

**LOCAL EFFECTS OF GLOBAL TRENDS;
INTERNATIONALIZATION IN PORT-INDUSTRIES AND ITS EFFECT ON
PORT CLUSTERS, THE CASE OF ROTTERDAM**

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ABSTRACT

Two major trends in ports and maritime industry are recognized over the past years. *Globalization*, for which the maritime industry is one of the enablers, and *concentration* in terminal, transport and logistics industries. The combination of the two trends leads to a fast internationalizing business community in many ports. Local terminal operators are replaced by worldwide operating TOC's, major shipping lines open offices and operate terminals all over the world and logistics companies increasingly maintain a worldwide network. This paper focuses on the local effects of these international trends.

In the paper the effects of the globalization and concentration in ports is analyzed. The case of Rotterdam is used to show how international companies own and control the assets in the port. Data is presented about ownership structures of the major companies in Rotterdam and 15 port(related) leader firms are analyzed, of which 8 are locally owned and 7 are foreign owned.

Conclusions are drawn about the ownership of port-companies and the influence this has on local behavior of these companies. Evidence is found that foreign owned port companies are less connected to the local business community and contribute to the competitiveness of the cluster to a lesser extent than locally owned and managed companies.

Keywords: Internationalization, Seaports, Port clusters, Leader Firms

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1 INTRODUCTION; GLOBALIZATION AND PORTS

In seaports and seaport related industries the growing internationalization and concentration is a reality (Robinson, 2002; Notteboom, 2008). Stevedoring is in almost all segments internationalizing fast. The container terminal operations in the major ports around the world are done by international companies and sometimes conglomerates (Olivier and Slack, 2006). The large companies, such as PSA, Hutchison Whampoa, Ceres, Dubai ports, are still increasing their world network of terminals. Also the shipping lines are increasingly building a worldwide network of terminals, with Maersk as a frontrunner in this division.

In other segments, such as liquid and dry bulk, concentration and internationalization is common as well, large operators such as Vopak, Noble, and Odfjell control large parts of the liquid bulk flows in ports all over the world. The dry bulk terminals are often owned by large industrial conglomerates or sometimes investment companies such as HAL-holding that owns majority shares in most large bulk terminals in Western Europe.

Ownership and ports

For any industry the question “who is the owner and where is he located?” is of importance. For ports this question is even more important. Decisions made by port companies about investments or service levels have a great impact on the rest of the economy. Typically port services are instrumental for the rest of the economy, stevedoring and transport facilitate trade. An efficient port and transport system make both import and export cheaper and local products more competitive on the world market.

In port businesses the emergence of networked companies with rather small subsidiaries is likely. A feature of ports is that it is a geographically bound service. This implies that it cannot be stored or moved, it has to be performed at a certain place at a certain time for a certain client. A stevedoring company thus quickly reaches the limits of its growth; the local market is only as large as the regional demand for transport services. Companies that do want to grow will have to invest in other ports and set up a network of terminals.

Effects of internationalization

The effects of internationalization on regional development is research for various cases, however the outcomes are inconclusive. In a research on foreign direct investment (FDI) in the UK, Girma et al (2001) find that foreign firms have a higher productivity, leading to a higher GDP, but that there are no intra-industry spillovers associated with FDI. Dimelis (2002) on the other hand found higher production efficiency in foreign owned firms in Greece and spillovers from foreign minority holdings. Aitken and Harrison (1999) report two effects; foreign participation in firms is positively correlated with productivity in the own company but at the same time reduces the productivity of domestic firms because the market is ‘over-contested’. The two effects result in a very small positive net effect of foreign investments. The mixed results from different

countries and different industries call for more research in even more industries and countries. This justifies the current research, which looks into the local effects of foreign investment in the Port of Rotterdam. The internationalization process and its effects are described for the case of worldwide container terminal operating companies by Olivier and Slack (2006) and Olivier et al. (2007). The effects on the whole port cluster of the two trends are not described yet.

The question that is relevant in the current research is whether the internationalization and concentration is beneficial for seaport-regions? Is there a benefit because international knowledge comes to the port, or is there a drawback because control of the companies is no longer local?

In the current paper the question above is addressed by evaluating the ownership structure of all port(related) companies in the port of Rotterdam and by assessing the local impact of these companies. Based on a comparison of locally and foreign owned companies conclusions are drawn about the effect internationalization of port and maritime business has on the local port-business-community.

2 WHO OWNS THE PORT; THE CASE OF ROTTERDAM

The port of Rotterdam consists of more than 3000 firms. The large part of these firms are small local business, about 100 of these firms is of substantial size (more than 100 employees), some well known in the maritime industry, such as Vopak, Smit Internationale and ECT. These large firms in the port of Rotterdam are important players that have an influence on the development and competitiveness of the port cluster.

