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**Causes and effects of FDI by
the Norwegian Maritime Industry**

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Non-technical summary

Few Norwegian industries are as internationalised as those comprising the maritime sector, yet there exist few studies that analyze causes and effects of foreign direct investments (FDI) from this sector. One reason for this is presumably the fact that the maritime sector is remarkably complex, not least with respect to ownership and organization of the firms (who is the owner and which is the home country?). This makes it hard to use aggregate statistics to explore why firms in this sector invest abroad, and what the consequences are for home and host countries. Moreover, since there are alleged to be strong cluster effects in the maritime sector, it is also important to investigate how domestic sub-contractors are affected by foreign investments from, say, downstream firms. More specifically, we need to ask whether the maritime cluster in general would have been stronger in absence of outward FDI from the sector. Unfortunately, it is difficult to answer this question by using aggregate statistics and run an econometric analysis. It is therefore preferable to use case studies so that one can go deeper into the details. The present paper reports the findings from a number of case studies.

Based on the case studies, we argue that the need to be close to large and fast-growing markets is a major reason why Norwegian maritime firms have invested in Asia. Asia has large transport markets, and its market share in shipbuilding and ship repair is substantial. Thus, the region constitutes an important market for all kinds of companies in the Norwegian maritime cluster.

Singapore has a long tradition as an entrepôt. Even so, the main reason for Singapore's growing importance to Norwegian maritime industry contemplating to invest in Asia, is the public policy formed to consciously foster FDI in export oriented manufacturing and services. This has resulted in an efficient business environment and stable business policies in Singapore. For several firms this efficiency and stability are more important than low factor costs and low taxes.

The effects for the Norwegian maritime milieu of Norwegian FDI to Asia are ambiguous. First, many of the firms have not considered the possibility of concentrating all their activities in Norway as a realistic option, simply because

they have found it decisive to stay close to the fast-growing Asian market. Second, many of the Norwegian maritime firms seem to have strong ownership advantages that make it possible to expand successfully in foreign markets with few negative effects domestically. In fact, the domestic entities have in several instances been strengthened, since the firms have been able to achieve larger economies of scale and outsourced those activities where Norway has clear comparative disadvantages. Nonetheless, it has also been reported that particularly some of the shipping equipment suppliers feel that the Norwegian maritime milieu has deteriorated somewhat due to the investments abroad. Our conjecture is that the negative effects are most likely to dominate in the cases where maritime firms have moved abroad due to a comprehension that the Norwegian tax policy is volatile and unpredictable. In this respect the stability of the tax system, and not the tax level *per se*, seems to be Singapore's major competitive advantage relative to Norway.

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Abstract.

In this paper we analyse foreign direct investments (FDI) in Asia by the Norwegian maritime industry. We focus on three topics:

- Why do Norwegian maritime companies invest abroad?
- What are the effects of maritime foreign direct investments on the Norwegian maritime milieu?
- What are the effects of these investments on the host country?

By analysing specific Norwegian maritime companies we find that the FDIs partly have been induced by the instability of the Norwegian policy towards this sector. Several firms also point at the importance of being closer to the Asian market as a significant reason for FDI, and Norwegian ship equipment industry tends to “follow” the shipping companies abroad. The domestic effects of FDI are uncertain, and are likely to depend on the motivation behind the investments. Finally, using Singapore as an example, we argue that the host country effects of FDI tend to be positive.

1 Introduction

Even though there has been a large increase in the amount of foreign direct investments (FDI) over the last two decades, it is by no means a new phenomenon.¹ Indeed, the industrialization of the US was to a large extent characterized by a considerable flow of real investments from the UK, and the fastest growth of FDI in the 20th century took place after the Korean War (1950-53) and before the first oil price shock (1973-74). Then there was a period when FDI grew more slowly, partly due to increased scepticism towards FDI in developing countries. After the second half of the 1980s, however, one of the most striking signs of globalization is again a strong growth in FDI. Moreover, since 1992 there has also been a significant growth of FDI to developing countries, both absolutely and relative to the total flow of foreign direct investments (see Pugel and Lindert 2000, p. 629).

As a point of departure one might expect that FDI is a substitute for conventional trade; that firms set up subsidiaries abroad to produce for the local market and save trade costs. However, the recent fast growth in FDI does not seem to have reduced conventional trade in goods and services. In fact, since 1986 FDI has grown by an average of 23 per cent per year, and conventional world export by nearly 15 per cent per year (UNCTAD, 1999). There is thus a large literature that investigates why both conventional trade and FDI are growing at the same time; see Markusen (1995) for a survey. One important empirical fact that can help to explain this positive correlation is that there seems to be a large degree of complementarity between domestic and local production of a firm. This is particularly likely to be true if the parent and the affiliates engage in different stages of the production chain, e.g., by locating labour-intensive stages in developing countries (labour abundant) and human capital-intensive stages in

¹ There is no precise definition of FDI, but the working definition that we will rely on in this paper is that FDI is an "investment in which the firm acquires a substantial controlling interest in a foreign firm, or sets up a subsidiary in a foreign country." This should be distinguished from

developed countries (human capital abundant). It is also likely to be true if there are small economies of scale at the plant level (so that there are small gains of centralizing the production compared to saving trade costs) and large economies of scale at, say, a centrally placed department producing R&D intensive intermediates. For the industrial sector in general, there seems to be at least a small net complementarity between production of the parent and the affiliates. See Swedenborg (1979) for a famous study of this, where it was found that an increase in foreign production by \$100 caused a net increase in parent exports by \$10.

Few industries are as internationalised as those comprising the maritime sector, yet there exist few studies that deal particularly with this sector. One reason for this is presumably the fact that the maritime sector is remarkably complex, not least with respect to ownership and organization of the firms (who is the owner and which is the home country?). This makes it hard to use aggregate statistics to explore why firms in this sector invest abroad, and what the consequences are for home and host countries. Moreover, since there are alleged to be strong cluster effects in the maritime sector, it is also important to investigate how domestic sub-contractors are affected by foreign investments from, say, downstream firms. The reason for this is that the whole maritime sector may eventually dissolve if the activity among subcontractors is sufficiently reduced. This would not be particularly worrisome if it had not been for the cluster effects: it could simply imply that there is a corresponding expansion of those sectors where the country has a comparative advantage, and thus represent a national gain. Things are not so simple if a country has a cluster. Per definition a cluster generates pure rents, and therefore alternative activities may be less profitable. Thus, it is not sufficient just to investigate how the domestic activity of a given firm is affected if it invests abroad; we also need to analyse how other parts of the supply chain are affected, and whether the maritime cluster would have been stronger in absence of outward FDI. Unfortunately, it is difficult to do this by

portfolio investments, which are made to take advantage of interest rate differentials across countries, and not to take control over activities in foreign countries (Markusen, 1995).

using aggregate statistics and run an econometric analysis. Due both to the complexity of the maritime sector and the need to investigate the whole supply chain, it is therefore presumably preferable to use case studies so that one can go deeper into the details. The present paper reports the findings from a number of case studies. Our results are not conclusive, and there is a need for more research. Nonetheless, we are able to draw some conclusions.

First, it should be noted that outward FDI might strengthen the domestic cluster. For instance, several of the respondents maintain that export from the home country often is not a viable alternative way of serving foreign markets. The reason for this is that the goods and services in many cases are too expensive to be traded in the conventional way, and that it is essential to stay close to customers and other suppliers in order to be competitive. This kind of reasoning seems to be one of the main reasons why Norwegian maritime firms have invested in the rapidly growing Asian market the last decades. By doing this they have been able to expand their total activity, and thereby tended to reduce average costs in activities where there are significant economies of scale. Thereby the enterprise as a whole, inclusive of the Norwegian branch, has become more competitive. It should also be noted that, at least as far as Norwegian FDI to Asia is concerned, the domestic R&D activities do not seem to decline. If anything, domestic production seems to become more knowledge- and R&D intensive, while demand for blue-collar workers falls.

