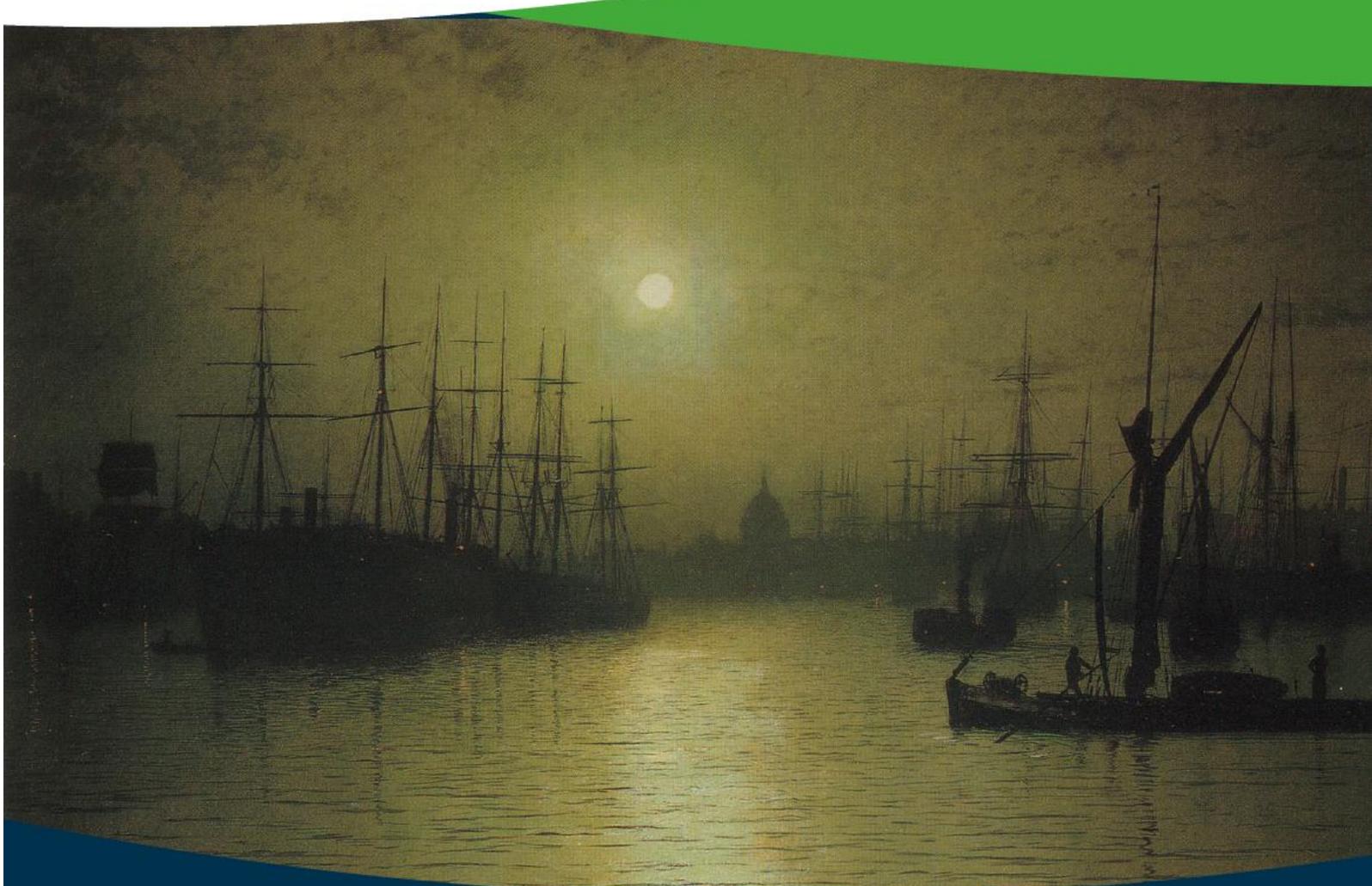


Economic Assessment of Management Reform in European Seaports

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Proefschrift voorgedragen tot het behalen van de graad van Doctor in de Toegepaste Economische Wetenschappen aan de Universiteit Antwerpen

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ECONOMIC ASSESSMENT OF MANAGEMENT REFORM IN
EUROPEAN SEAPORTS

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PhD thesis

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To the memory and legacy of
Prof. Em. Ferdinand Suykens
(1927-2002)

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“Writing a book is an adventure. To begin with it is a toy and an amusement. Then it becomes a mistress, then it becomes a master, then it becomes a tyrant. The last phase is that, just as you are about to be reconciled to your servitude, you kill the monster and fling him to the public.”

Winston Churchill

This report reflects the result of nine years of research, which is an unusually long period, even for a part-time PhD student. I probably could have gone on for a couple of more years, but at some point it is really time to “kill the monster and fling him to the public”. Winston Churchill was not only a great statesman; he was also an experienced researcher and prolific writer, whose wise words I humbly heed.

I could not have completed this work without the relentless, enthusiastic support of my supervisor, Prof Eddy Van de Voorde. We got to know each other during my final master’s year at the University of Antwerp, now almost 25 years ago. We stayed in touch after my graduation and I distinctly remember us sitting in a restaurant near the city campus in the spring of 2006, discussing the idea of pursuing a PhD. It was something I had in mind for a while and, to my great relief, Eddy didn’t think it was an entirely crazy thing to do. The restaurant unfortunately has long closed since and is now a trendy bar. Change is not only a constant factor in the world of ports and shipping. I am particularly grateful for Eddy’s constructive, stimulating and encouraging spirit, which kept me going through all these years. I always returned invigorated from meetings where we discussed my work, not in the least because he usually saw much more progress than I did. Eddy also persuaded me to venture into theoretical and methodological paths I would never have dared entering on my own.

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In this study I make a plea to embrace the potential that European Union ports policy can offer to support and stimulate port management reform. During the past nine years, I had both the privilege and pleasure of working closely with so many EU officials on this subject that it would take me very long to list them all. But two people definitely stand out: Fotis Karamitsos, Director Maritime Transport at DG Mobility and Transport, and Dimitrios Theologitis, Head of the Ports Policy Unit at the same DG. I sincerely hope that my modest contribution may help achieving a proper European ports policy after all.

Moving on professionally from port authorities to shipowners helped me obtain clearer views from ‘the other side’, thanks to the members and colleagues at the European Community Shipowners’ Associations.

My long-time friend André Bollen, a great connoisseur of ports, arts and other fine things in life, deserves a special mention for suggesting the cover image of this report. When John Atkinson Grimshaw painted his late-romantic riverscape of London, the port was facing numerous problems, which were eventually solved by reforming its management.

The most important support is often taken for granted, and that is the support of the home front. I first and foremost embrace my wife Ingrid, who has encouraged me throughout my entire professional and academic career. She was there at moments of doubt and despair. Ingrid’s support goes back a very long way indeed, to the days when she was trying to make sense of the illegible manuscript of my master thesis. Our children, Andries, Katrien and Hendrik, have known me working on this project for most of their, admittedly still young, lives. They have come so accustomed to it that they know that the surest way to find me is to head straight for the study. I wish them great satisfaction and joy in whatever education and career paths they will be pursuing.

Last but not least, I want to thank one person whose influence embodies this entire work and who brought me on the subject of port management in the first place. The late Ferdinand Suykens was director-general of Antwerp Port Authority and professor of port economics at the University of Antwerp. He supervised my master thesis and our paths later crossed at the European Sea Ports Organisation, of which he was the founding father. His erudite personality still inspires me and made me appreciate the value of history and culture, applied to research, work and life in general. It is to the memory and legacy of Ferdinand Suykens that I dedicate this thesis.

SUMMARY

In most seaports around the world, port management is in the hands of a port authority, a body which has the statutory responsibility to manage a port's water and land-side domain. Port management bodies differ, *inter alia*, in terms of ownership, form, objectives, responsibilities and levels of autonomy. The role and features of port authorities have changed considerably over time, due to technological evolution, waves of privatisation and liberalisation as well as socio-economic factors.

This study revisits the role of port authorities, identifies trends in port management and governance and assesses the economic impact of port management reform. It also explores the future scope for port management reform in Europe. This is done through a review of literature, empirical evidence drawn from European seaports and an assessment of EU policy initiatives. The main contribution of this work consists of a comprehensive analytical framework to measure the economic impact of port management reform and to identify influential process factors. The framework was developed and tested out on the reform of Rotterdam Port Authority.

