

Is China's interest for the Arctic driven by Arctic shipping potential ?

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This research was supported by research grants from SSHRC, FQRSC and ArcticNet.

Summary: Interest from the Chinese government has been on the rise since about 2005, and the media have widely reported on these Chinese projects. China is often described as being very interested in both Arctic mineral resources and the opening of Arctic shipping routes, but in this characterization there is a hint of a perceived threat, as commentators are often stressing out that China's appetite may lead Beijing into considering the Northwest Passage an international strait and resources as open up for grabs. However, the motives for this Chinese interest boils down to three points: diplomacy, access to natural resources and access to Arctic sea routes. To what extent are Chinese shipping firms really interested in developing active service along these polar waterways?

Keywords: China, Arctic, shipping, climate change, natural resources.

In recent years, the Arctic region has aroused increasing international interest. This interest has predominantly been reflected in extensive media coverage bringing attention to the area's abundant resources, border-related disputes, and the possible opening of new maritime routes (Holmes 2008; Gupta 2009; Lasserre 2010a). Located north of the polar circle, the Arctic comprises eight countries and is centered on the Arctic Ocean that is witnessing dramatic climate changes. Among Arctic countries, five are bordering the Arctic Ocean – Canada, Russia, the United States, Norway, and Denmark (via Greenland).¹ Reasoning on the new climatological conditions that accelerate the summer melting of the sea ice and of multiyear ice, several observers pinpointed promising geostrategic opportunities for countries bordering the region (Lasserre, Roussel and Lin 2012), anticipating that the creation of a new trade route from east to west through the Arctic could lead to significant commercial profits and increase access to natural resources for economic growth purposes, because such a route would be much shorter between the Atlantic and the Pacific, and would facilitate trade flows

¹ Iceland, located in the north of the Atlantic Ocean, is not considered to border the Arctic by member countries of the Arctic Council.

compared to existing alternatives via the Suez or Panama Canals (Evdokimov et al 2000; Peresipkin et al 2006; Li 2009; Lasserre 2010b, 2010c).

Yet, interest in the region does not stop at circumpolar states. Other countries see a number of geostrategic opportunities and stakes involved in accessing the Arctic. China, which lacks a legal basis to articulate claims over sea zones in the region, has nonetheless been increasingly present on the diplomatic and economic scenes (Ministry of Foreign Affairs 2010). In recent years, Beijing has succeeded in setting up a vast scientific Arctic research program in the fields of climatology, geology, and biology, among others. Moreover, Beijing has mobilised considerable efforts towards the building of political and economic ties with smaller Arctic countries such as Norway and Iceland, and has brought Arctic-related questions to its diplomatic agenda with Russia and Canada (Ministry of Foreign Affairs of the People's Republic of China 2011).²

These efforts on the part of China since 2009 have engendered negative reactions on the part of the Western media, which portray China as ambitious, greedy, and ready to conquer and threaten the territorial sovereignty of countries in the Arctic region (Wright 2011a; Alexeeva and Lasserre 2012a, 2012b; Lackenbauer and Manicom 2013). Examples commonly cited of such attempts include the attempts by a Chinese businessman to purchase vast tracts of land in Iceland in 2011, or the sudden appearance of China's research icebreaker in Tuktoyaktuk (Northwest Territories, Canada) in 1999. Claims that the icebreaker's presence was unexpected served as a pretext to accuse China of suspect motivations in the area (*Edmonton Journal*, 2007). Yet in reality the Chinese government had submitted to the Canadian Embassy in Beijing a formal request to enter the area (Teeple 2010). Chinese rear admiral Yin Zhuo's assertion that Arctic resources are a world heritage (Chang 2010) are commonly cited by Western analysts as evidence of long-term goals of the Chinese government, whose ambitions in the Arctic would threaten the interests of riparian countries bordering the ocean (Wright 2011a, 2011b).

² Ministry of Foreign Affairs of the People's Republic of China, "Director General Huang Huikang Meets with Canadian Assistant Deputy Minister of Foreign Affairs Christie," 2011, www.fmprc.gov.cn/eng/wjb/zygy/gvhd/t858972.htm (consulted on 7 August 2012).