The business in the port is very international by nature; clients are often foreign and many business units in the port of Rotterdam are part of an international group of companies. The behavior of the companies in Rotterdam is thus influenced by international development and decisions made by international companies. While the smaller companies often have a clear ownership structure, with a director/owner running the business, it is not always clear who is in control of the larger firms.

We analyze the ownership of the companies in the port by looking at the shareholders of the companies. These shareholders can be natural persons, investment companies and banks, and producing companies. Based on these shareholders we can characterize the firms and might gain understanding about the behavior of the firms in Rotterdam. Being in control, we interpret as having a majority share in a company. While this does not always mean that you have absolute control over the way a company does business, it does show the possibility to influence the management and gives the possibility to steer the strategy of the firm, especially concerning investments. The following types of companies can be distinguished:

- Fully owned by private persons, often director-shareholders
- Owned by investment companies / banks
- Owned by a national parent company
- Owned by a foreign parent company
- Listed at the stock exchange, fragmented shareholders
- Listed at the stock exchange, dominant shareholder

We expect the shareholder structure to have an impact on the behaviour of the firm. Largely because the shareholder structure determines the level of independency of the executive management in making decisions about investments and strategy.

From a database of companies in the port, we selected all companies with more than 5 employees, registered with the chamber of Commerce (compulsory for doing business in the Netherlands). The companies selected are active in transport, stevedoring, or logistics according to their registered BIC codes of industry¹. This results in a list of 974 companies. Total assets of these companies add up to €23.153.757.000. These companies have 724 external shareholders (not being the management or owner-director).

To judge the influence of the shareholders we multiply the share they have in the company by the total assets in that company. International activities are completely filtered; the reported assets include some overseas activities of companies, but only for those companies that have Rotterdam as their worldwide headquarters. The table shows the direct shareholders in the port. These companies might have shareholders of their own with a controlling share. These ultimate shareholders are presented in a later table.

Table 1: Shareholders of companies in the port of Rotterdam (data 2006)

Shareholder	Country	Controlled assets (X € 1000)
Municipality Rotterdam	NL	2430182
A.P. Möller - Maersk A/S	DK	1736371
Hal Holding N.V.	NL	815265
Hutchison Whampoa Limited	HK	779590
Apl Logistics Ltd	SG	182894
Aviva Plc	GB	132717
Odfjell Terminals Asa	NO	130579
Koninklijke Vopak N.V.	NL	125987
Schenker (Bax) Europe Holding GmbH	DE	119472
Nichirei Logistics Group Inc	JP	97109
Kuehne Und Nagel International Ag	CH	94242
Stena Line Holding B.V.	NL	89634
Nile Dutch Holding B.V.	NL	79438
Damen Holding	NL	79288
Hoyer Nederland B.V.	NL	77636
Jp Morgan Chase & Co.	US	58630
Smit Internationale N.V.	NL	56770
T.W.E. Beheer B.V.	NL	55086
Broekman Beheer B.V.	NL	52152
Atorka Group	IS	48963
Berg Shipping B.V.	NL	48902
Thyssenkrupp Ag	DE	48461
Ing Groep N.V.	NL	48113
Peninsular And Oriental Steam Navigation Company	GB	37303
Bank Of America Corporation	US	37189
Arklow Shipping Limited	IE	35793
Lbc	FR	32324
Schenk-Papendrecht Beheer B.V.	NL	32265
Cma Cgm Holding B.V.	NL	26854
Kotug International B.V.	NL	26524
Neele Groep B.V.	NL	24141

¹ Note that this study does not include manufacturing often found in ports, such as chemical industry and steel production.

NYK Holding	JP	23481
Sealiner Holding Bv	NL	23402
H.E.S. Beheer N.V.	NL	23146
Geodis Wilson Holding Ab	SE	22174
Visbeen Holding B.V.	NL	22005
Saybolt Holding B.V.	NL	21631
Rensen Beheer B.V.	NL	21484
Den Hartogh Holding B.V.	NL	20033
Van Uden Group B.V.	NL	19361
Ers Holding B.V.	NL	19126
Sca Transforest Ab	SE	19059
Van Der Vlist Transportgroep B.V.	NL	18923
Agro Delta Groep Van Vennootschappen	NL	18845
Ebrex Holding B.V.	NL	17012
Henry Bath & Son Limited	GB	16888
Samskip Hf	IS	16557
Touax Sa	FR	16281

Source: calculations based on Reach database, Bureau van Dijk (2008)

With some distance to the number two, the largest asset owner in the port of Rotterdam is the municipality, as the largest shareholder in the port authority. Other large shareholders in the port are the A.P. Möller group and Hutchison Whampoa. These companies are owners of the largest container terminals in the port. HAL holdings is the largest investment company with a stake in the port, they are a majority shareholder in Royal Vopak. Other large investments in port companies are made by Aviva and JP Morgan Chase. They invest in Smit International and Royal Vopak, both listed at the Amsterdam stock exchange. In the rest of the list primarily logistics companies are present that have subsidiaries in the port of Rotterdam who own warehouses or a fleet of trucks.