Conceptually, port authorities have the potential to undergo a 'renaissance' in order to face multiple pressures from stakeholders, deal with the socio-economic changes in the port landscape and improve the competitiveness of their ports. They can do so by performing their functions as facilitators or entrepreneurs. Expressed in economic terms, port authorities can generate more demand for the port product by decreasing the generalised cost of moving cargo or passengers through the port. As ports are usually part of wider logistics chains, there are other elements which determine the competitiveness of ports, on which a port authority on its own has no or only very limited influence. The influence of port authorities in the logistics chain can be extended through cooperation with other port authorities and other relevant actors in the chain.

Port governance in Europe still largely converges around regionally-based traditions. Regional differences however may no longer explain everything. Port authorities managing ports that have outgrown their local and national importance appear to be moving to a different, more independent governance model. The value-added for larger port authorities of staying firmly embedded in governance traditions can moreover be questioned. The future relevance of these governance traditions depends on further reforms and, possibly, the influence of the European Union. The potential impact of EU policy and law on the governance of seaports is fairly high, but it has not materialised yet because of continued resistance against regulatory initiatives.

Port management reform should have an outspoken economic objective, which is to contribute to the competitiveness of a port. The reality of reform processes however often differs substantially from what the economic objective requires. Measuring the economic impact of port management reform on the port product is a challenging task, given that several other internal and external factors influence the competitiveness of a port. Port authority reform is often part of a wider reform package, which makes its particular impact even more difficult to isolate. A distinction must be made between the economic impact of port management reform on the port authority itself and on the competitiveness of the port as such. To assess the latter, port management reform can be seen as a quality improvement of the port product. Reform should thus aim at maximising the capability of the port authority to reduce the generalised cost of passing cargo or passengers through the port, in

order to increase demand for the port product. In concrete terms, port management reform has the potential to increase a port authority's ability to invest, by having more autonomy over its own revenue sources, attracting new share capital and having better access to private financing. It will also increase the port authority's ability to engage more actively in participations that would extend its influence in the logistics chain, e.g. through more intensive cooperation with other port authorities.

To be successful, parties participating in reform processes, including government and port authority management, should share the economic objective of reform from the outset. If that is not the case, which in practice it often isn't, the reform process may not only take a long time, it also risks producing imperfect and even counterproductive configurations. The participation of a government level which is less directly involved in the governance of the port authority may help staying on course. Ensuring an adequate post-reform governance framework is just as important as the reform process itself. Adopting a new legal form is in itself by no means a guarantee for better performance. Functional and financial autonomy, a professional corporate governance culture as well as adequate and proportional regulatory oversight are equally essential. Post-reform governance also means that the effects of the reform package on the performance of the port authority and the competitiveness of the port must be regularly monitored, taking into account that positive effects of reform may wear off after a certain time.

There is viable scope for a common direction in further reforming port management in Europe, notably for the core network ports of the Trans-European Transport Networks (TEN-T). The overall direction consists in making port management independent through corporatisation or privatisation. The former will generally be more suitable for multi-purpose gateway ports that operate in a landlord configuration, which applies to the majority of the TEN-T core network ports. Independent management will also enable port authorities to merge or engage in other far-reaching forms of cooperation, which may be a viable additional reform direction for certain core ports that are de facto part of a cluster. The drive for further port management reform in Europe and the options to be chosen should remain bottom-up processes, based on shared beliefs between port authorities and governments that the objective of port management reform is to improve the competitiveness of ports. Reform efforts towards independent management are expected to differ considerably and would appear to be most intense for ports in southern Europe. Making ports more competitive through management reform will not just serve the ports concerned, but the European port system as a whole. The European Union should therefore be an objective ally and provide support, by clarifying the applicable legal framework without further delay. This can be done by continuing the present legislative initiative and through case-by-case decisions. A more efficient alternative could however consist in providing incentives through the TEN-T framework, whereby EU funding for port infrastructure projects would be made conditional to application of basic principles regarding market access and transparency.

SAMENVATTING

In de meeste zeehavens ter wereld is een havenautoriteit verantwoordelijk voor het beheer van de haven. Zij heeft de statutaire verantwoordelijkheid om het water- en landdomein van de haven te beheren. Havenbestuursorganen verschillen, ondermeer op gebied van eigendom, vorm, doelstellingen, verantwoordelijkheden en graad van autonomie. De rol en de functies van havenautoriteiten zijn doorheen de tijd aanzienlijk veranderd, als gevolg van technologische ontwikkelingen, golven van privatisering en liberalisering, alsook socio-economische factoren.

Dit onderzoek bestudeert de rol van havenautoriteiten, identificeert trends in havenbeheer en –bestuur en evalueert de economische impact die hervorming van havenbeheer heeft. Het bekijkt ook welke richting hervorming van havenbeheer in Europa verder kan uitgaan. Het onderzoek is gebaseerd op literatuurstudie, empirische bevindingen uit Europese zeehavens en een beoordeling van Europese beleidsinitiatieven. De belangrijkste bijdrage van dit werk bestaat uit een omvattend analytisch kader om de economische impact van de hervorming van havenbeheer te meten en invloedrijke procesfactoren te identificeren. Het kader werd verder ontwikkeld en uitgetest op de hervorming van het Havenbedrijf Rotterdam.

Havenautoriteiten hebben conceptueel de mogelijkheid om een 'renaissance' te ondergaan, wat hen toelaat beter om te gaan met de veelzijdige druk van stakeholders en socio-economische veranderingen in het havenlandschap. Het geeft hen vooral meer mogelijkheden om het concurrentievermogen van hun haven te verbeteren. Havenautoriteiten kunnen dit doen door hun eigen functies op een faciliterende of ondernemende wijze in te vullen. In economische termen uitgedrukt, kunnen havenautoriteiten meer vraag naar het havenproduct genereren door de gegeneraliseerde kosten van de doorvoer van lading of passagiers door te haven te verminderen. Aangezien havens doorgaans deel uitmaken van ruimere logistieke ketens, zijn er echter ook andere, externe elementen die het concurrentievermogen van havens bepalen, waarop een havenbestuur alleen weinig of slechts zeer beperkte invloed heeft. De invloed van havenautoriteiten in de logistieke keten kan worden versterkt door middel van samenwerking met andere havenautoriteiten en andere relevante actoren in de keten.

Het bestuur van Europese havens wordt nog grotendeels bepaald door regionaal gevestigde tradities. Maar regionale verschillen verklaren wellicht niet langer alles. Havenautoriteiten die havens beheren die hun lokale en nationale belang zijn ontgroeid, lijken te evolueren naar een ander, meer onafhankelijk, bestuursmodel. Voor deze havenbesturen is het twijfelachtig of blijvende verankering in traditionele bestuursmodellen wenselijk is. Het toekomstig belang van deze bestuurstradities is afhankelijk van verdere hervormingen en de eventuele invloed van de Europese Unie. De potentiële impact van EU-beleid en wetgeving op het bestuur van zeehavens is vrij hoog, maar voortdurend verzet tegen regelgevende initiatieven heeft deze impact nog niet algemeen tastbaar gemaakt.

De hervorming van havenbeheer moet een duidelijke economische doelstelling hebben, met name het bijdragen aan het concurrentievermogen van een haven. De realiteit van havenhervormingen kan echter aanzienlijk verschillen van wat deze economische doelstelling vereist. Het meten van de economische impact van de hervorming van havenbeheer op het havenproduct is een uitdagende taak, gezien het feit dat verschillende andere interne en externe factoren een invloed hebben op de competitiviteit van een haven. De hervorming van havenbeheer is vaak onderdeel van een breder pakket aan hervormingsmaatregelen, wat

het nog moeilijker maakt om het specifieke effect ervan te isoleren. Er moet een onderscheid worden gemaakt tussen de economische impact van de hervorming op het havenbestuur zelf en de competitiviteit van de haven als zodanig. Om dit laatste aspect te beoordelen, kan hervorming van havenbeheer voorgesteld worden als een kwaliteitsverbetering van het havenproduct. Hervorming van havenbeheer moet dan de havenautoriteit maximaal toelaten om de gegeneraliseerde kosten van de doorvoer van lading of passagiers door te haven te verminderen, en aldus de vraag naar het havenproduct te verhogen. Concreet kan hervorming van havenbeheer het investeringsvermogen van een havenautoriteit versterken, door haar meer autonomie te verschaffen over eigen inkomstenbronnen, door het aantrekken van nieuw kapitaal en een betere toegang tot private financiering. Hervorming zal havenautoriteiten ook toelaten om diepgaander samen te werken met andere havenautoriteiten en ondernemingen en aldus hun invloed in de logistieke keten te vergroten.