Discussions over potential natural resource reserves in the area and the opening of new trade routes have led to speculation over the intentions of regional and world powers, increasingly concerned about their economies' dependence on energy security. China is often described as being very interested in both Arctic mineral resources and the opening of Arctic shipping routes, but in this characterization there is a hint of a perceived threat, as commentators are often stressing out that China's appetite may lead Beijing into considering the Northwest Passage an international strait and resources as open up for grabs (Lalonde 2008; Borgerson 2008; Spears 2009)³.

The paper thus tackles with a central issue in the debate centered on China's interest towards the Arctic: to what extent is the shipping potential of Arctic routes central in the government's and business circles' discourse and interest for the region? So as to answer this question, we first analysed the scientific literature using databases such as Wanfang Data. We also assessed the government's interest by carefully collecting information on actions and declarations, notably through a systematic collection of declarations on the websites of various ministries during the Fall of 2013. We also contacted several Chinese shipping companies and conducted interviews so as to assess their interest for Arctic shipping.

1. A growing academic interest for shipping: Researchers underline the potential for Arctic shipping

Chinese scientific research has long been very active in the Arctic. Most articles that were published in a dozen different Chinese journals between 1988 and 2008 focused on the Arctic glaciology, climatology, oceanographic science, upper atmospheric physics, as well as on the Arctic biological and environmental studies, confirming the above-mentioned statement by Chinese officials that China's interest for the region was at first

³Quoting Borgerson, S., p. 64 : "even China operates one icebreaker, despite its lack of Arctic waters". This oddity, or so are we invited to think, is depicted as a hint that China might nurture malevolent intentions. However, many other countries with no Arctic or Antarctic waters deploy one or more icebreakers or ice-capable research ships: Australia, France, Germany, Japan, South Africa, South Korea, Spain, Sweden... The web abounds with sites displaying the common-sense-based idea that "China" (probably meaning the Chinese government) must be interested in Arctic routes since they will be shorter ways to reach European markets.

largely motivated by scientific concerns. A quick survey with China's largest database search engine in August 2012, Wanfang Data (万方数据)⁴, retrieved 680 articles that included the word "Arctic" (北极) in their title and that were published before 2008. Most of these articles (49% of the total number) are related to all kinds of climatologic issues (ex: Gong and Wang 2003; Wu et al 2008), others are treating questions of biodiversity (23 %), environment (10 %), technology (10 %), linguistics and history of Arctic native nations (8 %) No major Chinese scientific article ever considered political issues in the Arctic before 2007. However, in the last five years appeared several publications related to Arctic politics, legal issues and strategic interests, including shipping (Alexeeva and Lasserre 2012b).

From 2000 to 2013, no less than 81 articles in scientific and professional journals have been published by Chinese scientists on Arctic shipping, of which 74 were published between 2008 and 2013: the trend is thus recent but does underline a strong interest among Chinese researchers. In 2010, the Arctic Shipping Affairs Research Center was established within Dalian Maritime University's Shipping Development Academy (Jakobson and Peng 2012). So strong is the interest that it leads some scholars, like David Curtis Wright (2011b, 2011c) but also Jakobson (2010) into implicitly asserting it denotes China's interest is largely focused on shipping – without mentioning academic views may not necessarily reflect the government's or without even analysing how these academics reports are structured.

Among the recent articles emerged the idea, often repeated among Western and Chinese analyses, that the shorter Arctic sea routes are strategic and will witness the development of a strong traffic. Let us quote work by scholars like Guo (2009), Guo and Guan (2009), Li (2009), Li and Tian (2009), Liu and Lin (2009), that flourish the year following China's application as an observer at the Arctic Council; but also Ge and Jiang (2010); Shi (2010); Li and Sun (2011); Xu H. et al (2011) or Xiao (2012). This list is