2.1 Ultimate shareholders

Most large companies are owned by a series of shareholders, who in their turn might be owned by shareholders with a controlling investment. By following the path of all controlling shares of 25% or more the ultimate shareholders of the companies in the port are be found. The following table shows the most important ultimate shareholders of the companies in the port of Rotterdam, and in how many companies they have a share.

Table 2: Largest ultimate shareholders in the Port of Rotterdam (data 2006)

Ultimate Shareholder	Sum of controlled balance (X € 1000)	Number of organisations
Municipality Rotterdam	2,439,028	2
A.P. Möller - Mearsk	1,736,371	7
Unknown or 'family business'	1,379,666	343
Hutchison Whampoa Limited	795,500	2
Kuehne Holding Ag	188,484	4
Government Of Singapore	182,894	1
Bundesministerium Der Finanzen	149,140	5
Odfjell Asa	132,904	3
Koninklijke Vopak N.V.	125,987	4
Smit Internationale N.V.	113,540	5
Nichirei Logistics Group Inc	97,109	1
Thyssenkrupp Ag	96,922	2
Cornelder Holding	89,947	9

Brännö Brygga Advokat Ab	89,634	1
Nile Dutch Holding B.V.	79,438	1
Damen Shipyards Group N.V.	79,288	5
Hoyer Nederland B.V.	77,636	1
Dp World	74,606	2
Shiela Mary Tyrrell	70,821	2
Ólafur Ólafsson	67,030	4
Broekman Beheer B.V.	58,232	9
Vepex Holding Bv	57,880	3
Interbulk Group Plc	49,708	2
Betz, Willi	48,454	2
Challenger Financial Services Group Limited	32,324	1
Grand Total	8,280,112	974

Source: calculations based on Reach database, Bureau van Dijk (2008)

For a large part, the ultimate shareholders are the same as the direct shareholders, for example AP Möller, Hutchison and City of Rotterdam. Further, the table shows some well known names in international transport. Like Kuehne, Odfjell, Vopak and Smit. Interesting parties in the list of ultimate shareholders are the governments of Singapore, who has a controlling interest in APL-logistics, and the German government that has a controlling interest in five companies, including Schenker logistics and Railion.

Table 3: Example of shareholder structure: AP Möller Maersk (2006)

Ultimate shareholder	Rotterdam Based Company	Assets (x € 1000)
A.P. MÖLLER - MAERSK A/S	APM Terminals Rotterdam BV	111,853
	Damco International B.V.	34,532
	European Rail Shuttle BV	19,126
	Maersk B.V.	1,399,447
	Maersk Benelux B.V.	143,347
	Maersk Logistics Benelux B.V.	25,273
	Safmarine Netherlands B.V.	2,793
	Total	1,736,371

The influence of the ultimate shareholders might differ from direct managerial control, as is the case with A.P. Moller/ Maersk, to indirect influence by investment policies. The latter group of shareholders might influence what is happening in the port of Rotterdam by investing or disinvesting in port(related) companies, in this way increasing or decreasing the capital that is available for the port industry.

The ultimate shareholders are clearly a set of international companies. A further analysis of these companies leads to information about the home countries of the foreign investors in the port of Rotterdam. Table 4 shows the origin of the ultimate shareholders in the port of Rotterdam.

Table 4: Origin of ultimate shareholders in the port of Rotterdam

Country	Number of stakes	Assets controlled
NETHERLANDS	485	4,152,997
DENMARK	11	1,744,736

CHINA	3	1,590,301
GERMANY	19	331,880
SWITZERLAND	7	194,401
SINGAPORE	5	187,145
JAPAN	9	167,004
NORWAY	4	136,095
SWEDEN	4	131,525
UNITED KINGDOM	13	99,591
UNITED ARAB EMIRATES	2	74,606
ICELAND	5	72,014
IRELAND	2	70,821
FRANCE	4	45,175
BELGIUM	18	37,983
AUSTRALIA	1	32,324
LEBANON	2	27,436
NETHERLANDS ANTILLES	4	16,864
ITALY	4	14,140
SOUTH AFRICA	2	11,477
FINLAND	2	10,316
ISRAEL	1	9,849
VIRGIN ISLANDS, BRITISH	2	9,821
KUWAIT	1	6,305
CAYMAN ISLANDS	1	5,550
LIECHTENSTEIN	2	5,306
MALAYSIA	1	3,242
KOREA, REPUBLIC OF	1	1,437
UNITED STATES	1	1,067
LUXEMBOURG	4	24
BERMUDA	1	0
Unknown		1,379,755
Grand Total	630	12,368,811

Still, by far the most assets are controlled by companies of Dutch origin. However a substantial part of the Rotterdam port is under direct or indirect control of firms or governments from other countries. Primarily other European countries and the large Asian economies. There is a notable absence of American shareholders in the port.