Een succesvol hervormingsproces vereist in de eerste plaats dat betrokken partijen, zowel de overheid als het management van de havenautoriteit, de economische doelstelling van de hervorming vanaf het begin onderschrijven. Als dat niet het geval is, wat in de praktijk vaak blijkt, dan zal het proces niet alleen veel tijd in beslag nemen, maar ook leiden tot onvolmaakte en contraproductieve oplossingen. De deelname van een overheidsniveau dat minder direct betrokken is bij het bestuur van de havenautoriteit kan helpen om op koers te blijven. Naast het eigenlijke hervormingsproces is de zorg voor een aangepast bestuurskader na hervorming van groot belang. Een nieuwe rechtsvorm biedt op zichzelf geen enkele garantie voor betere prestaties. Functionele en financiële autonomie, een professionele corporate governance cultuur alsmede aangepaste, proportionele regulering zijn even essentieel. Goede nazorg betekent ook dat de gevolgen van het hervormingspakket op de prestaties van het havenbestuur en de concurrentiepositie van de haven regelmatig moeten worden gemeten, waarbij rekening moet worden gehouden dat de positieve effecten van hervorming na een bepaalde tijd kunnen slijten.

Er is ruimte voor een gezamenlijke richting inzake de verdere hervorming van havenbeheer in Europa, met name voor die havens die deel uitmaken van het kernnetwerk van de trans-Europese vervoersnetwerken (TEN-T). De algemene richting bestaat in het verder onafhankelijk maken van de betrokken havenautoriteiten door middel van verzelfstandiging of privatisering. De eerste optie zal over het algemeen meer geschikt zijn voor multifunctionele gateway havens met een landlord configuratie, wat het geval is voor de meerderheid van de havens in het TEN-T kernnetwerk. Onafhankelijk beheer zal havenautoriteiten beter in staat stellen om te fuseren of andere verregaande vormen van samenwerking aan te gaan met andere havenautoriteiten, wat een bijkomende hervormingsrichting kan zijn voor kernhavens die de facto tot een cluster behoren. Het streven naar verdere hervorming van havenbeheer in Europa en de keuzes die daarbij gemaakt worden, moeten bottom-up processen blijven. Deze moeten in de eerste plaats gebaseerd zijn op de gedeelde doelstelling van overheden en havenautoriteiten die erin bestaat de competitiviteit van de betrokken havens te verbeteren. De benodigde hervormingsinspanningen zullen aanzienlijk verschillen in Europa en zullen waarschijnlijk het meest intens zijn voor de zuid-Europese havens. Het verbeteren van de concurrentiekracht van havens door hervorming dient niet enkel de betrokken havens, maar ook het gehele Europese havensysteem heeft er baat bij. De Europese Unie moet daarom een objectieve bondgenoot zijn, die het toepasselijk juridisch kader zonder verder uitstel verduidelijkt. Dit kan door het voortzetten van het huidige wetgevend initiatief en individuele rechtszaken. Een efficiënter alternatief zou echter kunnen bestaan in het verstrekken van incentives via het TEN-T-kader, waarbij EU-financiering voor infrastructuurprojecten voorwaardelijk gemaakt wordt aan de toepassing van fundamentele spelregels inzake markttoegang en transparantie.

1. INTRODUCTION AND RESEARCH DESIGN

In most seaports around the world, port management is in the hands of a port authority, a body which has the statutory responsibility to manage a port's water and land-side domain (De Monie 2004). Port management bodies differ, *inter alia*, in terms of ownership, form, objectives, responsibilities and levels of autonomy. This diversity in turn depends on how governments view the role of ports in the first place (Suykens and Van de Voorde 1998). The role and features of port authorities have changed considerably over time, due to technological evolution, waves of privatisation and liberalisation and socio-economic factors.

Port authorities became topical subjects in port economics research in the early 1990s and port governance has now become a widely professed field of study (Pallis *et al* 2011; Brooks and Pallis 2012). Our research returns to the existential questions that were raised by early scholars, who identified historical trends in port management (Suykens 1988), questioned the need for having port authorities at all (Goss 1990b) and discussed whether changes in port management would lead to a better port product (Suykens and Van de Voorde 1998). We revisit these fundamental questions through a review of literature that has emerged since then, empirical evidence drawn from European seaports and an assessment of EU policy initiatives. We further develop and test out a comprehensive framework that measures the economic impact of port management reform and identifies influential process factors. Finally, we explore the scope for further port management reform in Europe.

1.1. Research scope and objectives

The scope of this study covers port management in a broad sense, regardless of the diverse features port authorities may have. The empirical research however focuses on the management of European seaports and we especially cover public sector port authorities that manage larger, multi-purpose gateway ports. The objectives of the study are threefold: (1) to revisit the role and value-added of port authorities, (2) to identify trends in port management, (3) to assess the economic impact and understand the process of port management reform and (4) to explore the scope for further port management reform in Europe. We address these objectives in the context of the economic function of seaports, drawing on theories of industrial economics, organisational economics and welfare economics. We also bring in other disciplines, such as institutional theory and management.

1.2. Research questions

In line with the multiple objectives of this study, we identify four principal research questions, some of which trigger a number of additional questions, as presented in Table 1.

Table 1 – Research questions

Principal research questions	Additional research questions
1. How can port authorities contribute to the competitiveness of their ports?	1.a. Which governance factors enable port authorities to contribute to competitiveness?
2. What determines governance diversity in Europe?	2.a. Do governance traditions foster competitiveness of ports? 2.b. What is the influence of EU ports policy?
3. Does port management reform lead to a better port product?	3.a. Which factors are essential to ensure that port management reform improves the port product?
4. What is the future scope for port management reform in Europe?	

1.3. Research structure and methodology

The research structure consists of six parts, which correspond to the six main Chapters of this report. Chapter 2 addresses the conceptual research questions on the contribution of port authorities to the competitiveness of ports and the influence of governance factors. This is based on an extensive literature review. Chapter 3 studies the factors that determine port governance diversity in Europe. It is based on empirical evidence gathered through a major fact-finding survey, the results of which are assessed with the help of factor analysis, a multivariate statistical technique. Chapter 4 traces the history of European ports policy and addresses its potential influence on port governance. Chapter 5 sets out the theoretical basis and methodology to address the third and most important set of research questions, addressing the relation between port management reform and the improvement of the port product. The analytical framework is then applied in Chapter 6, which assesses the reform of Rotterdam Port Authority. The extensive case study also contributes to the other research questions. Chapter 7 presents a synthesis and policy discussion of our findings by exploring the scope for further port management reform in Europe.

Table 2 summarises the structure of the study, the research methodologies used in each Chapter and the link with the research questions.

Table 2 – Research structure and methodology

Research structure	Research methodology	Research questions
1. Introduction and research design		
2. A literature review of port authority functions: towards a renaissance?	Literature review	1, 1.a
3. A quantitative analysis of European port governance	Survey Factor analysis	2, 2.a
4. European Union ports policy	Desk research	2.b
5. The economics of port authority reform: a framework for ex-post analysis	Theoretical analysis	3, 3.a
6. Case study: reform of Rotterdam Port Authority	Desk research Exploratory data analysis	Mainly 3, 3.a, but also all others
7. Policy discussion: the future scope for port management reform in Europe	Synthesis and policy discussion of research findings	4
8. Research conclusions and agenda		

2. A LITERATURE REVIEW OF PORT AUTHORITY FUNCTIONS: TOWARDS A RENAISSANCE?

2.1. Introduction

The term ‘renaissance’ generally refers to a renewal of interest in a particular subject matter, usually in the field of arts and literature, leading to novel insights and ideas. It is derived from the period in European history between the fourteenth and seventeenth century when the arts, literature and ideas of ancient Greece and Rome were rediscovered and widely studied again, causing a rebirth of activity in these fields. The Renaissance originally flourished in Italian city-states and it was through powerful maritime republics as Genoa and Venice that it found its way throughout Europe (Juynboll 1947). The cultural heyday of the European Renaissance indeed coincided with the economic dominance of port cities in early modern Europe. Port cities such as Genoa and Venice, but also Bruges and Antwerp and, towards the seventeenth century, Amsterdam and London, were both centres of maritime trade and culture (Burke 1993).