Second, and related to the fact that many firms find it crucial to be close to their customers, we also find that the Norwegian ship equipment industry tends to “follow” the shipping companies into foreign markets. The conception is that in order to remain suppliers to major Norwegian shipping firms that move abroad, they have to be physically present also in these countries. However, this seems to have a negative effect on the scope of their activities in Norway. Additionally, domestic sub-contractors seem to be harmed when their customers move abroad; foreign subsidiaries most typically find local suppliers of goods and services that are not produced by their parent. Again, a major reason for this may be the fact that geographical proximity is often decisive in the supply chain. There is,

nonetheless, reason to ask if the maritime industry has a co-ordination problem in this respect. It may be individually optimal for each subsidiary to choose a local supplier, but if it is true that we have a maritime cluster in Norway, the firms may gain by paying attention to the consequences for the Norwegian cluster in general. For instance, none of the sub-contractors that we have interviewed have reported any initiatives from the shipping companies when they invest abroad. If it is important to the shipowners to have a Norwegian maritime cluster, it may be argued that they should also try to minimize the negative consequences of their foreign investments. This certainly does not mean that the shipping companies should depart from profit maximization, but rather that it may be possible for the maritime sector to internalize some of the externalities that are present in the alleged cluster.

Third, we find that the tax level as such is of limited importance. It is correct that many Norwegian shipping companies increased their foreign activities at the expense of domestic activity after the increased tax rates in 1992. However, once a shipping firm has a subsidiary in a country with a friendlier tax system, the possibilities of manipulating the tax liability across the parent and affiliates are relatively large. This may, for instance, take place through an inventive internal transfer pricing system. Nonetheless, it is expensive for the firms repeatedly to change the transfer prices, and there is a high degree of consensus that Norwegian taxation of the shipping industry has been highly volatile and unpredictable. The majority of the shipping companies therefore reported that an unstable Norwegian tax regime has been a major reason why they have flagged out a smaller or larger share of their operations to other countries. In these cases the effects of foreign investments on the Norwegian maritime milieu are likely to be overwhelmingly negative, since they are not based on profitable market opportunities *per se* abroad.

The rest of this paper is organized as follows. In Section 2 we give an overview over some of the theoretical reasons why firms invest in foreign countries, while we in Section 3 discuss some general theoretical and empirical advantages and disadvantages of FDI for home countries and host countries. The

main message is that the domestic activity of each individual firm need not decline as a result of foreign investments, and that the effects of FDI for host countries are likely to be positive if there is an accommodating policy towards FDI. In Section 4 we use case studies to analyse why Norwegian maritime companies invest abroad, and in Sections 4 and 5 we follow this up by analysing some consequences of these investments for Norway and host countries, respectively. We argue that the consequences for Norway are ambiguous, while we use Singapore as an example to illustrate how a host country can benefit from inward FDI in the maritime sector.

2 Explaining Foreign Direct Investments. Dunning's OLI paradigm.

A quick glance at economic statistics reveals that factor costs vary considerably across countries. For instance, the costs of hiring unskilled labour in developing countries are only a small fragment of those in developed countries. In this sense it is not surprising that some firms prefer to locate their production in low-wage countries. However, this does not explain why foreign firms set up subsidiaries in these countries. Indeed, there are significant additional expenses of operating in foreign countries. This is due to factors such as differences in language and culture, communication costs across entities of the enterprise, and the need to station personnel abroad. Other things being equal, local firms should therefore be placed at an advantage relative to foreign firms. So why do we still observe foreign direct investments? Why not set up a partnership with a local firm instead in order to reduce some of the drawbacks? It should also be noted that empirical evidence shows that only a small share of FDIs is made to take advantage of low factor prices. So if factor prices are not the issue, what makes a particular country attractive for foreign direct investment?

One of the most acknowledged answers to the questions raised above is offered by Dunning's eclectic paradigm (1977, 1981). The paradigm is popularly known as the OLI framework, which is shorthand for **O**wnership, **L**ocalization, and **I**nternalisation.

2.1 Ownership advantage

Basically, an ownership advantage is anything that can outweigh the disadvantages that a foreign enterprise has relative to local firms. The ownership advantage may be access to a unique production process, blueprints and patents for a good for which the enterprise is a monopolist, or more intangible assets like reputation and trademarks. These kinds of ownership advantages, which are labelled enterprise-specific assets (ESAs), will be the focus of this report.

Empirical evidence shows that FDI is particularly widespread in human capital-intensive industries where ESAs are prevalent (see Markusen, 1995). This is not surprising. First, ESAs can often be relatively easily transferred across the affiliates of an enterprise by, e.g., visits from managers and engineers. Second, a large share of the ESAs is non-rival, in the sense that they have no opportunity costs. A blueprint of a production process, for instance, may be utilized at several affiliates without losing its intrinsic value for the first plant – whenever Coca Cola sets up a new plant, the knowledge of how to produce the company’s soft drinks can still be used in all the existing subsidiaries. This is in contrast to physical capital, which is rival goods – the machinery used to produce Coca Cola in one country cannot be employed in another country at the same time. Likewise, each McDonald’s restaurant needs to have its own cooking equipment, but the trademark is a joint input for all the outlets.²

The fact that ESAs can be shared by several affiliates at a relatively low cost also implies that investments in activities like R&D and marketing need not be fully duplicated at each location. Thereby ESAs may give rise to economies of scale at the level of the enterprise – the larger the aggregate sales of the enterprise, the lower the average cost of each unit produced. This may lead to a cost advantage for multinational firms compared to single-plant firms.

It should be noted that it is important to distinguish economies of scale at the enterprise level (ESE) from economies of scale at the plant level (ESP). It is

only the former that generate incentives for multinational production. Economies of scale at the plant level, on the other hand, mean that there are gains from concentrating the production in order to reduce average unit costs. Empirical studies thus find that FDI is positively correlated with ESE and negatively correlated with ESP (see Markusen, 1995).

2.2 Localization advantage

While ownership advantages explain why multinationals are able to overcome some of the inherent disadvantages they have compared to local firms, localization advantages explain why one country is preferred over neighbouring countries or the home-country of a multinational.

We have already mentioned the perhaps most obvious locational advantage of many developing countries compared to industrialized countries, namely low costs of labour and certain other factors. Geographical proximity to resources and markets constitutes another major locational advantage for many countries, both developing and developed. For instance, the fact that natural resources are unevenly distributed implies that access to valuable natural resources varies across countries. This, of course, explains why Norway has attracted many foreign firms to the oil sector. Likewise, the coastline and the closeness to large Asian markets have presumably been necessary (though not sufficient) requirements for the development of Singapore into a major shipping nation.

In other cases a country may offer geographical proximity to large domestic markets, and this is apparently particularly important if there are large transport costs or high tariff barriers. In fact, some countries have used the trade policy deliberately in this respect; by erecting high tariff barriers they have made it more profitable for foreign firms to set up local subsidiaries than to serve the market by export from other countries.

² See Romer (1990) for a detailed discussion of the distinction between rival and non-rival goods.

Another widely used instrument to attract foreign firms is the tax policy, of which Liberia is a well-known example from the shipping sector. We have also seen signs of competition between, e.g., Asian countries to offer the most favourable tax regime for foreign manufacturing firms. However, empirical studies indicate that tax policy is not a very efficient instrument for attracting foreign firms. Instead, it seems as if the fundamentals of the economy are of far greater importance; the quality of the infrastructure, political stability and credibility, the skill level of the labour force and the predictability of the political and economical environment.

A particularly interesting case of locational advantages, not least with respect to the present report, arises if a country hosts a self-reinforcing cluster. Suppose that we consider an industry where it is important to have access to a large set of differentiated intermediate goods; the more specialized the intermediates, the lower the production costs of the final goods.³ Suppose further that the firms produce under increasing returns to scale, and that there are some costs connected to international trade in the intermediates. In this case the country that offers the largest set of differentiated intermediate goods tends to be the most profitable location for final goods producers, and may therefore observe an inflow of final goods producers. If this happens, the market potential for the intermediate goods producers increases further – and we may end up in a virtuous circle.