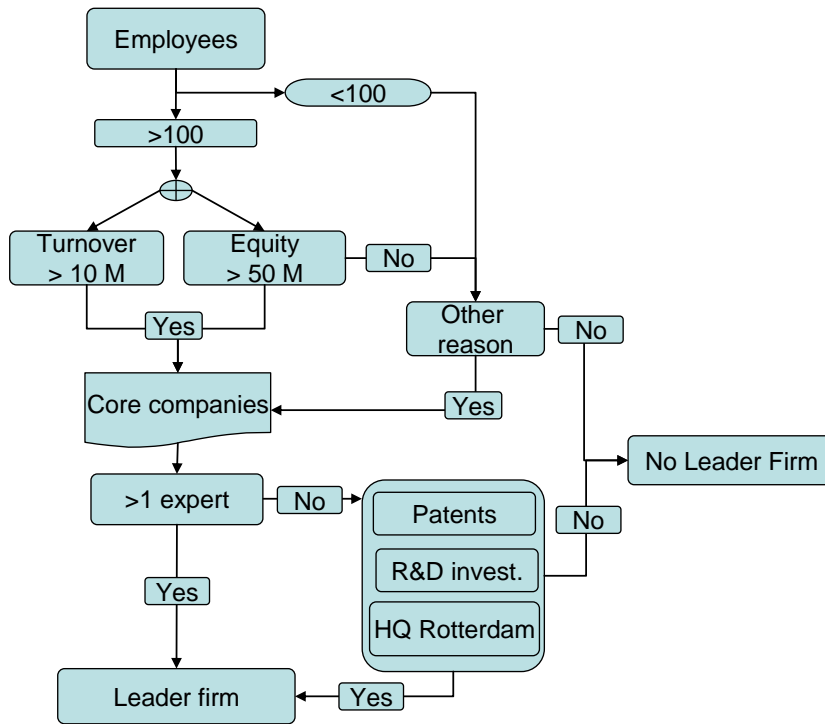
The list of shareholders and controlling firms is merely a list of large Companies, firms that have a prominent position in or for the port. It does not show whether these large companies are also Leader Firms, companies that create extra value for the port cluster. For answering the research question “is the internationalization and concentration beneficial for seaport-regions?” a study into the local effects of the leading companies is necessary.

3 LEADER FIRMS

To study the local effects of leader firms we first select the sample of leader firms by analyzing the characteristics of port firms in Rotterdam and by interviewing experts about who the most important firms in the port of Rotterdam are when it comes to generating positive local effects.

The activities that take place in the port of Rotterdam vary from stevedoring to manufacturing. In this study we include those activities that are water and transport related. In previous research (Nijdam & De Langen, 2006) it was found that the companies in non-maritime manufacturing, such as chemical production and oil refinery, are poorly connected with the other port related companies when it comes to innovation and sharing knowledge. Since the main characteristic of leader firms is the creation of external effects, and in relations with suppliers the external effect is often knowledge spillover, we expect the leading chemical companies not to have a leader firm impact on the port and maritime business. The selection of leader firms follows the steps in the figure below.

Figure 1: Selection process of core companies and leader firms



Applying this selection to the 5029 organizations² that are registered with the chamber of commerce as located in the Rijnmond area and involved in port related activities leads to the following results.

Criteria	# Companies
>100 employees	103
>10M turnover	130
>50M equity	73
>10M turnover OR >50M equity	152
>10M turnover * > 50 M equity * >100 employees	38
>10Mturnover * >100 employees OR >50M equity * >100 Employees	73

² This also includes local subsidiaries and separate locations of the same company. The number of organisations is therefore overstating the actual number of companies.

The number of ‘core companies’ in the Port of Rotterdam is 73. These are companies that have more than 100 employees and have a total equity of more than 50 million euro or a net turnover of more than 10 million euro. There are only 38 companies that meet the three criteria simultaneously.

To finalize the leader firm selection, experts³ were interviewed about what they think are the companies that act as leader firms in the port. By these experts 27 companies were identified as leader firms in the port of Rotterdam. A company is included in the list when two or more experts considered the company a leader firm. The table below shows the 27 companies that are potentially leader firms in the Port of Rotterdam. The shaded lines in the table represent the companies that participated in the research. Companies marked with * are included partly in the research, because they did not cooperate in full case studies but did provide enough information to be included (partly) in further analysis.