A comprehensive study about how ports in early modern Europe were managed is yet to be written, but research so far suggests a strong public and local influence (e.g. Bekemans and Beckwith 1996; Konvitz 1978; Van Hooydonk 1996; Vigarié 1975). This changed with the advent of industrialisation and nation-states. Looking at late modern history of Europe, Suykens (1988) identified three geographically-based traditions of port management and ownership: the ‘Hanseatic’ tradition of local, mostly municipal, management which is dominant in ports around the Baltic and North Sea; the ‘Latin’ tradition with a strong influence of central government which can be found in France and Southern Europe; and finally, the ‘Anglo-Saxon’ tradition which used to be dominated by the trust port, an independent form of public ownership which was exported all over the British Empire (Goss 1979). With the port privatisation schemes introduced under the government of Margaret Thatcher, the UK became the only European country that had its leading ports fully privatised, thus adding a new dimension to the Anglo-Saxon tradition (Verhoeven 2014).

Most governments, either at national or local level, devolved throughout the twentieth century the responsibility for port management to a ‘port authority’, a separate managing body in whatever legal shape or form that ran the port on behalf of government. Although initially the level of autonomy of these port authorities was quite limited – often they were not more than an administrative department of the city or State – their influence and prestige within the port community and political life was considerable and generally accepted (Van Hooydonk 2007). This changed with the advent of containerisation in the 1970s. Globalisation and liberalisation processes increased the power of private players and gradually reduced the role of the port authority.

In 1990 Richard Goss questioned, albeit rather rhetorically, the need to have public sector port authorities (Goss 1990b). Since then, scholars have demonstrated a true renaissance or renewed interest in the role of port authorities, recommending repositioning and the development of new strategies. Parallel to the concept of the ‘renaissance man’, which is defined as a person who is well educated and excels in a wide variety of subjects or fields, a kind of ‘renaissance port authority’ is emerging from literature which may take on a variety of facilitating and even entrepreneurial tasks.

We will start this Chapter¹ with a bird's-eye view on the evolution of the port concept, elaborating the operational, spatial and societal dimensions of a contemporary port. In the next Section, we will sketch how the role of port authorities has come under multiple pressures from a variety of stakeholders. The main part of the Chapter consists of a literature review of the traditional landlord, regulator and operator functions of port authorities and the conceptualisation of the 'renaissance port authority'. In the final Section, we identify a series of governance-related factors which may enable or inhibit the port authority to pursue the renaissance ambitions that are advocated through literature.

2.2. Evolution of the port concept

As gateways, seaports have always been sensitive to changes in socio-economic trends. Whereas European ports and port-cities were often trend-setters, both in commercial and societal terms, globalisation gradually moved these ports to the receiving end of change. From centre-stage positions they evolved into, admittedly still significant, elements in value-driven logistics chain systems. Containerisation intensified the competitive climate dramatically, with larger ports struggling to keep their main-port status. Captive hinterlands diminished and port competitiveness became more dependent on factors external to the port as such, influenced by important shifts in the bargaining power of market players, which underwent processes of horizontal and vertical integration. On the other hand, post-modern society no longer grants automatic support to port development, nor does it value the vital contribution of ports to trade and welfare. Port expansion needs are frustrated by ecological concerns, urban development pressure and individualist NIMBY (Not In My Back Yard) attitudes. These market-related and societal trends are interwoven and in many cases either reinforced (e.g. environmental rules) or controlled (e.g. competition rules) through public policy, which in Europe often finds its origins at the supra-national level of the European Union. These trends have created a highly uncertain and complex environment for ports and fundamentally changed the port concept.

The United Nations Conference on Trade and Development (UNCTAD) has framed the way the port concept evolved throughout the second half of the twentieth century into three successive generations (UNCTAD 1992). This approach has been criticised because ports would evolve continuously rather than in discrete steps and because the composite reality of ports, whereby several streams of evolution can be observed simultaneously in one and the same port, would be ignored (Beresford *et al.* 2004; Bichou and Gray 2005). Whilst the generation approach indeed cannot pretend to provide more than a series of snapshots, it does offer some useful insights in the evolution of ports. To its credit, we should further add that it acknowledges that elements of previous generations may still be present in later generations as Table 3 illustrates.

¹ An earlier version of the conceptual analysis and literature review presented in this Chapter was published as a paper (Verhoeven 2010).

Table 3 – UNCTAD generations of ports

A. First generation	Prior to 1950	Sea approach, transfer of goods, temporary storage, delivery.
B. Second generation	1950-1980	Includes A plus industrial and commercial activities which give added value to the goods. The port is a handling and services centre.
C. Third generation	Since 1980	Includes A plus B plus structuring of the port community, plus strengthening links between town and port and between port-users, plus extension of the range of services offered beyond the port boundary, plus an integrated system of data collection and processing. The port has become a logistics platform for trade.
D. Fourth generation	Since 2000	Network of physically separated ports (terminals) linked through common operators or through a common administration.

Source: UNCTAD 1992; 1999

Table 4 – Three-dimensional 'fourth generation' port concept

Dimension	Sub-dimension	Key features
Operational	Ship-shore operations	Technological changes, introduction of new services (e.g. shore-side electricity, waste reception facilities).
	Value-added logistics	Shift from core to non-core port activities
	Industrial activities	Shift from traditional to sustainable industries (e.g. LNG terminals, biofuel plants).
Spatial	Terminalisation	Multinational operators develop networks of terminals under corporate logic. Competitive emphasis shifts to terminal level, extending into the supply chain.
	Port-city relationship	Loosening of spatial relationship combined with the weakening of economic and societal ties (although first signs of re-integration initiatives appear – see societal dimension).
	Regionalisation	Network development beyond the port perimeter, involves co-operation with inland ports and dry ports (load centre development) as well as with other seaports in proximity.
Societal	Ecosystems	Seaport is part of a wider (coastal) ecosystem where it has a variety of environmental interactions with the outside.
	Human factor	Sustainable co-habitation with local communities, focus on avoiding negative (pollution, congestion, etc) and stimulating positive externalities.

Source: based on Hayuth 2007; Mangan et al. 2007; Notteboom and Rodrigue 2005; Olivier 2005; Theys et al. 2008; Vandermeulen 1996; Van Hooydonk 2007.

Perhaps rather than the conceptual approach itself, we need to look at the key features of each generation more critically. For instance, the claim that third generation ports would see strengthened links with cities seems exactly opposite to what is happening in reality. Also the fourth generation port, which would consist of a network of physically separated ports (terminals) linked through common operators or through a common administration (UNCTAD 1999), seems to be interpreted quite differently in literature (Chlomoudis *et al.* 2003; Marlow and Paixão 2003; Perez-Labajos and Blanco 2004). The fact is that the UNCTAD definition of the fourth generation port is limited mainly to the spatial evolution, whereas ports on the verge of the twenty-first century also went through further changes in operational and societal terms. A fuller, three-dimensional, concept is therefore needed, as illustrated in Table 4.

It follows from the above that the competitiveness and also the sustainability of a port is not only determined by operational features, but depends on a proper integration of all three dimensions. The interaction between these three dimensions may nevertheless generate various forms of conflict which are essentially the result of conflicting dimensions between the stakeholders involved (De Langen 2007; Parola and Maugeri 2013). Treating a port as a single unit would indeed lead to partial and even wrong conclusions (Slack 2007). Ports – and by extension – supply chains revolve around actors and organisations (Carbone and Gouvernal 2007) and these have each gone through their own process of evolution. The economic fabric of a port and the various inter-relations between the actors involved has indeed become very complex (Meersman *et al.* 2009). Relevant port-related stakeholders exist at different levels; at the internal level of the firm, and at the external level where a further distinction can be made between economic, societal and public policy stakeholders (Martin and Thomas 2001; Notteboom and Winkelmann 2002). The actual involvement and management of these stakeholders will vary according to whether day-to-day operations of the port, implementation of port development projects and business plans or long-term strategic planning are concerned (Dooms and Verbeke 2007). Stakeholder management or ‘cluster governance’ raises the principal question about the role of the port authority, which has moved from an untouchable centre-stage position to a more vulnerable one, which is inter-related with the activities of others (De Langen 2004, Dooms *et al.* 2013).

2.3. Role of port authorities under pressure?

2.3.1. Definitions

When using the term ‘port governance’ we can distinguish two levels: the governance of the port and the governance of the port authority. The former corresponds with the external cluster level identified above whereas the latter relates to the internal firm level or ‘corporate governance’ of the port authority (Brooks and Cullinane 2007a; De Langen 2007). A port authority can be defined as the entity which, whether or not in conjunction with other activities, has as its objective under national law or regulation the administration and management of the port infrastructures, and the co-ordination and control of the activities of the different operators present in the port (European Commission 2001). Most definitions underline the landlord and regulatory function, although other functions exist, as we will explain in Sections 2.4 and 2.5. The term ‘port authority’ implies a specific, i.e. public, form of port management, but it is used generally as the generic term for the body with statutory responsibilities that manages a port’s water and land-side domain (De Monie 2004).