⁴ *Wanfang Data* is China's first database, created in the 1950s by the Institute of Scientific & Technological Information of China (ISTIC). It originally served the purpose of digitalizing information about companies and their products. It was later transformed into a vast electronic database of multidisciplinary information, and provides access to many collections of periodicals, theses, and other types of archives. See www.wanfangdata.com.cn.

certainly not complete, as many articles now appear on the topic of Arctic resources or Arctic shipping. A striking feature of these articles, however, is that while discussing China's interests in potential Arctic routes and policy implications of the development of Arctic seaways for China, no critical analysis of the feasibility or economic profitability of such routes is considered: it is as if most researchers assumed Arctic routes, because they are shorter, are depicted as necessarily much more interesting for shipping, and therefore shipping firms, like governmental agencies, are expected to "take more pushy stands" (Chen 2012). The argument that Arctic sea routes are necessarily much more interesting since they are shorter gets completed by research using factor analysis (Li, Tang, Yao and Huang 2013) or the hierarchical distribution of the flow value (Xu, Shi and Li 2013) similar to the model designed by Ducruet and Notteboom (2012), but the approach remains theoretical and does not address the profitability and feasibility of Arctic shipping for shipping companies.

A different view began to emerge in 2013, with articles from Zhang et al (2013), Wang and Shou (2013) or Xu (2013), echoing the research project launched by Zhang and the Polar Research Institute of China in 2012 on the development of Arctic shipping (Zhang 2013b): these papers underline the need to assess the feasibility of Arctic shipping and to undertake empiric research to develop Arctic transport. However, in the Chinese literature, most articles focus on the potential of the route, the "golden route" (Yu 2010), underlining its being much shorter than classical routes is in itself a decisive advantage that will definitely attract a large traffic. With the exception of Xu H. *et al* (2011) or Wang and Shou (2013), no article or project up to 2013 tackles with the idea that Arctic shipping remains difficult, costly and not necessarily profitable, depending on the cost structure and the market, an idea now largely present in the scientific debate among Western scholars. Chinese publications barely tackle with an analysis of costs or difficulties linked with Arctic shipping, whereas this analytical approach is already common in the scientific literature, see for instance Guy (2006); Somanathan et al (2009); Verny and Grigentin (2009); Liu and Kronbak (2010); Lasserre (2010b); Lasserre and Pelletier (2011); Schøyen and Bråthen (2011); Wergeland (2013). To the contrary: ideas that traffic is set to keep growing still abund.

To what extent is this scholar interest in Arctic shipping shared by the Chinese government and business circles?

2. China's evolving Arctic policy

Official declarations on the Arctic are not numerous, a fact that may not account for China's interest in the Arctic but rather for a prudent position (Wright 2011b), just like some Chinese academics turned down their comments on sovereignty issues for fear these might stir concern from Western governments (Jakobson and Peng 2012). It is thus difficult to infer anything from their absolute number.

Until now China has not yet published any official Arctic strategy. On the contrary, the Chinese government has always stipulated that it has no official strategy or any particular agenda in the Arctic region (Spears 2011). The Chinese government has long refrained from specifying what goals China was pursuing in the Arctic, an attitude that helped fuel fear from Western and Russian analysts (Alexeeva and Lasserre 2012a, 2012b). Beijing adopted a very cautious approach and vigorously denied having any aggressive ambition and strategic intention toward Arctic shipping or natural resources opportunities. For instance, Qu Tanzhou, Director of the Chinese Arctic and Antarctic Administration, said that "China did not prospect for oil and gas resources in the Arctic area nor has the capability or capacity to mine oil and gas there" (Sullivan 2012).