Table 5: Leader firms in the port of Rotterdam

Name of company	Name of company
APM Terminals Rotterdam BV	Interforest
Argos Groep B.V.	Jo Tankers BV
Bakker Sliedrecht Electro Industrie B.V.	Keppel Verolme
Boskalis*	Koninklijke Vopak N.V.
Broekman Group	Kühne & Nagel N.V.
EECV	Mammoet Nederland B.V.
Europe Container terminals*	Maersk lines
Europees Massagoed Overslagbedrijf (EMO) B.V.	Odfjell Terminals (Rotterdam) B.V.
Gevelco	Samskip
Havenbedrijf Rotterdam	Schenker International B.V.
Hoyer Nederland B.V.	Seabrex Rotterdam B.V.
Huisman Itrec	Smit Internationale N.V.
IHC Merwede	Van Oord*
Imtech*	

The table below shows the characteristics of the analyzed leader firms. These fifteen firms vary in size and business model. The smallest leader firm has 250 employees, the largest employs 2200 people in the Rijnmond area. The local connections of the firms also differ, one company buys 95% of all its input in the Rijnmond region while other companies only scarcely buy in this region. On average leader firms buy 45% of their input from local suppliers. The clients of the leader firms are generally of a more international nature, on average only 17% of the turnover is production for clients located in Rijnmond⁴.

The number of suppliers that are located in Rijnmond and are important for the production process of the leader firm ranges from nil to eight. The percentage of the input that these important, local suppliers provide is average 31% but ranges from zero to 80%. Average owners’ equity of the leader firms is almost 68 million euro. The minimum

³ Experts include four directors of cluster organisations, 2 ceo’s of large port firms, 2 managers of the Port Authority, 1 specialised port consultant

⁴ Note that service delivered in Rijnmond to an international company (eg a shipping line) is considered export in economic statistics.

owners' equity is 82 thousand euro, for a company that is financially fully under control of the shareholders. The turnover of the companies ranges from 70 million to 700 million euro's. The profit resulting from this turnover is on average 9%.

Table 6: characteristics of the leader firms

	Mean	Minimum	Maximum
Employees	799	250	2200
Export_percentage	58 %	10 %	100 %
% Supplies_Rijnmond	45 %	2 %	95 %
Perct_input_prim_sup_rijnmond	31 %	0 %	80 %
Perc_turnover_Rijnmond	17 %	0 %	65 %
Owners_equity (X1000 €)	67.664	82	288.638
Total_equity (X1000 €)	241.931	25.670	795.500
Net_turnover (X1000 €)	291.461	70.301	704.896
Profitmargin	9 %	-0,17	19,05

Source; Rotterdam Chamber of Commerce and manager interviews

3.1 Leader firm score

The previous paragraph led to the selection of potential leader firms, meaning that these firms are expected to show leader firm behavior that brings positive effects for others in the cluster. Some companies have a very strong influence on the development of the cluster, while others show less leader firm behavior than one might expect based on their size and market position. The difference in leader firm behavior does not mean that there is a distinction between good and bad companies. There can be numerous external factors that influence the possibilities for a firm to behave like a leader firm. In general it might be easier for production firms than for service firms to cooperate with suppliers to develop new products and creating knowledge spillovers in the process.

The scoreboard is based on activities in the following fields⁵.

1. *Coordination of production networks*; A first form of leader firm behavior is the coordination of production networks. Leader firms invest in the coordination of this network. As a consequence the whole network becomes more competitive. In most industries examples of network coordination can be found where a leader firm puts together a group of partners in response to specific opportunities.

⁵ The 9 forms of leader firm behavior were identified in the Dutch maritime Cluster by De Langen and Nijdam, 2003

2. *Role as lead user*; By expressing a ‘critical demand’, a more sophisticated demand than that of other firms in the market, leader firms improve the innovativeness of their suppliers.
3. *Creating standards*; Leader firms set new standards, for instance of safety and pollution prevention. Other firms, especially suppliers that are confronted with such standards in an early stage, benefit.
4. *Creating ‘new combinations’*; Leader firms have a central role in creating new combinations of previously unrelated technologies. The combination of such technologies leads to new products. Other firms in the production network benefit from this product development.
5. *Improving the transfer of knowledge*; A fast diffusion and transfer of knowledge adds to the competitiveness of a cluster. Because of the knowledge they possess and their central role in knowledge networks, leader firms improve the transfer of knowledge in the cluster.
6. *Encourage and enable internationalization*; Leader firms compete on international markets. They can start production in other countries and urge or encourage firms in the cluster to internationalize in order to supply them in these countries. Leader firms can lower the barriers to internationalize by letting suppliers use their international network or by guarantying a long-term contract for production facilities abroad.
7. *Creating reputation*; Leader firms often create reputation for a whole cluster. When they engage in projects at the frontier of what is possible, these projects get widely known in the industry and contribute to the reputation of the cluster as a whole. Also maintaining high quality or efficiency standards can add to the reputation of others, especially when leader firms advertise their ‘local roots’.
8. *Improving the labor market*; The quality of the labor market is important for the competitiveness of the cluster. Leader firms invest to improve the quality of the labor market. Leader firms are often found among the larger firms in a cluster. These firms benefit the most from a well-trained professional labor force. This gives them the incentive to invest in education projects.
9. *Organizational infrastructure*; Leader firms play a role in creating and maintaining the organizational infrastructure in the cluster. Such infrastructure is an important condition for effective cluster governance (De Langen, 2002).