It is often asserted that the maritime sector constitutes a self-reinforcing cluster in some countries (like Singapore and Norway). If we think of the intermediate goods as specialized knowledge, Silicon Valley is an obvious example of a cluster. In either case, it is not necessarily required to levy particularly favourable taxes for firms that are located in a cluster. On the contrary, due to the agglomeration forces the cluster may be a favourable location even if taxes are relatively high in an international perspective.

³ The idea that production costs are decreasing in the variety of intermediate goods is old, and goes back to Alfred Marshall. The idea is also essential in the literature on the so-called New Economic Geography, which tries to explain why we observe agglomerations of economic activity at the global as well as the regional and local level. See Fujita, Krugman and Venables (1999) for a discussion.

2.3 Internalization advantage⁴

As noted in the introduction to this section, it is not obvious that an enterprise with ownership advantages should set up a foreign subsidiary even if the home country is an inferior location. For manufacturing firms it will often be most profitable to license the production or to enter a joint venture with a local firm, or even to sell possible blueprints that the firm is in possession of. In this way the enterprise can avoid many of the disadvantages related to being a foreign firm (which are also the reason why it needs some ownership advantages in the first place). The most common argument in the literature of why we nonetheless observe FDI is that there is a variety of transaction costs related to using arm's-length markets.

One problem is connected with the non-rivalrous nature of ESAs, and the fact that the knowledge of how to run an efficient production process, say, can be replicated at relatively low costs. Obviously, this creates incentives for licensees to use the information and set up their own plants. This problem is largest in countries with a weak legal system. However, it may also be a problem in more advanced countries, since in many cases the licensee can make small modifications and steer clear of imitation accusations. The costs of preventing the licensee from using these kinds of strategies may therefore be higher than the costs of internalising the problem through setting up a foreign subsidiary. Moreover, the potential licensee (or buyer of a blueprint) will typically not know the exact value of new technologies that the enterprise may offer. This suggests that the price that the enterprise receives for its knowledge and technologies may turn out to be relatively small.⁵

A related problem is that reputation may be an important ESA, not least for service firms. Licensees with a shorter time horizon than the foreign enterprise may then have incentives to save costs by reducing the quality of the goods and

⁴ The concept of Internalization advantages is relatively abstract. See Markusen (1995) for a good informal discussion.

⁵ This is a common problem of selling information: the buyer does not know the value of the information before he or she has received it. But once the information is known, there is no reason to pay for it any longer.

services.⁶ Such behaviour may be very hard to prove for the enterprise, particularly in complex industries where it is difficult to find objective quality measures and where it is hard to supervise each of the production processes. As reported below, many shipping firms whose major ownership advantage is reputation do not even consider partnerships or other kinds of co-operative agreements with foreign firms. We shall also see that some maritime equipment suppliers have had bad experiences with joint ventures and licensing agreements, and later shifted to serving foreign markets by direct investments.

3 General findings on consequences of FDI

The theories mentioned above focus on why firms engage in foreign direct investments, but they do not address the effects of FDI for the home or host countries. Particularly from a policy point of view it is important to ask whether foreign direct investments are something we should welcome or not. For instance, are there positive welfare effects of FDI, and for whom? Should we expect a loss for home countries and a gain for host countries? Or is it the other way around? These questions have received much attention over the last decades, and been subject to a large array of empirical and theoretical work.

3.1 Effects of FDI for host countries

Firms that establish affiliates abroad typically have some technological advantages that allow them to compete successfully with local firms. Not surprisingly, the positive effect of inward FDI that historically has received most attention is thus the potential for technological spillovers to the host countries. Empirical studies show that such spillovers should not be taken for granted. First, the most backward developing countries may not have a sufficiently good quality of the human knowledge capital to be able to assimilate technologies from advanced foreign companies (Borensztein, Gregorio and Lee, 1995 and Haddad

⁶ It may be noted that McDonald's owns only a small share of the restaurants bearing its name, and this is presumably due to the fact that the internalization advantages are too small. However, it is well known that the headquarter of McDonald's specifies the working procedures

and Harrison, 1993). Second, countries that have relatively strict restrictions on inward FDI and force foreign firms into joint ventures with domestic firms seem to obtain relatively little spillovers. The reason for this is presumably that the headquarters of multinational firms are more reluctant to bring new and sophisticated technologies to countries where they have less control over their proprietary knowledge (Blomström and Sjöholm, 1998).

For countries with few restrictions on FDI and that have reached at least a certain degree of industrial and human capital development empirical studies indicate that the spillover effects may be quite strong (see Kokko, 1992, and Mello, 1997). In particular, FDI seems to have significant positive static as well as dynamic effects and spur economic growth if there is a high degree of complementarity between the production of local firms and foreign firms (Mello, 1997). Borensztein, Gregorio and Lee (1995) further find that FDI has a positive effect on the investment level in this case, because it “crowds in” investments in complementary domestic activities.

Another potential source of gain from inward FDI is that foreign firms may have a positive influence on the competitive pressure, and that foreign entry forces local firms to reduce their X-inefficiency (see Blomström and Sjöholm, 1998, and Kokko, 1994). This kind of external effect is likely to be strongest in the sectors that are otherwise relatively protected from foreign competition. However, as noted by Graham and Krugman (1995), there is likely to be a sectoral bias in trade protection, in the sense that countries tend to protect those sectors in which the domestic industry has a comparative disadvantage. Allowing inward FDI into these sectors may therefore crowd out local firms, and generate significant market power and pure profits to foreign firms. Empirical studies therefore indicate that the net gains from foreign investments are larger if they take place in sectors where the country has low barriers to trade.

The fact that multinational firms may crowd out domestic firms was particularly emphasized during the 1960s and 1970s, and this fear has been a main

at a very detailed level in order to secure the quality – there is almost no difference in the service level or the taste of a Big Mac across countries.

reason why many developing countries have had a negative attitude towards inward FDI. More on the political side, but at least equally important in public debates, is the claim that multinational firms increase the extent of foreign control of the host countries. During the 1980s and early 1990s, for instance, there was a deep concern in the US that the large inflow of Japanese FDI reduced the US ability of self-determination. Analogous economical and political concerns have been expressed in several Asian countries, and for most of the post World-War II period this resulted in a highly restrictive policy towards inward FDI in, e.g., China, India, Japan, South Korea and Taiwan. However, the empirical evidence seems to lend more support to the potential positive effects of FDI for host countries, and this is also reflected in the fact that developing countries have become increasingly more open to foreign investments. During the last two decades we have therefore observed a far friendlier attitude towards foreign investors in China and India, and also in South Korea and Taiwan in the aftermath of the Asian financial crises in 1997. In Section 6 we will discuss how Singapore, a country that has welcomed foreign investors since its independence in 1965, has used inward FDI as an important ingredient to build up a strong domestic maritime cluster.

3.2 *Effects of FDI for home countries*

The scepticism against outward FDI has historically been at least as strong as the scepticism against inward FDI, and until the mid 1980s countries like Norway and Sweden had restrictions on outward foreign direct investments. One of the most pronounced arguments against outward FDI in political debates is that it represents a loss of domestic jobs; employment in the home country falls, while it rises in the host country. If this were true, we should on average expect to observe higher unemployment in countries with net outflows of FDI than in countries with net inflows. Empirical data certainly do not reveal a pattern like that. The reasons for this are presumably that the share of outward FDI to total economic activity is too small to have any significant employment effects in any country and, more fundamentally, that long-term aggregate employment in a well-functioning market economy basically is determined by the supply side (see

Graham and Krugman, 1995, for a discussion). The latter means that if outward FDI leads some industries to decline, others will expand as a response. In the absence of market imperfections this adjustment should basically reflect the pattern of comparative advantages across countries, and thus represent a gain (abstracting from short-run adjustment costs).