The Chinese government long explained its growing interest and presence in the Arctic mainly by the necessity of doing research on the climate changes in the region (Zhang and Ren 2012). The air stream of the Arctic seems to be a major cause of the occurrence of extreme weathers in China. Therefore, this region in fact concerns China's economic, social development and security directly (Qin and Chen 2011). It is recently that China expressed interest in economic issues, albeit cautiously. Former Assistant Foreign Minister Liu Zhenmin and his predecessor, Hu Zhengyue, each made a High North Study Tour to Norway, in 2009 and 2010. Hu Zhengyue underlined in November 2009 that "China [did] not have an Arctic strategy" during a conference held in Svalbard (quoted by Jakobson 2010). In 2010, in Northern Norway, Liu Zhenmin classified economic interests like Arctic shipping and energy issues as third-order factors in China's

interest, after location and scientific research (Liu Z. 2010; Manicom and Lackenbauer, 2013). However, China had multiplied mid-ranking diplomatic and commercial missions to Scandinavian countries, especially Norway and Iceland (Alexeeva and Lasserre 2012a, 2012b; Lasserre and Alexeeva 2013; Jakobson and Lee 2013).

The Chinese government also let uncertainty grow about its objectives regarding Arctic natural resources and Arctic countries' claims in the region: "Since there is no proven data on oil and gas deposits in the Arctic, China is only interested in climate change in this region. Before formulating a policy on this topic, we first need to gather information on mineral and hydrocarbon potential" declared Xu Shijie, Director of the Chinese Arctic and Antarctic Administration Policy division (Xu 2012). It is only in May 2013, after China's admission as a permanent observer in the Arctic Council, that any uncertainty has been dispelled, when Hong Lei, spokesperson for the Ministry of Foreign Affairs, asserted that "China recognizes Arctic countries' sovereignty, sovereign rights and jurisdiction in the Arctic region" (Ministry of Foreign Affairs 2013). Most comments, it turns out, were about natural resources and not about shipping in Arctic seaways.

It thus appears that, long before the Chinese diplomatic success of gaining permanent observership, several gestures and actions had underlined that, if an official Chinese Arctic policy had not been published, China was indeed interested in the Arctic, and not merely for scientific reasons. Indeed, the Arctic research program displayed a significant growth during the past ten years, but diplomatic efforts were largely stepped up, especially towards Scandinavian countries (Alexeeva and Lasserre 2012a, 2012b).

China's reported interest for shorter Arctic routes is mentioned in most articles written by Western scholars, but they generally lack any source to rely on. The Chinese interest is supposed to derive from the obviously shorter routes, or is inferred from what Chinese academics wrote on China's Arctic policy (see first section), but it must be reminded that before 2010 there was no Chinese official declaration regarding the interest of Arctic routes for China - whereas there were on the topic of natural resources.

China was reportedly interested in the Icelandic government's project to develop a transarctic shipping route (Icelandic Government 2007) as Chinese delegates participated

in the founding seminar organized by the Icelandic government. This early interest, not necessarily the result of a specific government policy, helped nurture suspicion about the land purchase project above mentioned, but also fueled speculation regarding the involvement of the Chinese government in shipping projects (*Barents Observer* 2010).

Later, the Polar Research Institute initiated in 2012 a research that involves COSCO, the large Chinese shipping company (Zhang Xia 2013a; Lasserre, Huang and Alexeeva 2013; COSCO Marketing Department, personal communication Sept. 3, 2013). In 2013, the Ministry of Commerce, echoing the August transit between China and Rotterdam along the NSR of the *Yongsheng*, a COSCO-owned multipurpose ship, and taking note of some challenges posed by Arctic shipping, published a short analysis calling for more research on Arctic shipping research (Ministry of Commerce 2013). But if this official declaration clearly underlines China's interest on Arctic shipping, the relative place of shipping in China's interest for the Arctic stands in contrast with official declarations regarding natural resources or cooperation on geologic research. In late 2013, Chinese governmental websites displayed 108 official declarations made between 2010 and 2013. Among them, 39 (36%) dealt at least partly with Arctic resources, and 20 (18,5%) with Arctic shipping, as shown in Table 1.

Table 1. Number of declarations on shipping or natural resources in the Arctic for main Chinese government ministries or agencies, 2010-2013.

Situation in December 2013.