The following table shows the scores of the selected leader firms.

Table 7: Score on leader firm behavior for the analysed firms in rotterdam

Firm	Score	Note
APM terminal	3.00	Little interaction with local business. Focused on efficiency of own operation. Most development done in

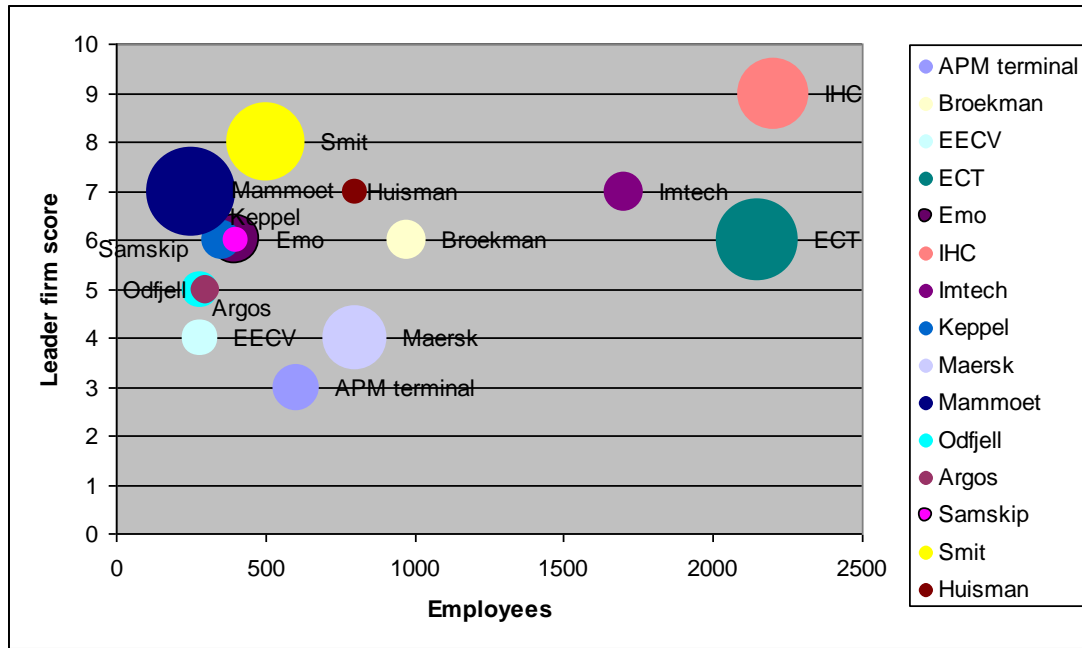
		Denmark.
Argos	5.00	New, fast growing oil-trader, beginning with production of bio-fuels in Rotterdam. One of the first movers in the bio-fuel cluster in Rotterdam. Their knowledge network in Rotterdam is still in the developing phase.
Broekman	6.00	Group with many activities in Rotterdam. Very active in formal and informal networks. Leading company in the development of Rotterdam as car handler. Innovative development, but no large scale joint-initiatives with other port companies.
EECV	4.00	Cost centre for the German steel industry, less focused on the success of Rotterdam. Focused on efficiency, is an example for others in the field of social responsibility.
EMO	6.00	Largest automated dry bulk port facility in Europe. Systems are developed in close cooperation with suppliers. However, these suppliers are not located in Rijnmond. Showcase of technological development in stevedoring.
IHC	9.00	World market leader in design and building of dredge vessels. High quality standard, most innovations in the Dutch maritime industries. Numerous cooperative efforts with suppliers, buyers, educational facilities. Actively shares knowledge with other companies.
Keppel	6.00	Large facility for building and maintenance of off-shore equipment. Builds complex structures. Development in-house is limited and most production capacity is hired in. There is a strong role as a coordinator. Active in formal and informal networks in the port.
Maersk	4.00	Large container shipping line in the world, with regional headquarters in Rotterdam. Many decisions are taken at headquarters and many suppliers are Maersk group companies, local embeddedness is limited. Reputation and scale effects for Rotterdam are present because investments in the efficiency in hinterland transport.
Mammoet	7.00	Heavy lift shipping and off-shore activities. Strong reputation effects for Rotterdam. Active in the local cluster with co-development.
Samskip	6.00	Leading intra-European (maritime) transporter and developer of multimodal networks. Inventor of new transport concepts and equipment. Active in local

		networks.
Smit	8.00	Leading company in towage and special projects off-shore. Developer of innovative off shore equipment in cooperation with local firms. Large contribution to Rotterdam reputation. Lead user for many Rotterdam based companies.
Odfjell	5.00	Oil and chemical terminal in Botlek with expansion plans. Recently moved the HQ to Rotterdam. Active in local networks.
Imtech	7.00	Developer of state-of-the art ship equipment. Supplier to all major dredging and off-shore companies.
Huisman-Itrec	7.00	Huisman designs and constructs large and innovative structures for the off-shore industry. Innovation is a routine in this company and in this way brings knowledge in the cluster.
ECT ⁶	6.00	The largest container terminal in Europe. Important player in attracting goods flows to Rotterdam. Has a history of innovative terminal concepts, but today focuses primarily on operational excellence. The take-over by a Chinese company limited the possibilities for the local management.

