillets than the Norwegian industry. Moreover, the supply conditions throughout the year enabled the Icelandic industry to supply the market on a more continuous basis. The firms in Iceland did, to a greater extent, pursue a procurement strategy of acquiring high-quality whitefish caught by hook, thus supporting their differentiation marketing strategy. This was true, especially for cod and haddock.

To summarise, in the Icelandic industry, it appears that the firms' differentiation and procurement strategies were constructively aligned to maximise profits throughout the entire industry. The Icelandic firms' more complex structures (Björgvinsson, 2014) were supported by an institutional framework, which allowed the industry to vertically integrate to secure the raw materials and diversify in order to reduce the operational risk of only reaping demersal species (*ibid.*).

Managerial implications

For Norwegian firms, the findings that the Icelandic firms have implemented strategies to process and export more fresh whitefish fillets from lower volumes indicates that it makes sense to pursue a similar differentiated marketing strategy (combined with a high-quality procurement strategy) and reduce the export of fresh and frozen unprocessed whitefish. This view is supported by a detailed study of profitability drivers among Norwegian processing firms (Nilssen *et al.*, 2015). However, the access of fresh cod throughout the year is unfavourable for the Norwegian industry. Therefore, more focus on fresh haddock and saithe fillets during times when cod supplies are scarce could be important for keeping processing plants in operation throughout the year.

Political implications

According to Björgvinsson (2014), the Icelandic firms that had a more complex structure (integrated and/or diversified) were more profitable than firms with a less complex structure, including the Norwegian firms. For the Norwegian industry to become more profitable, they may need to develop similar firm structures that support a more market-oriented approach. This would, however, require pivotal steps to be taken by the Norwegian authorities.

The Participation Act must be changed to allow processing firms to operate their own harvesting vessels with quotas that support their land-based plants. The benefit of such a change would be that the firms will gain more control over their supply chain, which may improve their performance (Prajogo & Olhager, 2012). In addition, better control over the supply chain may make it easier to enter into long-term contracts with buyers of whitefish products abroad (*ibid.*).

In order to change the Participation Act, it will require political leadership since the Marine Resource Act of 2008 stated that wild living marine resources are owned by the Norwegian fellowship, just as the Fisheries Management Act of 2006 in Iceland stated that wild living marine resources are owned by the Icelandic fellowship. One solution could be to operate an individual vessel quota (IVQ) system, which is currently practised in Norway, instead of changing the IVQ system to an individual transferable quota (ITQ) system, which is practised in Iceland. The Norwegian government had the opportunity to legalise an ITQ system when the IVQ system was presented in 1990, but it rejected the possibility since it believed that the quotas would end up in the hands of the privileged few (Hersoug *et al.*, 2000; Standal & Aarset, 2008). However, if it is a political objective that the Norwegian firms should become more profitable, then a major step could be to allow the firms to operate their own harvesting vessels under an IVQ system in order to control their supply chain through a more market-oriented approach, as seen in Iceland.

Finally, for the Norwegian firms to pursue a differentiation marketing strategy that focuses

on processing fresh whitefish fillets in line with what is practised in Iceland, they will need access to fresh, high-quality whitefish harvested by hook (Akse *et al.*, 2013; Heide & Henriksen, 2013; Rotabakk *et al.*, 2011). To support such a strategy, it would be favourable if more quotas were allocated to vessels that use hooks. Moreover, moving the quota year in Norway could lead to more fishing in the second half of the year (when cod fishing is limited) since most of the quotas were already met in the first half of the year (when the fish were easily available due to their spawning season).

Theoretical implications

The results of this study highlight the importance of integrating the perspective of the resource-based view on strategy that focuses on firms' resources (Barney, 1991) and the comparative view of strategy, which focuses on national resource differences (Luo *et al.* 2011). The empirical findings indicate that national environmental differences (i.e. how fishing licenses are distributed and the vertical and horizontal coordination of the value system) can impact the chosen strategies and provide performance implications. However, such environmental differences are not sustainable since other nations are able to copy them by developing the same institutional environmental settings.

However, national capability differences might create sustainable competitive advantages since they are difficult to copy, as illustrated by our findings when comparing the strategies chosen in Norway and Iceland. If the success of Icelandic producers is rooted in the

migration patterns of the fish (i.e. the fish is accessible close to shore during the entire year), then the Norwegian processors are doomed to be in a weak position when it comes to serving the most valuable customers that demand high-quality fresh fish throughout the year. Our observations indicate that the integration of the resource-based view of the firm (Barney, 1991) and the comparative view of nations (Luo *et al.*, 2011) is an interesting path to follow in order to obtain a better understanding of the relationship between strategy alignment and differences in firm performance.

Limitations and further studies

This empirical study, based on comprehensive research questions, clearly places limitations on what can be examined mainly due to limited data access and other resource constraints. In addition, we have limited our focus to factor conditions and firm strategies, as discussed in the theoretical framework of the competitive advantage of nations (Porter, 1990). Furthermore, no attempt was made to include domestic demand conditions or related industries in this research (see Figure 1). Since most of the fish products from both Iceland and Norway are exported to global markets, domestic demand was not regarded as a significant part of the whitefish fillet industry. Finally, it was concluded that it would be too comprehensive and complex to include related industries in this study.

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