However, there may be negative welfare effects of reduced activity in certain industries if there are significant market imperfections. To see this, suppose that one part of the economy – call it the maritime sector – is characterized by self-reinforcing agglomeration forces. Assume further that we have a fixed supply of labour L that can either work in the maritime sector (M), or in a traditional sector (T) of the economy where there are no cluster effects. According to classical economic theory, the wage level that firms in the traditional sector are able to pay will be smaller the larger the employment. This is illustrated by the curve T in Figure 1. The M -curve likewise shows the wage level that the maritime sector is able to pay, but this curve is upward-sloping. This reflects the cluster effects, which imply that the sustainable maritime wage level is an *increasing* function of the sector's employment level. Making the reasonable assumption that the *marginal* cluster effects are decreasing in the size of the sector, we therefore end up with a shape of the wage curve M as in Figure 1.

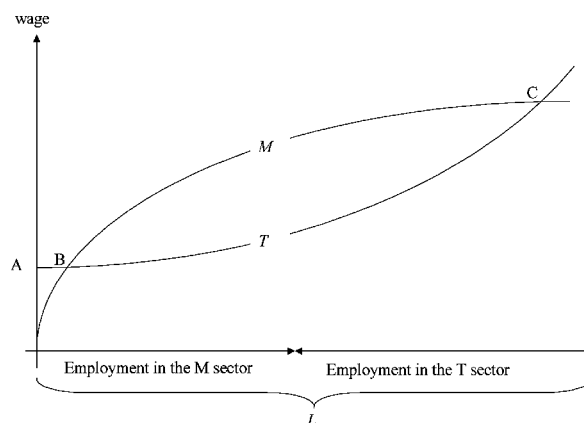


Figure 1: Cluster effects in the maritime sector.

Assume that the labour is employed in the part of the economy where the wage level is highest, and consider a point like A in Figure 1. Here the whole labour force is employed in the traditional sector, and therefore the wage level is relatively low. However, the wage level is higher than what the maritime sector is able to pay. At point B, on the other hand, the maritime sector is able to pay the same wage level as the traditional sector. There are two things that should be noted about point B. First, the traditional sector employs a smaller share of the labour stock than at A, and is therefore able to pay higher wages. At the same time the employment level in the maritime sector is so *large* that due to cluster effects also this sector is able to pay relatively high wages. Second, point B represents an unstable equilibrium; if the employment in the maritime sector were a bit larger, it would be able to pay higher wages than the traditional sectors. In this case the maritime sector will continue to grow until we end up at point C, where the wage level offered in the traditional sector is the same as in the maritime sector. At C the cluster effects in the maritime sector are in practice exhausted, and this represents a stable equilibrium.

From Figure 1 it is easy to see why FDI in the maritime sector, with its alleged strong cluster effects, may be important to take into consideration. Inward

maritime FDI may lead to an expansion of this sector in the receiving country, and thus bring it towards point C. Outward FDI, on the other hand, may reduce domestic maritime activity. In this case a possible maritime cluster may dissolve, meaning that the country moves from point C to point A. This is described as a “catastrophic scenario” in the literature, and detailed formal analysis can be found in e.g. Venables (1995) and Fujita, Krugman and Venables (1999).

Unfortunately, there do not exist any studies of how outward FDI in the maritime sector affects domestic activity – our study is a small, first step in that direction. Neither do there exist many studies of how industries in general are affected by outward FDI; Sweden and the US are the only countries that have time series data allowing for econometric analysis.

One of the earliest and most famous examinations of the Swedish data set is Swedenborg (1982), who distinguishes between substitutes and complements in analysing the consequences of foreign investments for the home country. If a firm replaces exports of a final good by setting up local production – for instance in order to save trade costs – then foreign production is a substitute for domestic production. In this case we may expect domestic production of this good to decline. If the foreign subsidiary produces goods that are complementary to those produced by the parent company, for instance because the parent supplies intermediate goods to the subsidiary, there may be a positive relationship between outward FDI and domestic activity. Swedenborg found that the latter effect was significantly stronger than the former effect for Swedish multinationals between 1965 and 1978. The reported quantitative effect was quite strong, showing that an increase in foreign production by \$100 caused a net increase in parent exports by \$10. Also Svensson (1996) finds that there is a net positive complementarity between production in a subsidiary in a given country and parent export to that country. However, Svensson argues that there may be a strong substitution effect when it comes to export to third countries; if the subsidiary is export oriented, the parent company will sell less to other countries. Only if the subsidiary is basically oriented to local sales does the complementarity

effect dominate, according to Svensson, who finds that on average foreign investments reduce domestic activity.

Svensson's findings have later been refuted by Swedenborg on methodological grounds (e.g., because his study only includes those firms that have subsidiaries in more than six countries). In an extended time series analysis, covering the period 1965-1994, Swedenborg (1999) thus still finds that the net effect is positive, and argues that the Swedish multinationals have (p. 27) "increased their foreign market shares and they have done so by expanding production abroad. The sheer size of that expansion makes it clear that domestic production could never have been an alternative way to realize such growth."

Analyses of the US database typically find that there either is no net effect of foreign production on parent exports, or that the effect is positive (see Svensson (1996), and Swedenborg (1999) for references). By and large, the empirical data therefore seem to lend stronger support to the view that a firm does not reduce its domestic activity level after undertaking direct investments in a foreign country. It should be noted that none of these studies consider the effect of FDI on subcontractors, and that none of them include shipping companies. The latter is partly explained by the fact that the maritime sector in general is found to be too complex, not least with respect to ownership, to be included in econometric analysis. If there are important cluster effects in the maritime sector, however, it may be argued that it is of particular interest to analyze how FDI affects domestic activity in this sector. A natural starting point may then be to use case studies, as argued in Section 1.

4 Why do Norwegian Maritime companies invest abroad?

In an analysis of 119 Norwegian shipping firms that have invested abroad, Dalland (2000) finds that the shipping industry uses similar arguments for FDI, as do most industries:

Global representation (13)

Proximity to the market (281⁷)

⁷ Of these 180 are port agencies, mainly established by Barwil Agencies.

Labour qualification and/or cost (59)

Control of the value chain (19)

Strategic localisation (10)

Synergies (16)

Figures in parenthesis categorise 398 of the subsidiaries established by the 119 firms interviewed.

Both shipping companies and equipment suppliers state that a *global or foreign representation* is necessary to continue serving the customer. Asian markets are important in shipping, and the respondents maintain that they need *proximity to the markets* to stay informed and to offer competitive services. Equipment suppliers state that most of the vessels, including those owned by Norwegian owners, operate in Asian waters. They never or seldom enter Norwegian ports. Furthermore, today the large shipbuilding nations are Asian countries. To win the installation contract and the related service contracts, the equipment providers state that they need to locate close to the shipbuilders. The equipment producers are thus following their customers, the shipowners, abroad when they perform FDI. The paint and coating producer Jotun, for instance, argues that this is a main reason for its investments in Thailand and Malaysia (Gjelsvik, 2000, p. 55).

Transactional market failure caused by asymmetric information may also impose firms to locate close to their customers. The service provider or producer may need to establish a close relationship to the customer to overcome the information gap on the quality of the service or equipment that they sell. Such information costs are traditional reasons for FDI (Minde, 2000, p. 40).