Figure 2 shows the score of the leader firms compared to their size measured in number of employees in the Rijnmond area. The size of the bubbles resembles the net value added of the companies. This results in an overview showing the importance of the firms for the regional economy. The leader firm score gives an indication of the companies' importance for other businesses in the cluster, the number of employees indicates the socio-economic significance of the firm, and the net value added is the resemblance of total economic activity in the Rijnmond area.

⁶ Management did not cooperate with an interview, the score of this company is based on primarily external sources.

Figure 2: Relative importance of leader firms for the Rotterdam port economy



4 DOES OWNERSHIP MATTER?

After determining the shareholders and the leader firms in the port of Rotterdam, we can analyze whether the large shareholders are also the leader firms in the port and if the shareholder structure of the leader firms is of importance for their leading behavior.

In the literature and in the selection of leader firms, the location of the headquarters is a factor considered important for the local impact of a company. The assumption is that the location of a headquarter leads to more economic effects because there is more commitment of the management to the area where the headquarters is located and because interaction between companies is more frequent at the level of headquarters.

In the sample of companies, firms that have a foreign parent company and firms with headquarters in Rijnmond are present. For some companies this is unambiguous, firms like Smit Internationale and IHC were founded in Rotterdam and still maintain their headquarters there. For other companies the picture is less clear. For example container stevedore ECT was founded by Rotterdam port companies, grew with the help of government money and was taken over by a Hong Kong based holding in 2002. The ECT headquarters is still in Rotterdam, but strategic investment decisions are nowadays made in Hong Kong, not in Rotterdam. The following table gives an overview of the headquarters locations of the leader firms:

Table 8: Location of the headquarters of Rotterdam leader firms

Company	Headquarters	Foreign parent/ shareholder?
APM terminal	The Hague / Copenhagen	Yes
Argos	Rotterdam	No
Broekman	Rotterdam	No
EECV	Duisburg / Rotterdam	Yes
EMO	Rotterdam	No
IHC	Rotterdam (Sliedrecht)	No
Keppel	Singapore	Yes
Maersk	Copenhagen	Yes
Mammoet	Rotterdam	No
Samskip	Rotterdam/Reykjavik	Yes
Smit	Rotterdam	No
Odfjell	Oslo	Yes
Imtech	Rotterdam/Gouda	No
Huisman	Rotterdam (Schiedam)	No
ECT	Hong Kong	Yes
Van Oord	Rotterdam	No
Boskalis	Rotterdam (Papendrecht)	No

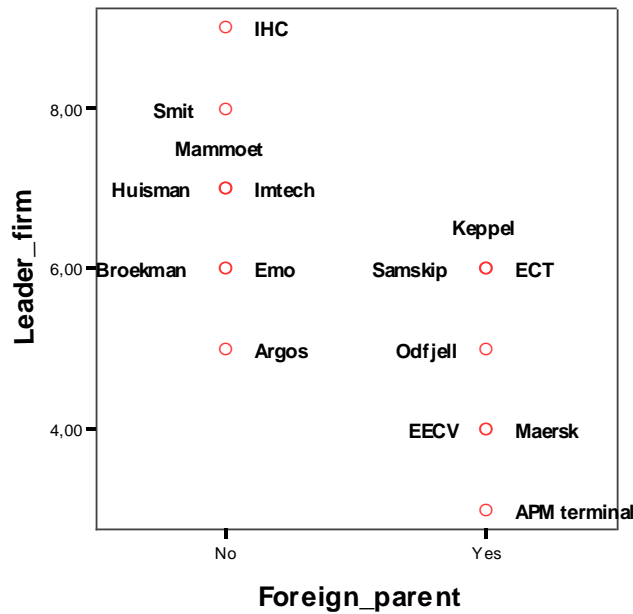
Half of the leader firms in the sample is owned by a foreign company, comparing this with the total assets that are owned by foreign parties in the Rotterdam (34%) the leader firms are rather international. This is not surprising since leader firms tend to be the larger firms and large firms are more often owned by international shareholders. However, when we look closer at the behavior of the leader firms we observe a difference between locally and foreign owned leader firms in the amount of positive effects they have on the local business community. Table 9 shows the difference in leader firm behavior between the two categories.