Regardless of the ownership and the governance tradition to which they belong, port authorities are entities of a hybrid nature which contain elements of both public and private law. On the one hand they are bestowed with prerogatives of administrative action and in some cases even criminal law competence, at the same time they are undertakings which compete with each other (Van Hooydonk 1996). This corresponds with the fact that seaports as such possess characteristics of public utilities on the one hand and of private enterprise on the other (Meersman and Van de Voorde 2002).

2.3.2. Multiple stakeholder pressures

The uncertain and dynamic environment in which ports operate has put multi-directional pressures on port authorities to satisfy the needs and expectations of the various stakeholders concerned (Van de Voorde and Winkelmanns 2002). We can identify three basic lines of pressure. The first is the pressure of market players, such as carriers, terminal operators and logistics operators. Analysing the objectives and tools of port authorities, Suykens and Van de Voorde (1998) recognised the shift in the balance of power to the advantage of these actors and the need for port authorities to avoid being pushed out altogether. Market actors see the port authority at best as an assistant in achieving their own objectives, which are essentially profit-oriented (Heaver *et al.* 2000), but often also as a bureaucratic nuisance. It is clear that market actors prefer a hands-free approach without too much interference from the port authority (ESPO 2006; ESPO 2008). There are nuances between, for instance, the position of shipping companies and terminal operators, whereby the former may call on the port authority to avoid monopolistic behaviour of the latter. But with the growing vertical integration process and emergence of hybrid terminal operators, these differences get blurred. The above-mentioned terminalisation of ports threatens to reduce the role of port authorities further to that of local spectators. The second line of pressure comes from government. As mentioned before, governments have in most cases devolved the responsibility for port management to port authorities and have granted them varying degrees of managerial autonomy. At the same time, governments value less the strategic significance of seaports for the economy of a country or a region (Meersman and Van de Voorde 2002). This, for instance, goes hand in hand with reduced government spending in ports. Regional differences in government objectives may exist but the power balance with government is in any case the most important enabling or inhibiting factor for a renaissance of port authorities as we will see in Section 2.6.1. The final line of pressure comes from societal interest groups, such as NGO's, local communities and individual citizens. They see the port authority as the focal point for complaints about negative externalities generated by the port, even if the port authority is not directly responsible for them (De Monie 2004).

2.3.3. Existential options for the future of the port authority

Port authorities have generally found it hard to keep up with the pace of change. The discussion thereby often focuses on the essential question whether the role of port management should be restricted to correctly enforcing regulation or whether port management should more actively participate as a market player (Meersman and Van de Voorde 2002). Heaver *et al.* (2000) identify three possible options: (1) to become fully-fledged partners in the logistics chain; (2) to have a role restricted to supporting activities (safety, land-use and concession policy); or (3) to disappear from the scene entirely. Most scholars seem to advocate a combination of the first and second option, whereby port authorities focus on a mediating and coordinating role between stakeholders, acting as facilitators and catalysts in logistics networks, creating core competencies and activities of scope and pursuing strategic activities beyond traditional landlord functions (Chlomoudis *et al.* 2003;

Comtois and Slack 2003; Notteboom and Winkelmanns 2001a; Van der Lugt and De Langen 2007). Very few authors predict extinction, although several have pointed at the inherent limitations that port authorities have (e.g. Notteboom and Rodrigue 2007; Slack 2007) or at the risks of becoming too entrepreneurial (e.g. De Monie 2004). In the next Section we will provide a fuller analysis, based on how the traditional functions of port authorities evolve in the light of contemporary challenges. On the basis of this analysis, we will, in Section 2.5, put the available options for a renaissance of the port authority into a new conceptual perspective.

2.4. Review of traditional port authority functions

Port authorities have traditionally assumed three typical functions, that of landlord, regulator and operator (Baird 1995; Baltazar and Brooks 2001). These broadly correspond with the legal status of port authorities (Van Hooydonk 2003). Varieties on this classification exist (e.g. Stevens 1997), but these can be easily linked to the three main categories. Here we provide a synopsis of how literature has viewed the evolution of these traditional functions in the light of socio-economic changes and strategic challenges.

2.4.1. Landlord function

Irrespective of whether the port authority actually owns the port land or manages the land on behalf of national or local government, the landlord function consists of a number of common elements, i.e. the management, maintenance and development of the port estate, the provision of infrastructure and facilities as well as the conception and implementation of policies and development strategies linked to the exploitation of the estate (Baird 2000; Baltazar and Brooks 2001; Van Hooydonk 2003). The landlord function can be considered as the principal function of contemporary port authorities, also when seen from the value chain perspective (Dooms and Verbeke 2007).

The landlord function has undergone substantial changes. Three influencing factors stand out. The first is the competitive pressure to invest in infrastructure. Already in 1993, Slack noted that containerisation, which has become the hallmark of respectability for any port of commercial significance, turned investment policy into somewhat of a lottery (Slack 1993). Port authorities, influenced by market forces in a deregulated environment, were pushed to take investment decisions in infrastructure which, due to the footloose nature of port users, were often of a speculative nature (Comtois and Slack 2003). Too often, the belief prevailed that the best workable strategy to defeat competitors was building highly new efficient terminals (Notteboom 2007b). Now that the economics of mega-carriers and their implications on land are more and more questioned, this strategy becomes even more doubtful (OECD/ITF 2015). Very closely linked is the second influencing factor, the financial pressure. Port authorities increasingly had to find own sources of funding or engage in public-private partnerships to finance investment projects since governments curbed their financial support. Although in the years prior to 2008, it was not difficult to attract global terminal operators, shipping lines and financial institutions to invest, paying very often excessive prices to acquire terminal facilities, the financial and economic crisis meant a rude awakening, which may well result in a structural overcapacity in the (container) market (Notteboom 2009; Pallis and De Langen 2010; Baird 2013). The third and final factor is the competition for land-use, which is essentially driven by ecological and societal motives and influenced by the fact that the negative externalities of port development projects mainly

reflect on the local level whereas the benefits often extend far beyond the port-city perimeter (Benacchio *et al.* 2001; Notteboom and Winkelmanns 2001a, Bottasso *et al.* 2014).

Literature has recommended a variety of strategic options to deal with the challenge of competitive pressure on investments (Bichou and Gray 2005; Jongman 1994; Meersman *et al.* 2009; Notteboom 2007; Notteboom and Winkelmanns 2001a; Slack 1993; Slack 2007; Slack *et al.* 1996), financial pressure (De Langen and Van der Lugt 2007; Vining and Boardman 2008) and the competition for land use (Comtois and Slack 2003; Dooms and Verbeke 2007). It is not the intention to thoroughly evaluate or rank these according to importance but to give merely an indication of the varied spectrum recommended by scholars. The most significant strategic options are summarised in Table 5.

Table 5 – Landlord function of port authorities: challenges and strategic response options

Challenges	Strategic response options
Competitive pressure investments	Develop dedicated infrastructure to bind carriers Active promotion and marketing policy Develop niches (may include stepping out of the container rat race) Develop variety in service providers / customers Create value and facilitate operators to bind footloose customers Cluster commodity flows Integrate port in business relationships that shape supply chains
Financial pressure investments	Commercial policy regarding port dues and concession fees Generate income from non-core activities Develop public-private partnerships
Competition for land use	Active and integrated real estate management policy which incorporates environmental and urban development objectives

Source: based on Bichou and Gray 2005; Comtois and Slack 2003, De Langen and Van der Lugt 2007; Dooms and Verbeke 2007; Haralambides et al. 2002; Jongman 1994; Meersman et al. 2009; Notteboom 2007; Notteboom and Winkelmanns 2001; Slack 1993; Slack 2007; Slack et al. 1996; Vining and Boardman 2008

2.4.2. Regulator function

The regulator function is somehow contained in the term ‘port authority’ and combines a mixture of duties and responsibilities, which can generally be referred to as controlling, surveillance and policing tasks. These essentially relate to ensuring safety and security of ship and cargo operations within the port as well as enforcing applicable laws and regulations in these and other fields, such as environmental protection and labour regulations (Baird 2000; Baltazar and Brooks 2001; De Monie 2004; Van Hooydonk 2003). In some cases, port authorities will develop their own regulations in these fields and employ their own police force to exert control (Knatz 2008).

The increased focus on negative externalities of port operations has reinforced the regulator function of port authorities, in particular where it concerns environmental pollution surveillance, dangerous cargo control and security, a dimension which gained considerable importance since 9/11. Some authors extend the regulator role to controlling the correct implementation of concession agreements with private service providers (e.g. De Monie and Peeters 2006). Although it cannot be denied that this involves regulatory aspects, we feel that it fits more with the operator function and we will therefore cover it in Section 2.4.3².