FDI results from the need to reduce costs and strengthen competitiveness. Shipping was one of the earliest industries to establish a global *labour* market. First, when allowing foreign crew aboard national flag vessels. Later, when the number of foreign seamen was restricted on vessels flying national flags, shipowners continued using foreign crew by flagging their vessels out to registers that allowed foreign crews. Investment in manning offices in Asia is an early example of FDI in the maritime industry. Firms later moved the technical management of the fleet abroad. Besides lower crew costs, the need to attract

specialised competence may motivate FDI. To secure quality of service, *control of the value chain* is important and may thus induce FDI. This is also the case in the maritime industry. One example mentioned by Dalland (2000, p. 83) is transportation of cars where the shipping firms have invested in terminals abroad to secure proper handling, and to reduce damage. Similarly, several chemical-shipping companies choose to own and operate their own terminals. In our material 19 out of 494 FDI entities result from the company's wish to obtain better control over its value chain (Dalland, 2000, p. 81).

Some shipowners name *strategic localisation* as their reason for investing abroad, and this is consistent with findings from other industries. Locating close to the ports often called upon by their vessels exemplifies this (Hauge and Stokke, 2000, p. 70), and strategic geographical location is one of the crucial factors that make Singapore a global hub for shipping (Akselsen, 2000, p. 42). Stable economic policy towards the maritime industry, specifically tax policies, represents another strategic cause named by several companies. The tax level as such does not seem to represent a major cause for foreign direct investment to firms in the survey, with one specific exception (Hauge and Stokke, 2000, p. 49). FDI may also ease exploitation of potential *synergies*. To use one's competence to enter a new market segment or geographical area may become easier through foreign direct investments. Diversification and risk reduction, flag requirement in specific markets, strategic alliances with foreign firms and the size of operation relative to the market seem to dominate among the other causes reported by Dalland (2000).

The units established abroad seldom focus on the local transport market in the host country, but engage in international seaborne transport. The high number of investments in Singapore illustrates this point. Equipment suppliers and other non-shipping members of the maritime industry, on the other hand, engage to a larger extent in national markets in the host country.

Another characteristic of FDI performed by maritime companies, both shipping companies and suppliers, is the almost total lack of licensing of services. One reason may be that it is more difficult to control quality or secure revenues

when licensing service provision compared with licensing provision of products (Akselsen, 2000, p. 17).

We find that the reasons given by maritime firms for engaging in FDI are similar to those found in other industries. Following Tenold (2000) we exclude flagging out of vessels from our definition of FDI and this may strengthen the similarities to other industries. The introduction of special tax regimes like the tonnage tax introduced by several European countries to stop shipping firms from moving abroad, has put a focus on whether tax levels cause FDI in the industry. Our findings do not confirm that taxes are a major cause of FDI. Statements indicate that stability in tax and other economic policies facing the shipping firms are more important than the tax level. To a large degree, firms may influence the taxes paid each year. The transactions costs related to unstable tax policies are more important.

4.1 Differences between different type of firms?

4.1.1 Shipping companies

The majority of the direct investments abroad result in port agencies. From the database on 494 FDIs by Norwegian shipowners in Dalland (2000), we know the functions of 398 subsidiaries. Of these 42 percent are port agencies, and these were also among the first subsidiaries established.

Table 1 below reports the distribution of the 398 land based units (out of the 494 units in the database) on type of activity, where we have followed Tenold (2000) and concentrated on land-based investments. Thus, we do not include one-vessel companies established only to switch registers. As seen in the table, only 4 percent of the units are fully integrated shipping firms located abroad by Norwegian shipping companies.

Manning offices	30	8 %
Terminals	16	4 %
Port agencies	166	42 %
Representative offices	66	17 %
Fully integrated shipping companies	16	4 %
Commercial management/ port offices	62	16 %
Technical management/ Engineering	22	6 %
Several functions, but not fully integrated shipping company	20	5 %
Number of FDI s analysed	398	100 %

Table 1: Number of units in different categories of FDI by Norwegian shipping companies (Dalland, 2000).

Table 2 shows that larger shipping companies engage in FDI more often than do the smaller ones, where firm size reflects number of employees. In our material 63% of the foreign firms are established by one of the six largest shipping firms included. The data also confirm another characteristic, namely that shipping companies operating in more advanced shipping segments, such as gas tankers, car transport, open hatch segments, are most prone to establish themselves abroad. The conclusion that firms in advanced shipping segments are over-represented relates nicely to the above finding on firm size, since operators in advanced segments in our database tend to be relatively large firms. This contrasts with traditional flagging out, where the small companies have been more eager (Tenold, 2000).

	Large	Medium/large	Medium/small	Small	Sum
0 FDI		7	37	36	80
1 FDI		3	11	2	16
2-5 FDI	5	3	8		16
6-15 FDI	2	11	3		17
>15 FDI	6				6
Sum	13	24	59	38	134

Table 2: Number of FDI establishments relative to the size of the mother firm. Firm size reflects number of employees (Dalland, 2000).

Shipping companies more often establish separate firms abroad instead of engaging in joint ventures than do companies in the offshore industry. We know the type of 452 foreign shipping subsidiaries, and of these 338 were sales offices or branch offices. There were only 38 joint ventures, ten percent of which were established by offshore companies (Dalland, 2000, p. 75).

The interviews disclose some disagreement among the firms on whether the increase in the tax level induced by the Norwegian tax reform in 1992 led to more FDIs. One argument against the tax level being decisive is that firms may influence the taxes paid by, for instance, using low transfer prices to subsidiaries in low-tax countries.

The 1992 rise in taxes was replaced by a tax reduction when the Norwegian tonnage tax was introduced in 1996. The tonnage tax reappears in the political discussion on taxes every year, however, and was later raised. This contrasts with the taxing policy in Singapore and Liberia, who fixed the tonnage fees for 20 years after the initial registration of a vessel. Although the different interviewees disagree on the importance of the level of taxes, they all agree that the instability of the tax regime increases the risk faced by Norwegian based operations and thus induces FDIs.

4.1.2 The ship equipment industry

Representatives from the equipment industry named the high costs incurred on operations in Norway as an important cause for foreign direct investment (Gulbrandsen, 2000, p. 51). Such firms often establish branches in high cost areas like Singapore, however. Hence, cost level is not the only reason for FDI.

International service markets are important to the maritime industry, but several of the firms prefer to produce in Norway. The need to offer local service contracts on equipment already installed onboard operating vessels motivates their foreign direct investments. They service internationally mobile customers and this requires a geographically broad engagement. The ship equipment industry's priority is sales and service to existing vessels rather than sales to new-buildings. However, even if profit mainly comes from maintenance and spare parts, firms need to sell to new-buildings (via yards) to obtain service contracts.

At the same time the introduction of Just in Time (JIT) logistics means that production has to be located in the region where the equipment is installed (Gulbrandsen, 2000, p. 58). Alternatively, firms produce part of the products and engage subcontractors to produce other parts. Assembly takes place close to the yard to fulfil the JIT requirements.

A typical statement is that the ship equipment industry depends on shipping companies to introduce them to foreign customers. Since Norwegian shipping companies have a long tradition of international operations, their knowledge of international markets and their international contact networks have been wider than that of the equipment industry. Until the late 1970s Norwegian, Swedish and other north European yards were the main customers of the ship equipment industry. The strong reduction of shipbuilding in Northern Europe moved the market for this industry eastward. For several firms the first international sales were installations on vessels ordered by Norwegian owners at Japanese yards. The paint producer Jotun mentions another example. When they were to establish plants in Asia, the Norwegian shipping company Thoresen & Co, present in Thailand since the end of the 19th century, introduced contacts and provided information about the country (Minde, 2000, p. 30). Jotun established one of their Asian plants in Thailand.

4.1.3 Other firms

We have studied shipping companies, ship equipment suppliers and ship finance institutions. At this stage, we have no information from shipbrokers or yards. Ship finance is a speciality and a few leading finance institutions hold the major share of the market. Two of these institutions are Norwegian based banks, Den norske Bank and Christiania Bank. Both have established branches in the shipping clusters in London and Singapore and they have representative offices in other locations. Neteland (2000) describes shipping finance in general but focuses on FDIs in Singapore, which wishes to attract finance institutions. The Approved International Shipping (AIS) scheme offers 10 years tax freedom to shipping companies, if they finance their operations in the Singapore financial market. This has induced the large shipping banks to locate in Singapore, since the regulation

accepts foreign branches as local banks. Even for the larger shipping banks, shipping is only one of their activities, however. Locating in Singapore also enables the two Norwegian Shipping banks to offer 24-hour capital management services. This is a reason for establishing an office in Asia.