Ministry	Declarations on Arctic Shipping	Declarations on Arctic Natural Resources	Declarations on other topics
Central government, gov.cn	3	7	23
Commerce	8		
Transport	5		
Land and Resources	1	11	2
Science and Technology		1	1
Industry and Information Technology		2	

Foreign Affairs	2	3	26
State Ocean Administration	1	2	
National Energy Administration		7	
COMRA		2	
SBSM		1	1
People's Republic of China (PRC) Embassy in Norway		2	
PRC Embassy in Denmark		1	
Total (in 86 declarations)	20	39	53

Online declarations, thus subject to modifications by respective administrations. They thus probably do not represent the sum of all official declarations, but offer a picture of the general discourse. Duplicates were not taken into account. Authors' search on the web conducted between December 5 and 28, 2013.

COMRA : China Ocean Mineral Resources R & D Association

SBSM : National administration of surveying, mapping and geoinformation

3. What do Chinese shipping companies think of Arctic routes?

In 2012, the *Xuelong* was the first Chinese vessel to navigate the Northern Sea Route. According to Huigen Yang, director general of the Polar Research Institute of China (PRIC), the trip has 'greatly encouraged' China's shipping companies' interest in the commercial viability of the route. According to PRIC estimates, by 2020, 5 to 15 % of China's total international trade will pass via the NSR (Doyle 2013). In September 2012, an official from the National Development and Reform Commission attending the 15th EU–China Summit asserted that 30% of the cargo between China and Europe is expected to transit via the NSR “in the future” (Jakobson and Lee 2013:9), a figure later repeated by Guo (2013). Zhang et al. (2013) even argued that by 2030, about 50% of the container traffic from traditional routes along Suez and Panama would be diverted to Arctic routes, Northwest Passage (NWP), Northern Sea Route (NSR) or transpolar route.

3.1. A challenging economic context for shipping firms

There is, no doubt about it, an ongoing debate among the Chinese academics on the opportunity Arctic sea routes present, as well as some interest within government circles, albeit much more moderate than among the media and academics (Wright, T. C. 2013; Jakobson and Lee 2013). However, economic trends must be factored in when considering the possibility that Arctic shipping is high on China's government agenda.

First, China's share of exports to the European Union, after growing between 2003 and 2008, experienced a steady decline (probably partly stemming from Europe's economic downturn), while China's share of exports to Asia-Pacific Economic Cooperation (APEC) countries, decreasing between 2003 and 2008, is now bouncing back. China's exports to the European Union accounted for 18,1% of the total in 2003, then 20,5% in 2008, 19,7% in 2010, 16,3% in 2012 and 15,3% in 2013, as opposed to 69,3% to APEC countries in 2003, 59% in 2008, 61,1% in 2010, 63,7% in 2012 and 65,1% in 2013 (from IMF 2014). Should this trend perpetuate, the commercial incentive to try and explore Arctic seaways would be lessened.

Second, the diversification of markets implied by the development of Arctic routes brings along the need for investments - ice-strengthened ships - and a marketing risk: ice-class ships are more costly to operate and the profitability of Arctic shipping remains debatable (Ouellet 2011; Bourbonnais 2012; Lasserre 2014). CSCL and more particularly COSCO, often depicted as spearheading China's interest in the Arctic, are experiencing financial difficulties that make wonder to what extent their management would readily endeavour such a diversification. COSCO's losses for 2011 and 2012 appear to be the largest among China's 500 Fortune firms (1.7 billion USD in 2011, 1.54 billion USD for 2012) and are driven by a poor container result and a dismal 31% contraction in the bulk market (Xinhua 2013; Guangzhou Daily 2013; Wall Street Journal 2013). CSCL posted a loss of 442 million USD for 2011, a 93 million USD profit for 2012. During the first half of 2013, both shipping firms were again experiencing heavy losses (China Business News 2013) with losses for CSCL amounting to 205 million USD, and to 165 million USD for COSCO, and are in need of heavy restructuring so as to consolidate account improvements at the end of 2013 (Drewry 2013), sparking debate about a

possible merger (Maritime Professional 2012; Drewry 2013). True, COSCO and CSCL are not the only liner shipping company to suffer consecutive annual losses for 2011 and 2012 (and likely 2013), along with Hanjin Shipping, HMM, NOL, Yang Ming, and CSAV for instance that experienced difficulties for 2011 and 2012 – with NOL experiencing profits for 2013. But the scale of the losses experienced by the two giant Chinese shipping firms casts doubts about possible bold moves to the Arctic.