From the three traditional port authority functions, the regulator function appears to be the one that is least under pressure, since it is less likely to be assumed by the private sector (Baird 2000). However, it should be noted that, in many cases, this function is not only performed by the port authority, but often in co-operation with government agencies. This co-operation may be necessary also to cover the costs related to the regulator function, which may only marginally be covered by port dues (De Monie 2004). Regional and national government may be inclined to take over the regulator function to avoid conflicts of interest, especially if port authorities would assume a more entrepreneurial landlord and operator role and also within the context of regionalisation processes that would stretch beyond the port perimeter.

2.4.3. Operator function

The operator function traditionally covers the provision of port services, which can be broadly grouped in three categories: the physical transfer of goods and passengers between sea and land, the provision of technical-nautical services (pilotage, towage and mooring) and a range of other, ancillary, services.

The biggest change in most of the larger ports is no doubt that privatisation processes have almost completely brought cargo handling services in the hands of private operators with the port authority acting only as service provider of the last resort or offering specialised services (e.g. crane service for heavy lifts). Some authors believe that this process is irreversible (De Monie 2004) and empirical research confirms that the larger ports in Europe and indeed worldwide conferred to the so-called 'landlord port' model or are evolving in that direction (Baird 2002; Cabrera *et al.* 2014; Cariou *et al.* 2014; Castillo-Manzano and Asencio-Flores 2012; Ferrari and Musso 2011; Marques and Luz 2009; Marques and Fonseca 2010; Peters 2001; Verhoeven 2006; Verhoeven and ESPO 2011). At the same time, we must recognise that the landlord port model hides in many cases a wider diversity and that it is not always possible to classify ports exactly (Brooks and Cullinane 2007b; Lacoste and Douet 2013). We can however conclude that the operator function of a port authority with regard to cargo handling is refocusing on landlord and regulatory aspects. Several authors have in this context highlighted the increased power of global terminal operators – of various background and nature – which makes it difficult for port authorities to determine their own destinies, jeopardises their independence in making strategic choices and decreases the coherence of local port communities (De Monie and Peeters 2006; Everett 2008; Hayuth 2007; Martin and Thomas 2001; Notteboom 2007; Olivier and Parola 2007; Parola and Musso 2007; Parola *et al.* 2013; Slack and Frémont 2005). Literature confirms that the intelligent use, including active control and supervision, of concessions³ is the best strategic

² The implementation of concession agreements unmistakably forms part of the landlord function as well. Our choice to discuss it under the operator function is motivated by the evolution of port functions, whereby port authorities historically provided most port services in-house.

³ Concessions are defined broadly here, i.e. any terminal awarding agreement concluded with a public port authority, regardless of whether the agreement is subject to public or private law.

option for port authorities to deal with this challenge, allowing them to stimulate intra-port competition and market contestability as well as sustainable behaviour of terminal operators (Aronietis *et al.* 2010; De Monie 2004; Notteboom 2007b; Notteboom and Verhoeven 2009; Pallis *et al.* 2008; Notteboom *et al.* 2012; Van den Berg and De Langen 2014).

Although port authorities may have found terminal operators willing in the recent past to accept to pay high prices or to commit to high throughput guarantees and risks, the economic crisis may have made a renegotiation of concession conditions inevitable (Notteboom 2009), which would confirm the vulnerable position of the port authority. Port authorities indeed often lack the empowerment to enforce concession conditions. Some voices, therefore, do not exclude a more entrepreneurial role for the port authority as operator, e.g. by taking strategic shareholder positions in global terminal operators, and question the irreversibility of the landlord concept (Delwaide 2007). Others warn for the negative implications of such an approach, especially where it would jeopardise the impartiality of the port authority (De Monie 2004).

The landscape of technical-nautical services shows a very different picture. Their general economic interest nature explains why they are very often still provided by public entities, in casu port authorities themselves. Elements of market contestability and transparency however also apply here (European Commission 2007) and port authorities would need to take care in considering the operation of these services as separate business units.

Ancillary services can be defined rather diversely. These could be in the public area, such as waste handling, provision of shore power for vessels etc., or in the more commercial sphere, such as warehousing and logistics services. The latter could extend into the field of services which are not core to the port itself. As not all ports follow the same path in developing logistics activities (Theys *et al.* 2008), and many may not be commercially minded, the same would logically apply to the entrepreneurial involvement of the port authority in the provision of these services.

Summarised, we can say that the basic option for the operator function of the port authority in all service categories is whether or not to provide the service itself. Taking into account the complex mechanisms underlying the relationships between the most important port actors (Meersman *et al.* 2009), it seems clear that – for cargo-handling – outsourcing to private operators is the main trend which is also generally recommended by most scholars. The role of the port authority then shifts to being a ‘leader in dissatisfaction’ rather than a defender of status quo. It means that the port authority should seek out areas for improvement and not wait for complaints from shippers and shipping lines (Heaver 1995). It requires port authorities to take a closer interest in the business activities of service providers (Goss 1990b). Port authorities, however, need to have both contractual relationships with service providers and the necessary empowerment to adequately fulfil this role.

2.5. Concept of a renaissance port authority

Taking into account the three-dimensional review of the fourth generation port concept, we clearly identified a renaissance, i.e. a renewed interest of scholars in the role of port authorities. Economic literature has yielded new views on traditional port authority functions within the challenging port landscape. The renewed attention for the role of port authorities is also clear from the agenda of professional port associations such as the International

Association of Ports and Harbours (IAPH), the American Association of Port Authorities (AAPA) and the European Sea Ports Organisation (ESPO). The latter has, for instance, held regular conferences and seminars on port governance issues since 2000 and issued several publications in this field. In 2008, a Port Governance Committee was established to exchange know-how and expertise among European port authorities. Finally, on-going reform processes in a number of European countries generated public debate on – and thus renewed interest in – the role of port authorities (Verhoeven 2006).

Drawing a parallel to the earlier defined concept of the ‘renaissance man’, a fourth generation port may need a ‘renaissance port authority’. In its note on the fourth generation port, UNCTAD itself gives a rather traditional view on the role of the port authority (UNCTAD 1999). Therefore, we aim to further explore the possible features of a renaissance or fourth generation port authority by summarising the re-orientation of the traditional port authority functions analysed above, adding a new function and a new dimension. This will lead to a conceptual matrix and hypothetical typology of port authorities.

2.5.1. Transition of traditional and new functions

It is clear that the traditional functions of port authorities have gone through substantial change. In the larger multipurpose gateway ports, the actual operator function has, at least where it concerns cargo handling services, been shifted towards aspects of the landlord and regulator functions. The main feature of the operator role now consists of the granting and surveillance of concessions. The landlord and regulator function have become the two main functions and thus correspond to the general definition of the landlord port model. Both functions are however to be fulfilled in a much more ‘agile’ (Paixão and Marlow 2003) and ‘smart’ (Chlomoudis *et al.* 2003) way.

Meanwhile a new functional role has emerged, which we can best refer to as that of the ‘community’ or ‘cluster’ manager, a functional concept which was mainly developed by De Langen (2004; 2007). This new function is intrinsically linked to the changing nature of port communities and stakeholders and has both an economic and societal dimension that corresponds with the stakeholder pressures we identified in Section 2.3.2. The economic dimension is shaped by the evolution of economic actors. As long as these were locally organised, and therefore anchored and committed to the well-being of the port, the role of the port authority could be confined to its traditional functions and was pretty evident and straightforward. The globalisation process, marked by a power struggle between carriers, terminal operators and logistics operators, has fundamentally changed this. Large global firms have only limited ties with the port and they lack affinity with neighbouring cities and local communities (De Langen and Chouly 2004; Slack 2007; Parola *et al.* 2013). Cultural differences may, moreover, cause frictions between global terminal operators and local actors (Slack 2007). The societal dimension is marked by conflicting interests with societal stakeholders. De Langen (2007) identifies a number of typical conflict situations that may exist in relation to port development, including environmental protection, urban development, labour conditions, resident interests and overall economic development.