4.2 Does market structure influence decisions or answers?

Above we showed that companies engaged in FDI are over-represented among companies operating gas tankers, car carriers, and open hatch vessel. These market segments are characterised by imperfect competition and product differentiation. However, firms engaged in FDI are also slightly over-represented among combined carrier operators. This seems to counteract our finding, since combined carriers trade in the tanker and dry bulk markets; i.e., markets regarded as competitive. Nevertheless, shipping companies engaged in FDI are over-represented among shipping firms in oligopolistic markets. This is not the case in the major competitive markets for tanker and dry bulk transports.

To sum up, Figure 2 shows that some 25 percent of the number of firms that engage in FDI serve in the above-mentioned competitive segments, but that they are under-represented compared to firms in specialised trades.

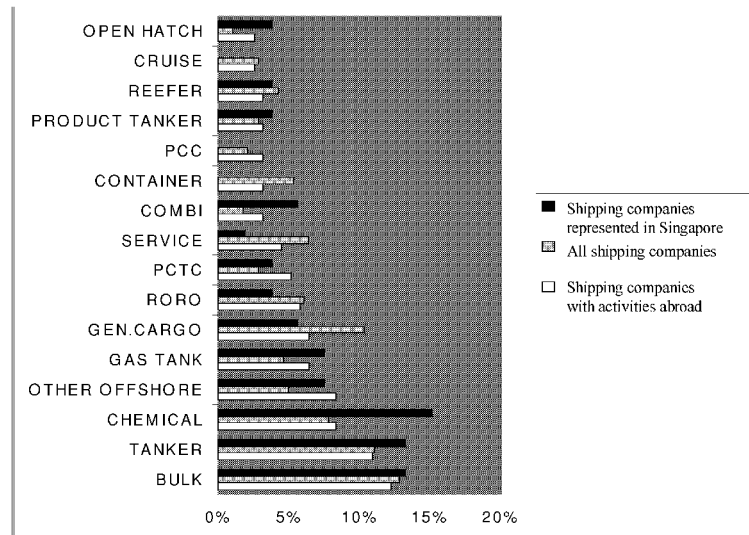


Figure 2: FDI in different shipping segments. (Dalland, 2000, figure 6.5)

The case studies of companies in the Norwegian ship equipment industry clearly indicate that these firms actively try to differentiate their products. Frank Mohn, a major pump producer, sells differentiated products and meets few competitors (Gjelsvik, 2000, p. 67). Jotun are engaged in an industry where there are several suppliers, but have managed to differentiate their products (Minde, 2000, p. 69).

4.3 Where do they locate?

Foreign direct investments in South East Asia are clearly the most important. The majority of the investments in Asia are concentrated in Singapore and Manila. In our material London is number three among cities, and has the same number of establishments as Mumbai in India. Next on the list is Houston. If we focus on the nations chosen instead, the first Asian country on the list is China, ranking fourth after USA, UK and Australia. Singapore is sixth and the Philippines number eight (Dalland, 2000, p. 69).

It is worth noting that there are no tax havens among the most popular locations⁸. With the exception of London, firms furthermore tend to locate their

⁸ It seems more common to choose tax havens when flagging out than when establishing land-based operations abroad.

FDIs far away from Norway. This may reflect geographical distance, and several of the firms studied point out that they need to locate closer to their Asian customers than a European location allows for.

4.3.1 Cluster effects

The importance of the maritime cluster in the host country differs. Frank Mohn hold that the local cluster is not important for them (Gjelsvik, 2000, p. 68). This is also the opinion expressed by Strømme. They chose to locate in Singapore because the majority of the vessels they serve call at that port (Hauge and Stokke, 2000, p. 74). Rapp Marine, on the other hand, express the need to locate in a cluster abroad. They find this very important, especially in the initial phases after the investment (Gjelsvik, 2000, p. 64). Kongsberg Maritime also prefer to locate in a cluster. Since they, like several of the ship equipment suppliers we have interviewed, gain most from service contracts, they emphasise close contact with operators and not only locations near yards (Gulbrandsen, 2000, p. 39).

The importance placed on locating in a foreign cluster may reflect the firms' view on the significance of the Norwegian cluster. Whereas several shipping firms point at the importance of the domestic cluster, the valuation of the Norwegian cluster differs among the ship equipment firms. The paint and coating producer Jotun states that the Norwegian cluster is important to them (Gjelsvik, 2000, p. 55). As remarked above, Frank Mohn maintains that they are part neither of the Norwegian nor of any other cluster (Gjelsvik, 2000, p. 68).

If we look at the most popular locations for FDI by Norwegian shipping companies, however, two of the global shipping clusters, Singapore and London, range high. Manila is not a general cluster; it specialises in manning. The profiles of the shipping cluster in the three cities are seen from Table 3. The table summarises the different functions, such as port agent or technical management, performed by 34 foreign affiliations of the 45 subsidiaries we have registered in the three cities.

	London	Manila	Singapore
Fully Integrated Shipping Company	1	1	3
Commercial/Project/Technical	0	0	1
Technical/Project	0	0	1
Technical	0	(1)	2
Manning	0	(8)	0
Technical/Port Agent	0	0	1
Commercial/Technical	(2)	0	0
Commercial/Port Agent	1	0	1
Commercial	3	0	4
Representation	1	0	3
Number of Subsidiaries Categorized	8	10	16

Table 3: Main functions in subsidiaries located in Singapore, London and Manila. (Dalland, 2000, table 6.8)

4.3.2 Local business environment and economic policy

Our results show that local appearance is a major reason why maritime firms engage in FDI, particularly if the regional market is large. When the customers are far away, there is also a need to locate an office close to the market. This is reflected in the fact that Asia is the most important foreign host for Norwegian shipping companies, as shown in Table 4 (which reports location for 334 of the 494 FDIs in the database). Note, however, that the companies have relatively few subsidiaries in the US. We conjecture that there are three major reasons for this. First, the US offers relatively few location advantages except for its market size (the cost level is relatively high, and the tax policy is not particularly favourable to the maritime sector). Second, due to low transaction costs and low barriers to trade it is relatively inexpensive to serve major segments of the large US market from Norway. Third, Norwegian shipping companies presumably have relatively weak ownership advantages relative to local firms. In contrast, some of the European countries offer clear locational advantages (e.g, in the form of low wages in Eastern Europe, a favourable tax regime in the Netherlands, and specialized financial services in London). It is therefore not surprising that

Norwegian shipping companies, which by and large have a competitive edge on this continent, have a relatively high number of affiliates in Europe.

Asia	130
Europe	98
USA & Canada	71
Australia & New Zealand	35

Table 4 Location of FDI's (Dalland, 2000, table 6.5b)

The tax level in the host country seems to be less important in the location decision. When the decision to invest abroad is taken, however, the firms evaluate relative taxes when choosing their location. Nonetheless, in general ship equipment providers hold that local conditions are more important, especially regarding local labour costs. To them, political conditions in the host country are less important than factor prices and market size (though it should be noted that stability in local policy is considered to be important). Unitor, for instance, argues that political aspects are not their main concern when deciding where to invest. Their relaxed views may reflect that Unitor have spread their FDI's on numerous locations. Hence, they depend less on the political development in single locations than firms with fewer foreign branches (Gjelsvik, 2000, p. 60).

The overall picture is that most of the companies have chosen Asia because of its large and active market, while London is attractive due to its agglomeration of financial and broker services. The third major city hosting maritime FDI is Manila, which specialises in manning and technical operations. Tax havens are of minor importance to the firms interviewed.