However, locally along the Northern Sea Route, recent developments attest to the possibility of a nascent economic niche for Chinese shipping firms. Taking advantage of accelerating ice decline along the Siberian coast, the first attempt at transporting hydrocarbons from Russia to China using the Northern Sea Route (NSR) was undertaken in August 2010. The *Baltica*, escorted by a Russian icebreaker, took 27 days to deliver natural gas condensate from Murmansk to Ningbo (Zhejiang). This first trial was followed by a commercial agreement on long-term cooperation on Arctic shipping along the NSR between the Russian sea shipping company *Sovcomflot* and China National Petroleum Corporation (CNPC), in November 2010. This agreement, declared to be part of the Russia-China energy cooperation strategy, was signed in presence of the Russian Federation vice-prime minister Igor Setchin and also president of the Board of the oil company *Rosneft*, the second largest oil producer in Russia, and of Wang Qishan, Vice Premier of the People's Republic of China (Sovcomflot, 2010; Hong 2012; Alexeeva and Lasserre 2012a).

In 2011 et 2012, several bulk ships transported iron ore loaded in Murmansk or in Kirkenes (Norway) to Chinese ports along the NSR, and several tankers and liquefied natural gas (LNG) carriers also delivered oil or gas between Vitino and China (NSRA - Northern Sea Route Administration 2013).

Thus, efforts from Russian authorities to develop traffic along the NSR appear to begin to bear fruits. There were 4 transits in 2010, but then 34 in 2011, 46 in 2012, and 71 in 2013. These figures are far from those of the Suez or Panama Canals, but they point to a definite growth, fueled by the export of natural resources from the Arctic to Asian markets (China, Japan, South Korea).

3.2. Chinese shipping companies' perceptions of the Arctic shipping market

However, Chinese shipping companies do not appear to rush to this new Arctic market: the traffic is in the hands of Russian or European shipping firms, a fact that seems to confirm a first assessment of the interest of Asian shipping companies, from China in particular (Lee 2012).

First, among the 680 permits that were issued by the Northern Sea Route Administration for complete or partial transit along the NSR for 2013, 535 were from Russian-flagged ships and only 2 were issued for Chinese shipping companies (Herbert-Burns 2013). Traffic analysis from figures published by the Northern Sea Route Administration show several ships serviced between Chinese ports and Murmansk, Northern Norway or the rest of Europe, but none of them was from a Chinese shipping company except COSCO's *Yongsheng* (NSRA 2013; Lasserre and Alexeeva 2014).

Second, during a series of direct interviews conducted between September and December 2013 with 25 Chinese shipping and forwarding companies, it appeared that few expressed a real interest for Arctic shipping⁵ (see Table 2). Only two, including COSCO, answered they considered developing Arctic shipping. COSCO, a major shipping group, reckoned the profitability of Arctic routes was questionable, and the other firm displaying an interest rather for destination traffic (transporting Arctic natural resources from Siberia to China).

⁵ The survey was conducted between September and December 2013. Interviews were conducted with the following firms :

COSCO; CSCL; Chipolbrok ; Winland Shipping, Tongli Shipping, Suns Shipping ; West Line; Dandong Shipping Group ; Lufeng Shipping; Shangdong Mou Ping Ocean Shipping; Shandong Ocean Shipping ; Tianjin Harvest Shipping Co; Zhongchang Marine Shipping Co; Ningbo Silver Star ; Maritime Shipping Co; Ningbo Jun Hao Ocean Shipping ; Nanjing Henglong Shipping Co; Uniwill Shipping Co; King Far East Shipping ; Evertop Intel Shipping ; Harmony Maritime Inc; Pacific Glory Shipping ; Liao Yuan Shipping Co ; SITC Shipping; GMT Shipping.

Table 2. Overview of responses according to company's main sector of activity, China

Question: "Are you considering developing operations in the Arctic?"