The community manager function is essentially a coordinating function, meant to solve collective action problems in and outside the port area, such as hinterland bottlenecks, training and education, ICT, marketing and promotion as well as innovation and internationalisation (economic dimension) (De Langen and Chouly 2004; Van der Horst and De Langen 2007). It also aims to shape accommodation between conflicting interests in order to defend the ‘license to operate’ and ‘license to grow’ of the port (societal dimension)

(De Langen 2007; De Langen and Van der Lugt 2007). The economic and societal dimension can meet, for instance in case of port authorities inciting private operators to engage in sustainable behaviour (Comtois and Slack 2007), thus linking up with the landlord and regulator functions. Another example is where the port authority acts as a lobbyist on behalf of the port community. Comtois and Slack (2003) even claim that political representation has become more important than marketing and promotion, since there are only a few actors left which control the bulk of the market. They recommend that the lobbying function should be carried out at all levels, from local to international. Chlomoudis *et al.* (2003) confirm the community manager role as the systemic co-ordinator that advances and maintains good relationships between all those involved in the achievement of a plurality of targets, thus creating a port culture of trust. Although other bodies, such as private sector associations, may also fulfil the community manager function, it seems to be the port authority, which is in many cases best placed to assume this role (De Langen 2007).

2.5.2. Extending port authority functions beyond the local jurisdiction

The four basic functions we have identified so far have mainly been analysed from the local geographical and functional level of the port itself, which constitutes the actual jurisdiction of the port authority. Comtois and Slack (2003) identified two levels beyond this local level: the regional level, where the port authority can act as agent and coordinator in logistical development, creating regional port networks and integrating environmental plans in coastal zones, and the global level, where the port authority can commercialise its expertise in logistics services and environmental management worldwide. Focusing on strategies related to the landlord function, De Langen and Van der Lugt (2007) distinguish between non-own port related activities and own port related activities. The latter category divides into operational and supporting activities, whereby the former can be limited to the port boundaries or extend into the hinterland. Notteboom and Winkelmanns (2001a) qualify the development of strategic relationships with other transport nodes, including overseas ports, neighbouring ports and/or inland ports, as probably the most important role for port authorities in the new millennium. Estache and Trujillo (2009) even predict that individual port authorities may in future merge into regional transport agencies.

The regional-hinterland level has attracted most interest from scholars. Motivations for extending into the hinterland relate to the fact that ports are competing as parts of complete transport and logistics chains. Notteboom (2010) argues that container throughput dynamics in Europe can best be analysed by using 'multi-port gateway regions' as units of analysis, i.e. seaports in locational relationship to nearby identical traffic hinterlands. The relevance of using a multi-port gateway level is supported by the calling patterns in the liner service networks of shipping companies and associated complementarity and competitive relationships among the ports concerned as well as communality in hinterland connectivity issues among ports of the same multi-port gateway region. Port authorities have an interest in the hinterland level both from the overall perspective of port performance and port authority revenue (De Langen and Van der Lugt 2007). Also sustainability arguments apply, such as reduction of congestion and better use of existing port capacities, an issue which has become very topical since the economic crisis. Port authorities can develop an entrepreneurial role in this respect by making direct investments in the hinterland or play a facilitating role through the development of strategic partnerships with inland ports, dry ports and co-operation or 'co-opetition' with other, neighbouring, seaports (Comtois and Slack 2003; Estache and Trujillo 2009; Notteboom and Winkelmanns 2001a; Notteboom and Rodrigue 2005; Song 2003).

2.5.3. Renaissance matrix and typology

We conclude from the previous Section that a port authority has four basic functions, which can be exercised at a local, regional and/or global level. We can bring these functions and levels together in a so-called ‘renaissance matrix’ as presented in Table 6.

Table 6 – Port authority renaissance matrix

	Local	Regional	Global
Landlord			
Regulator			
Operator			
Community manager			

Several combinations are possible within this matrix, but revisiting the above-mentioned existential options identified by Heaver *et al.* (2000) we can derive a hypothetical typology which consists of three basic types: the ‘conservator’, the ‘facilitator’ and the ‘entrepreneur’. The basic features of each hypothetical type are illustrated in Table 7.

Table 7 – Hypothetical typology of port authorities

	Conservator	Facilitator	Entrepreneur
Landlord	Passive real estate ‘manager’: - continuity and maintenance - development mainly left to others (government / private sector) - financial revenue from real estate on tariff basis	Active real estate ‘broker’: - continuity, maintenance and improvement - development broker and co-investor - includes urban and environmental real estate brokerage - financial revenue from real estate on commercial basis Mediator in commercial B2B relations between service providers and port customers Strategic partnerships with inland ports, dry ports and other seaports	Active real estate ‘developer’: - continuity, maintenance and improvement - direct investor - includes urban and environmental real estate development - financial revenue from real estate on commercial basis - financial revenue from non-core activities Direct commercial B2B negotiations with port customers – active pursuit of market niches Direct investments in inland ports, dry ports and other seaports
Regulator	Passive application and enforcement of rules and regulations mainly set by other agencies	Active application and enforcement of rules and regulations through co-operation with local, regional and national regulatory agencies + setting of own rules and regulations	Idem facilitator

	Conservator	Facilitator	Entrepreneur
Regulator (continued)	Financial revenue from regulator role on tariff basis	Provide assistance to port community to comply with rules and regulations Financial revenue from regulator role on tariff basis with differential charging options for sustainability reasons	Idem facilitator + selling expertise and tools outside the port (on a regional and global scale) Financial revenue from regulator role on commercial basis
Operator	Mechanistic application of concession policy (license-issuing window)	Dynamic use of concession policy, in combination with real estate broker role 'Leader in dissatisfaction' as regards performance of private port services providers Provide services of general economic interest and specialised commercial services	Dynamic use of concession policy, in combination with real estate development role Shareholder in private port service providers Provide services of general economic interest as well as commercial services Provide services in other ports
Community manager	Not actively developed beyond mere landlord and regulator elements	Economic dimension: - solve hinterland bottlenecks - provide training and education - provide ICT services - promotion - lobbying Societal dimension: - accommodate conflicting interests - lobbying - promote positive externalities	Idem facilitator type but economic dimension with more direct commercial involvement
PERIMETER	Local	Local + Regional	Local + Regional + Global

A conservator port authority concentrates on being a good housekeeper and essentially sticks to a passive and mechanistic implementation of the three traditional port authority functions at local level. Because of this low-profile attitude, conservator port authorities may run the highest risk of being marginalised and even becoming extinct in the future. A facilitator port authority profiles itself as a mediator and matchmaker between economic and societal interests, hence the well-developed community manager function. Facilitator port authorities

also look beyond the port perimeter and try to engage in strategic regional partnerships. It is the type of port authority that, for its fine-balanced profile, so far seems to find most support in literature. The entrepreneur port authority would be the fullest renaissance port authority by combining the main features of the facilitator with a more outspoken commercial attitude as investor, service provider and consultant on all three geographical levels. Because of this ambitious profile, it is also the one which runs the highest risk of running into problems caused by conflicts between the various functional levels.

2.6. Governance factors influencing port authority renaissance

We have demonstrated that a ‘renaissance port authority’, i.e. a port authority which takes on a multitude of facilitating and entrepreneurial responsibilities that also reach beyond the port perimeter, may conceptually exist. The main question is now whether this renaissance port authority can also be found in reality. To complete the conceptual framework developed so far for empirical validation, we will now explore a number of governance-related factors which could influence the extent to which a port authority will be a mere conservator or will be able to take on facilitating and entrepreneurial responsibilities.

We identify four essential factors; two formal and two informal ones. The two formal factors consist of the legal and statutory framework on the one hand and the financial capability on the other. The informal factors relate to the balance of power with government and the management culture that reigns within the port authority. These four factors are strongly interrelated. The power balance with government will influence the legal and statutory framework and the financial capability of the port authority. It will also determine the room management has to pursue and stimulate a pro-active culture. Therefore, we discuss the power balance first.

2.6.1. Balance of power with government

Whereas port authorities may have valid bottom-up reasons to move up in the renaissance matrix, this is often not the objective desired by the entities that usually own and/or control them, i.e. government agencies, at whichever level these exercise their influence.

Although public ownership of port authorities does not have to be a constraint for efficient behaviour (Goss 1990b; Notteboom and Winkelmanns 2001b), it may generally be an inhibiting factor to pursue entrepreneurial strategies, given the potential conflict with the regulatory function (Heaver *et al.* 2000; Slack 1993). The level of the public ownership (i.e. national vs. municipal) could furthermore have an influence on the quality of conflict accommodation through stakeholder management (De Langen 2007) and the satisfaction of the needs of the port (Delwaide 2007). The inter-relation with government would also influence the extent to which hinterland-oriented strategies beyond the port perimeter can be developed (Notteboom and Rodrigue 2007).

The balance of power between government and port authorities may translate itself in conflicting objectives (Suykens and Van de Voorde 1998). It can be assessed through formal governance indicators, such as the composition of the board of directors of port authorities, nomination procedures for top management, strategic mission statements etc. More in-depth insights can be obtained by analysing port reform processes where the different – mostly unstated – objectives between government and port authorities will rise to the surface.