The pull effect from a cluster in the host country is not clear in our material. It seems, however, that shipping companies choose to locate inside well-developed clusters like Singapore when they select the specific location in a region. Host clusters furthermore seem more important for service providers in transport or repair and maintenance markets than for industrial manufacturers.

4.4 Financing FDI

Neteland (2000) studied how three maritime companies have financed their FDIs, and found that two of the firms issued shares to finance their investments abroad. All three firms also restructured their debt, and converted their loans from traditional one-ship loans into corporate debt. Thereby the capital costs were reduced. Corporate debt is not an option for companies with high gearing or those choosing risky chartering strategies like spot markets. This reflects that most of the value of the firm is embedded in the fleet when the company employs a risky chartering or financing strategy. Companies operating at a lower risk, for example those who operate on long-term charters and secure charter contracts upon ordering a new vessel may use corporate debt. The AIS scheme in Singapore may influence the financial structure chosen since this scheme requires mortgage debt.

Our material is limited, but for these three companies the financial structure reflects the competitive setting, charter strategy and gearing chosen more strongly than the FDI. Localisation seems to have less effect on financing. The three firms changed their bank contacts to local Singaporean outlets, reflecting the AIS requirements mentioned above. The firms tend to use Singapore branches of the international shipping banks like ING, DnB and Christiania Bank, however.

Thus, firms remain with their bank contact or switch to a large shipping bank when engaging in FDI in Singapore. In our data on Norwegian shipping companies, we cannot distinguish these alternatives, since two of the larger shipping banks are Norwegian banks.

5 Some effects for Norway, the home country

General empirical work on home country effects is indecisive on complementarity and substitutability between FDI and exports from the home country. When investments abroad induce export of factors of production or increase export of complementary products, the effects for the home country may be positive. This result is probable when FDI reduces the costs of producing and permits a price reduction in the foreign country. Such a price reduction raises demand for the

product and increases demand for factors and complementary products. When, on the other hand, investments abroad merely replace exports from the home country, the effects are negative for home country production. Another potentially counteracting effect on the national economy concerns relative demand for white and blue-collar labour following FDI. One of the firms experienced a reduction in demand for blue-collar workers together with an increase in white-collar demand at home. Thus, their FDI gave a combination of substitution effects and complementarity (Gulbrandsen, 2000, p. 62).

Shifts from exports to FDI may furthermore change the structure of the remaining activities at home. If head-office and strategic decision making remain at home, moving production may affect the business environment less than if strategic decisions are also made outside the country. Unitor argues that FDI strengthened their head office (Gulbrandsen, 2000, p. 47). Hamworthy, another ship equipment supplier, point out that FDI now strengthens their engineering department in Norway after an initial period when negative effects at home dominated (Gulbrandsen, 2000, p. 62). Minde (2000) further finds that shipowners, because of their international network, open up the international markets for subcontractors such as ship equipment providers. This strengthens these producers' chances to be short-listed by shipbuilders for vessels ordered by Norwegian shipping companies and for other vessels ordered from these yards (Minde, 2000, p. 30.)

As already stated, the interviews disclose disagreement with respect to whether FDI and exports are complementary or whether FDI is a substitute to exports. One example of complementarity exists when the home company and the foreign subsidiary divide the production between them, for example when engineering is home based whereas the goods are produced abroad and closer to the market. The ICT revolution, especially electronic transfer of drawings, facilitates such co-operation (Gulbrandsen, 2000, p. 54). Other examples indicate that foreign and domestic production are substitutes. Whether exports and FDI on net are substitutes or complements is an important and interesting question that needs to be explored further, and our research clearly indicates that this should be

done through case studies. The reason for this is not only the large heterogeneity among the firms, but also the fact that exports is often not a viable alternative due to the importance of being close to the market. Moreover, several of the firms have argued that FDI has strengthened their competitive position due to better exploitation of economies of scale. Thereby unit costs have decreased, and made it possible to maintain a high activity level in high-costs countries like Norway.

One additional positive effect of FDI for the investing firm is that physical presence in foreign markets increases the availability and timeliness of information. Westfal-Larsen, for example, argue that the firm became aware of the upcoming Asian crises earlier as a result of their FDI in Singapore. This induced them to sell vessels, and they cashed in a profit that they would otherwise forgo (Hauge and Stokke, 2000, pp. 50-51). Another effect regards FDI on the subcontractors. Do firms shift from subcontractors in the home market to local suppliers in the host economy? Our material suggests that the answer to this question is yes; foreign subsidiaries most typically find local suppliers of goods and services that are not produced by their parents. In fact, we will argue that this is perhaps the most worrisome effect of FDI; while the domestic activity level of the investing firm may even be positively affected, this may have unfortunate and spreading economic consequences. This, we think, is something that the Norwegian maritime industry should take seriously. If there really exists a Norwegian maritime cluster with pure rents, it may also dissolve if the activity level of subcontractors falls below a critical level (c.f. the discussion in Section 3). The industry is relatively small, and it may therefore be argued that it should be possible for the maritime sector to internalize some of the negative effects of foreign investments. It is beyond the scope of this paper to suggest how this should possibly be done, but we have a clear impression that the contacts between the upstream and downstream firms regarding foreign activities are unsatisfactory.

6 Host country effects - exemplified by Singapore

Singapore fulfils several of the requirements related to FDI. Locating there brings shipping companies closer to the large Asian markets and ship equipment providers closer to shipyards and ship repair sites. Furthermore, economic activity and financial conditions in Asian countries are important for world trade and thus for the trade flows and for international shipping. By locating in Singapore, Norwegian companies get a better understanding of the conditions in Asian economies and will have more information on market developments.

Locating in Singapore is a strategic decision for most maritime companies. Not only because of the closeness to shippers and yards, but also because Singapore is one of the largest ports in the world. A large share of the vessels in the world fleet calls at the port regularly. This facilitates service towards vessels from ship equipment providers and technical management companies located in Singapore. It also facilitates shipowners' contact with crew and vessel.

Better information and strategic location add value to the company. This means that several companies find locating in Singapore advantageous. Consequently, Singapore has developed into one of the world's leading maritime clusters with all kinds of activities related to the maritime industry, c.f. Table 3.

Reflecting this situation, several of the firms interviewed state that positive cluster effects are high in Singapore and compare very well with the Norwegian maritime cluster. Many of the firms mention the expected cluster effects as important elements of the decision to choose Singapore when they first decided to establish a branch, office or a representative office in Asia.

6.1 The Singapore shipping cluster

The development of the Singapore maritime cluster rested on three pillars: the port, the fleet and the shipbuilding and ship-repair industries (Tenold, 2001, p. 9). Singapore has for a long time functioned as an entrepôt to Asia from the West. In the 1960s Singapore undertook several measures to improve her position as a maritime hub. Singapore succeeded and is now regarded as a strong maritime cluster. Table 3 above underlines this.

Singapore has attracted several Norwegian shipping companies and other firms related to the maritime industry. By now it is the strongest Norwegian maritime cluster outside Norway. Thus, companies operating in Singapore enjoy similar cluster effects to those they find in Norway. Westfal-Larsen points out that the Singapore maritime cluster is well developed and has increasing attractiveness. They also fear that the Norwegian cluster is of decreasing importance compared to Singapore. Westfal-Larsen established Masterbulk in Singapore in 1995, and this has resulted in some reduction in their activities in Norway. Another Norwegian firm, Odfjell, state that they find the Singaporean cluster better than the Norwegian (Hauge and Stokke, 2000, p. 85).

The policy measures undertaken to improve Singapore's position as a maritime hub also facilitated her position as a leading provider of auxiliary activities such a ship management and chandlery, freight forwarding, marine insurance and shipping finance (Tenold, 2001, p. 11). Our cases on FDI in the Norwegian ship equipment industry offer examples.