Survey conducted Sept.-Dec. 2013 with 25 companies/22 answers.

	Container and bulk	Container	Bulk	Multipurpose	Charterer/forward er/broker	Total
Yes	1		1			2
No	1	1	6	7	5	20

Several firms said they thought there was a real potential for Arctic shipping since the Arctic routes were indeed shorter, both for bulk transportation of natural resources as well as for liner shipping. However, analyses remain sketchy as no firm declared they had done an extensive cost/benefit or strength-weakness/opportunities-threats (SWOT) analysis. Among the elements of explanation answering companies gave to justify their lack of interest or involvement, figured prominently the following factors:

- High investment cost required for the purchase of ice-strengthened ships
- Market constraints like just-in-time and ship size that limit economies of scale
- Arctic market too small for profitable route that enable quick return on investment on ice-strengthened ships
- Physical risks and insurance costs

The Chinese government multiplied declarations regarding Arctic resources rather than Arctic shipping, even recently (Alexeeva and Lasserre 2012a). The government and Chinese shipping firms thus seem more interested in access to Arctic natural resources, an access the Arctic shipping routes may provide, rather than transit shipping. From this point of view, Chinese shipping and chartering firms reason on a very similar way as other globalized shipping firms from Europe, North America or Asia, as attested to by Lasserre and Pelletier (2011) (see Table 3). This survey, focusing on shipping firms, showed that transit did not appear attractive to the vast majority of companies because of associated costs, risks, uncertainties regarding on-time delivery. Destinal traffic lured a larger share of shipping companies operating in the bulk and tanker segment, as

well as companies in the general cargo segment for the servicing of local communities in Canada, Alaska and Greenland.

Table 3. Overview of responses according to shipping company's home region and main sector of activity

Question: "Are you considering developing operations in the Arctic?"

Survey conducted Feb. 2008-March 2010 with 142 companies/98 answers

	Sector of Activity						Total
	Container	RoRo	Container and Bulk	Bulk	General Cargo	Special Project	
Yes			2	9	5	1	17
No	35	2	5	25	4		71
Maybe	3		1	6			10
Total	38	2	8	40	9	1	98

	Home Region			Total
	Europe	Asia	North America	
Yes	10		7	17
No	32	25	14	71
Maybe	5	3	2	10
Total	47	28	23	98

Source: Lasserre and Pelletier, 2011.

However, the Chinese media recently gave news of a September 2012 agreement between COSCO and Russian authorities so as to study the potential profitability of transit commercial routes along the NSR (Zhong 2013). The first ship COSCO sent along for trials, the *Yong Sheng*, left Dalian on August 8, 2013 to reach Rotterdam, and was not a container carrier but a heavy lift multipurpose carrier. Was this the sign of an increasing

number of commercial transits by Chinese shipping firms, or a government-sponsored experiment, COSCO being a State-owned corporation?

Conclusion

While COSCO is a state-owned corporation, in pursuing the goal of growth in an environment of intense competition and consolidation, Chinese shipping firms have adopted an offensive development strategy mirroring those of the world's most important maritime carriers. It appears from the interviews that Chinese shipping firms reason the same way as other globalized shipping firms. Arguably, their operations are indistinguishable from the privately owned activities of their foreign competitors.

It remains to be seen to what extent COSCO's experiment is going to be assessed as fruitful and to what extent other Chinese shipping companies will develop the view that Arctic shipping can bring them interesting market opportunities. For now, it seems this potential is barely considered as most surveyed transport firms appear not to be interested in Arctic shipping. Arctic shipping is viewed as potential, because of shorter distances and fuel savings; but when it comes to developing actual service, most Chinese shipping firms presently balk at the risks and required investment. It thus seems that either there is a wide discrepancy in analysis between shipping firms (business circles) and government circles regarding the interest of Arctic shipping; or that Arctic shipping is not at the core of the interest the Chinese government nurtures towards the Arctic: natural resources and voicing its views in diplomatic institutions like the Arctic Council would then appear to be Beijing's priorities.

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