Table 9: Leader firm score for local and foreign managed companies

Foreign parent ?	N	Leader firm score Mean	Std. Deviation	95% Confidence Interval for Mean		Minimum	Maximum
				Lower Bound	Upper Bound		
No	8	6,8750	1,24642	5,8330	7,9170	5,00	9,00
Yes	7	4,8571	1,21499	3,7335	5,9808	3,00	6,00
Total	15	5,9333	1,57963	5,0586	6,8081	3,00	9,00

Judging from the analyzed sample of 15 leader firms the headquarter location effect is present in most cases and proves to have a significant influence on leader firm behavior. A graphical representation of locally managed and foreign managed firms is given below.

Figure 3: Leader firm role of foreign and domestic managed firms



On average the companies with a foreign parent show less leader firm behavior than companies with their headquarters in Rotterdam. Still, also these companies act as leader firms in the Rotterdam area, but less so than companies with their headquarters located in Rotterdam. The main connection of foreign owned leader firms with the local business community is through supplier relations.

Keppel Verolme is an example; this company has a mother company in Singapore. According to the management of Verolme the mother company is primarily interested in having production capacity available in Western Europe and further has little direct influence in for example the choice of suppliers. Maersk lines has its headquarter in Denmark and is known to have a rather centralized organization. This has its effects on the Rotterdam branch, but still Maersk is using suppliers from Rotterdam for international maintenance.

The headquarter effect also seems to have a reverse effect, as is the case with Smit. Because Smit is located in Rotterdam and there is a strong cluster with specialized suppliers, the suppliers from Rotterdam are also producing for Smits subsidiaries abroad. From our sample of companies we can expect that the host location of the subsidiaries is an important factor in determining the effect of headquarter location. When the host location of a subsidiary is a strong cluster, the headquarter effect is probably less present. When the headquarter is located in a strong cluster, the effect on subsidiaries in other clusters is more likely.

Table 10: Assessment of the headquarter effect in different situations

HQ \ Subsidiary	Strong cluster	Weak cluster
Strong cluster	-	++
Weak cluster	--	+

5 CONCLUSIONS

Port business is internationalizing, the port of Rotterdam is a good example of that. About 1/3 of the assets in the port of Rotterdam is ultimately controlled by a foreign party. The internationalization of the port companies has an effect on the development of the local business community.

The companies with a foreign parent are less involved in local development and create less positive externalities in the port, such as knowledge spillovers. Internationalization of the port business has led to some detachment of companies with their local business environment. The main stevedoring companies in the Port of Rotterdam are an example of this. Based on their size and market position much more involvement in local business development could be expected than actually takes place.

The port authority, national and local government could take the economic externalities into account when leasing out port-land or facilities. In a tender some aspects of leader firm behavior could be formulated as part of the quality assessment of a bid.

There are also chances to create more linkage of internationalized companies with the local business community, especially in research and development and cooperative projects. Foreign owned companies might not have the freedom to cooperate in local projects. The port authority could play a role in convincing the foreign shareholder that a leader firm role in Rotterdam provides benefits for both the company and the port of Rotterdam.

Further research is required into several issues. First, the same type of research could be repeated in other large seaports, to compare the degree of internationalization between the ports. Second, the relation between host and home cluster of maritime companies to determine if the assumption that the strength of the home cluster is a determining factor for the leader firm role of subsidiaries in other clusters. Third, repeating the research in 5 years would give a good insight in the internationalization trend in the port of Rotterdam.

REFERENCES

Aitken, Brian J. and Harrison, Ann E., 1999, Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela, *American Economic Review*, vol. 89(3), pages 605-618

De Langen, P.W. en Nijdam, M.H. (2003) *Leader firms in de Nederlandse Maritieme Cluster*, Delft, Delft University Press

Dimelis, S, 2002, Foreign ownership and production efficiency: a quantile regression analysis , *Oxford economic papers*, Vol. 54 Is. 3 P. 449

Girma, Sourafel, 2001, Who Benefits from Foreign Direct Investment in the UK?, *Scottish journal of political economy*, Vol. 48, Is. 2, P. 119

Nijdam, M. en De Langen, P. (2006) *Leader firms en innovatie in de Rotterdamse haven-industriële cluster*, Amsterdam, Dutch University Press

Notteboom, T. and Rodrigue JP. (2008) Containerization, box logistics and global supply chains: the integration of ports and liner shipping networks, *Maritime economics & logistics*, vol. 10, is. 1/2, p. 152-174

Olivier, D. and Slack, B. (2006) Rethinking the port, *Environment and Planning A*, vol. 38, p. 1409 – 1427

Olivier, D., Parola, F., Slack, B., Wang, J., 2007, The time scale of internationalization: the case of the container port industry, *Maritime Economics and Logistics*, vol. 9, pp. 1-34

Robinson R, (2002) Ports as elements in value-driven chain systems: the new paradigm, *Maritime Policy and Management* , vol. 29, p. 241 - 255