6.1.1 Economics and business policy

The aim of the government policy in Singapore in the late 1960s was to reduce the problems of unemployment and low savings. The priority of the Economic Development Board (EDB), whose task it was to promote FDI, was to encourage investments in export oriented, labour intensive sectors. By inviting foreign direct investment the Singaporean government sought to boost growth. One means was to establish an efficient business infrastructure. Elements of this policy were: promotion of better management-labour relations, efficient resolution of industrial disputes, tax holidays, favourable depreciation allowances, tax deduction for export promotion, no barriers for in and outflow of funds and increased efficiency of public service. Thus, Singapore established a focused public policy to support incoming investment (Akselsen, 2000, p. 33-34)

To increase the gains and value added on Singaporean labour, the governments furthermore engaged heavily in education and research. Thereby they lay the foundation for "the transformation of the Singaporean economy from

a developing to a developed economy and from a staple entrepôt to an exporter of high-technology manufactures" (Tenold, 2001, p. 8).

Foreign direct investments into Singapore typically came from multinational manufacturing companies which invested in the exports sectors. Later, Singapore extended the incentives initially offered to manufacturing industries to include the service sectors. The EDB chose a cluster development approach for electronics, engineering, chemicals and the exportable service sectors (Akselsen, 2000, p. 38). Shipping as an exportable service is one of the chosen sectors. Shipping FDI was encouraged when the Singaporean register was established as a flag of convenience open to shipowners from other nations. After this change in flag policy from 1969, the Singapore Ship Registry (SSR) rose into one of the major flags of the world. Singapore was the third largest flag by number of vessels in 1995, and seventh largest in Gross Register Tons (GRT) in 2000 (Akselsen, 2000, p. 35, 37). Singapore's economy is strongly affected by its maritime and seaport policy. The Port of Singapore Authority (PSA) has been their instrument. In addition to the strengthening of the national flag fleet and the port, Singapore decided to develop shipbuilding-, ship-repair, and later services for offshore rigs and supply vessels (Akselsen, 2000, p. 33).

The Approved International Shipping Enterprise (AIS) scheme was introduced in 1991. This policy reflects the cluster policy and seeks to induce ship owners to base more of their operations in Singapore. The vessels do not have to fly the Singaporean flag for the owner to qualify under AIS (Akselsen, 2000, p. 39). One aim of the maritime cluster policy is to encourage establishment in Singapore by auxiliary service companies e.g. marine insurance, maritime law and maritime finance.

Companies with AIS status get 10 years tax relief for income stemming from shipping. As mentioned, not all vessels need to fly the Singaporean flag. Furthermore, they need not call on Singapore Port. The firms accepted for AIS must be a significant owner and operator of the vessel, however. Ten percent of the fleet should fly Singaporean flag (Akselsen, 2000, p. 56). Furthermore the total

business spending in Singapore must reach S\$ 4 mill (2.3 mill USD) per year.⁹ A shipping company accepted under AIS needs to hold their debt by a local bank or a local branch of an international bank. If the lending bank has not established an office in Singapore, the shipping company is levied a withholding tax on the interest paid. This is a kind of import tariff on lending from abroad and an incentive to develop an international competitive banking sector in Singapore. The withholding tax could be as high as 30 per cent of interest paid in 1995. It was later reduced to below 20 per cent (Neteland, 2000, pp. 49-50).

6.1.2 Limitations

Singapore now has a high cost level. For several firms the positive spill-over effects from the maritime cluster outweigh the high costs level in Singapore and the difficulties of attracting qualified local labour to the maritime industry in competition with several other attractive industries. One firm located both in Singapore and in other Asian countries reported that they probably would have concentrated on Singapore if the decision on FDI were made today. In their opinion the cluster effects outweigh the higher costs (Minde, 2000, p. 60).

We saw above that Singapore launched policies to attract labour intensive export industries. They needed to reduce the unemployment problem they faced when the British withdrew in the late 1960s. After a period of abundant labour supply, at least for manual jobs, firms investing in Singapore now have to compete for employees. This is also the case for firms in the maritime industry, whether shipping companies or auxiliary services in the maritime cluster.

6.2 Competition between Singapore and other sites

Several Norwegian firms contemplating FDI in Asia considered alternative locations to Singapore. One of the ship equipment providers we interviewed stated that they considered investing in South Korea because of her large shipbuilding sector that delivers a big share of the world shipbuilding output. The main reason for selecting Singapore was the South Korean requirement for local ownership share in local companies of foreign firms. This reduced the autonomy

⁹ One Singapore dollar equalled 0.575 USD 19th Jan 2001.

of the foreign branch and reduced the attractiveness of South Korea for FDI (Gulbrandsen, 2000, p.52.).

Another supplier of ship equipment established a plant in Thailand. Their main reason for going to Thailand was availability of labour and land. With their investment, they have helped Thailand to expand beyond her traditional export pattern. In the interviews, they stated however, that they would have established in Singapore if the decision on establishing their plant were made today. The main reason for this shift is the higher stability of Singaporean to Thai business environment and the completeness of the Singaporean maritime cluster. These two factors are considered to outdo the extra costs of locating in Singapore. Nonetheless, several of the shipping companies and shipping equipment suppliers consider the Singaporean cost level as a major problem. The most cost-sensitive firms have therefore either moved to low-cost countries like Malaysia, or discarded Singapore already at the outset. It should be noted, though, that Singapore and Hong Kong are considered to be the two Asia countries with the most complete shipping clusters. These two countries are therefore considered as the best locations in Asia for those firms that find it particularly important to be located in a cluster. In choosing between these two locations Singapore seems to be preferred by most companies today, even though Hong Kong has had a first-mover advantage. The major reasons are that Singapore's maritime milieu has developed very favourably over the last decades and that the cost level in Hong Kong is even higher than in Singapore. This is due not least to the remarkable growth of the Chinese economy, which has indirectly led to very high rents for offices and high costs of real property in Hong Kong. Thereby both Norwegian maritime firms and other Norwegian companies have fled from Hong Kong to Singapore (Halvorsen, 2000, p. 74). It should also be noted that Norwegian shipping banks now are located in Singapore and not in Hong Kong.

Taken together, the above-mentioned observations give clear indications on Singapore's competitiveness towards alternative locations for Norwegian FDI into Asia. In contrast to the situation up until the 1970s, Singapore is presently by

far the most important host country for Norwegian maritime firms and has been able to counterweight the first-mover advantage of Hong Kong.

7 Conclusion

Based on case studies, this report argues that the need to be close to large and fast-growing markets is a major reason why Norwegian maritime firms have invested in Asia. The region has large transport markets, and its market share in shipbuilding and ship repair is substantial. Thus, Asia is an important market for all kinds of companies in the Norwegian maritime cluster.

Singapore has a long tradition as an entrepôt. Even so, the main reason for Singapore's growing importance to Norwegian maritime industry contemplating to invest in Asia, is the public policy formed to consciously foster FDI in export oriented manufacturing and services. This has resulted in an efficient business environment and stable business policies in Singapore. For several firms this efficiency and stability are more important than low factor costs and low taxes.

The effects for the Norwegian maritime milieu of Norwegian FDI to Asia are ambiguous. First, many of the firms have not considered the possibility of concentrating all their activities in Norway as a realistic option, simply because they have found it decisive to stay close to the fast-growing Asian market. Second, many of the Norwegian maritime firms seem to have strong ownership advantages that make it possible to expand successfully in foreign markets with few negative effects domestically. In fact, in several instances the domestic entities have been strengthened, since the firms have been able to achieve higher economies of scale and outsourced those activities where Norway has clear comparative disadvantages. Nonetheless, it has also been reported that particularly some of the shipping equipment suppliers feel that the Norwegian maritime milieu has deteriorated somewhat due to the investments abroad. Our conjecture is that the negative effects are most likely to dominate in the cases where maritime firms have moved abroad due to a comprehension that the Norwegian tax policy is unpredictable. In this respect the stability of the tax

system, and not the tax level *per se*, seems to be Singapore's major competitive advantage relative to Norway.

8 References

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