Another good test-case lies in the analysis of major port development projects where all potential conflicts with both societal and economic stakeholders can be observed.

We should recognise however that political influence in publicly owned port authorities may be difficult to avoid, even if these port authorities have been corporatised (Grosdidier de Matons 1997; Notteboom and Winkelmanns 2001b). Some claim that absence of political control would even be counterproductive, leading to monopolistic behaviour, preferential treatment of port users, white elephants, wasteful overcapacity etc. (Grosdidier De Matons 1997; De Monie 2004; Heaver 1995; Slack 1993). The question is whether political control is best suited for this purpose or whether a more objective form of regulatory oversight is needed.

2.6.2. Legal and statutory framework

The legal and statutory framework is an important enabling factor which largely results from the power balance with government. It will address important questions, such as the commercial, managerial and financial autonomy of port authorities, which enables them to move up in the renaissance matrix. The legal framework will further determine the capacity of the port authority to set local rules with regard to environment, safety and security and to provide or control technical-nautical services, provide or control the harbour masters' office and to run a police force. With regard to the landlord role, it will determine whether the port authority owns the land or at least has the ability to acquire, manage and exploit it (Comtois and Slack 2003). It also determines the degree to which port authorities can engage in partnerships with other seaports, inland ports or dry ports.

Experience in several countries has demonstrated that, as a result of incomplete and politically negotiated reform programmes, the legal framework is often a source of considerable confusion and ineffectiveness (Everett 2002; 2003a; 2003b; Everett and Pettitt 2006; Van Hooydonk 2002). An appropriate legal framework that guarantees an efficiency-oriented approach and avoids politicisation is one of the main challenges for port policy makers (Notteboom and Winkelmanns 2001b).

For ports in Europe, the supra-national level of the European Union needs to be taken into account. This level stands above national and local power struggles between government and port authorities and has the potential of having a more independent, albeit indirect, influence on the legislative framework governing port authorities.

2.6.3. Financial capability

Financial power comes as a key element if port authorities are to take on a facilitating and, even more so, an entrepreneurial role, for instance as real estate developers and investors in regional networks. The best possible hinterland connections do indeed require more than simple facilitation; they require huge investments that basic landlord ports cannot always provide because they lack the necessary financial means (Delwaide 2007). Closely linked to the statutory framework and, in particular, the degree of autonomy involved, this factor may in practice make the principal difference between a mere conservator position and the realisation of higher ambitions.

Despite overall reduced government spending in ports, many port authorities in Europe still depend on government funding for quite an important part of their investments. This may curb their autonomy to varying extents. Port authorities would obviously like the best of

both worlds, with continued government spending in ports and a high degree of financial autonomy. This may however in the end not be a sustainable position any longer. The traditional distinction made in this respect between general port infrastructure on the one hand, which benefits all users and is therefore to be financed by government and commercial infrastructure on the other hand, which needs to be financed by the port authority itself, may come under pressure from competition and, notably, State aid rules. Also, a commercial and incentive-based pricing policy regarding port dues may be contrary to principles of non-discrimination and be bound by stricter rules on, for instance, cross-subsidisation. We must also recognise that reform programmes aimed at improving the financial performance of ports do not always reach their objective (Pallis and Syriopoulos 2007).

2.6.4. Management culture

A final factor is the management culture that reigns at the micro-level of the port authority itself and which would enable the intelligent use of port governance tools within a given structural framework. Notteboom and Winkelmanns (2001b) suggest that for management culture to be a success factor for port organisations – in terms of efficiency criteria – the adoption of a market-oriented management system is required, based on clear goals, managerial skills and accountability. A shift would be needed from a political to a technocratic management style. The adopted management culture and managerial heterogeneity are the determining factors for inefficiency in many public port organisations. The authors therefore recommend carrying through the necessary changes in management, even within the existing (formal) structures. The competitive position of a port would not so much be determined by the exploitation system (e.g. landlord or service port), but by the commercial attitude, mentality and entrepreneurial culture (Notteboom and Winkelmanns 2001a). Comtois and Slack (2003) highlight the need for port management to develop leadership at local and regional level, extending competencies beyond the pure maritime dimension and including competencies and know-how in real estate management, urban management and environmental management. Boschken (1989) applied Miles and Snow's typology of organisations on port managers of the Pacific-Rim ports in the United States to analyse their response to significant environmental change, qualifying them as prospectors, analysers, reactors and defenders. Boschken suggested that port managers should either adopt the 'enthusiastic prospector' or 'anxious analyser' culture to succeed in an increasingly turbulent environment. This analysis was confirmed by Ircha (1997) for Canadian ports. In particular, the ways in which changes within the port authority itself (as a result of reform programmes) are managed are worth investigating further. Here too, cultural differences between countries and regions obviously play an important role.

2.7. Conclusions

The literature we reviewed in this Chapter has revealed a renaissance or renewed academic interest in the role of port authorities, a role which has come under severe and multiple pressures from stakeholders following dramatic socio-economic changes in the port landscape. Scholars have developed recommendations for port authorities, revisiting traditional landlord, regulator and operator functions, devising a community manager function and a dimension beyond the local port perimeter. We have brought these together in a conceptual renaissance matrix on the basis of which we devised a hypothetical typology, distinguishing between 'conservators', 'facilitators' and 'entrepreneurs'. The typology conceptually contributes to our first research question, explaining how port authorities can

contribute to the competitiveness of their ports. We assume that a conservator profile adds very little value and may even make the role of the port authority largely superfluous. Taking into account the hybrid nature of port authorities, the facilitator role may intuitively be the most attractive one, because of its balance between public and commercial interest. The more risk-taking entrepreneur role may have the highest potential to contribute to the competitiveness of a port, but it also has a downside of potential interest conflicts, certainly in a landlord configuration, whereby a port authority could end up being ‘judge and party’.

We have also found a general answer to the additional research question, identifying those governance factors that would enable port authorities to contribute to competitiveness. We have found four governance-related factors that may make the difference between a mere conservator role for port authorities and aspirational facilitator and entrepreneurial ambitions, which score higher in the renaissance matrix and, therefore, have a higher potential of contributing to the competitiveness of a port. The power balance with government stands out as a principal factor which influences the legal and statutory framework, the financial capability and the room for a pro-active management culture at the corporate level of the port authority.

3. A QUANTITATIVE ANALYSIS OF EUROPEAN PORT GOVERNANCE

3.1. Introduction

This Chapter contains a quantitative analysis of port governance in Europe, using data from a major survey, which we carried out in 2010 on behalf of the European Sea Ports Organisation to prepare a new edition of its 'Fact-Finding Report'. These reports have been monitoring port governance diversity since the 1970s. The 2010 survey was based on the conceptual background presented in the previous Chapter. Concretely, the survey enquired about the objectives and functions of port authorities, compared institutional frameworks, and analysed financial capabilities. This exercise yielded a rich database of observations and variables, suitable for in-depth quantitative analysis.

We do not describe the actual findings of the survey. These can be found in the Fact-Finding Report itself (Verhoeven and ESPO 2011), of which an executive summary is included in Appendix 1. Here we focus on a quantitative assessment of the principal elements that may explain governance diversity of European seaports, thus responding to our second principal research question. This is done with the help of factor analysis, a commonly applied tool to explore data sets with many variables, which are then summarised into a limited number of unobserved factors⁴.

Section 3.2 introduces the survey data. In the following Sections, we describe the research methodology for the quantitative assessment and present the results of the factor analysis. A concluding Section summarises the main findings.

3.2. The ESPO Fact-Finding Survey

3.2.1. Survey design

The 2010 Fact-Finding Report of ESPO was the first to be based on a web-based survey that was addressed directly to individual port authorities in Europe, rather than to national port organisations, as was the case with previous editions. National port organisations were however instrumental in encouraging their members to respond to the survey. The elaborate survey counted 108 questions. Apart from a general section profiling the port(s) controlled by the port authority, it consisted of three main sections that were largely based on the conceptual framework described in Chapter 2: the first enquired about the objectives and functions of the port authority (landlord, regulator, operator, community manager), the second looked into the institutional framework of the port authority (ownership, legal status and form, organisational structure) and the final set of questions addressed the financial capability of the port authority (financial responsibility, financial autonomy). Management culture was not included in the scope of the survey.

⁴ The quantitative analysis was prepared with Thomas Vanoutrive of the University of Antwerp. The results were published in a jointly authored paper (Verhoeven and Vanoutrive 2012).

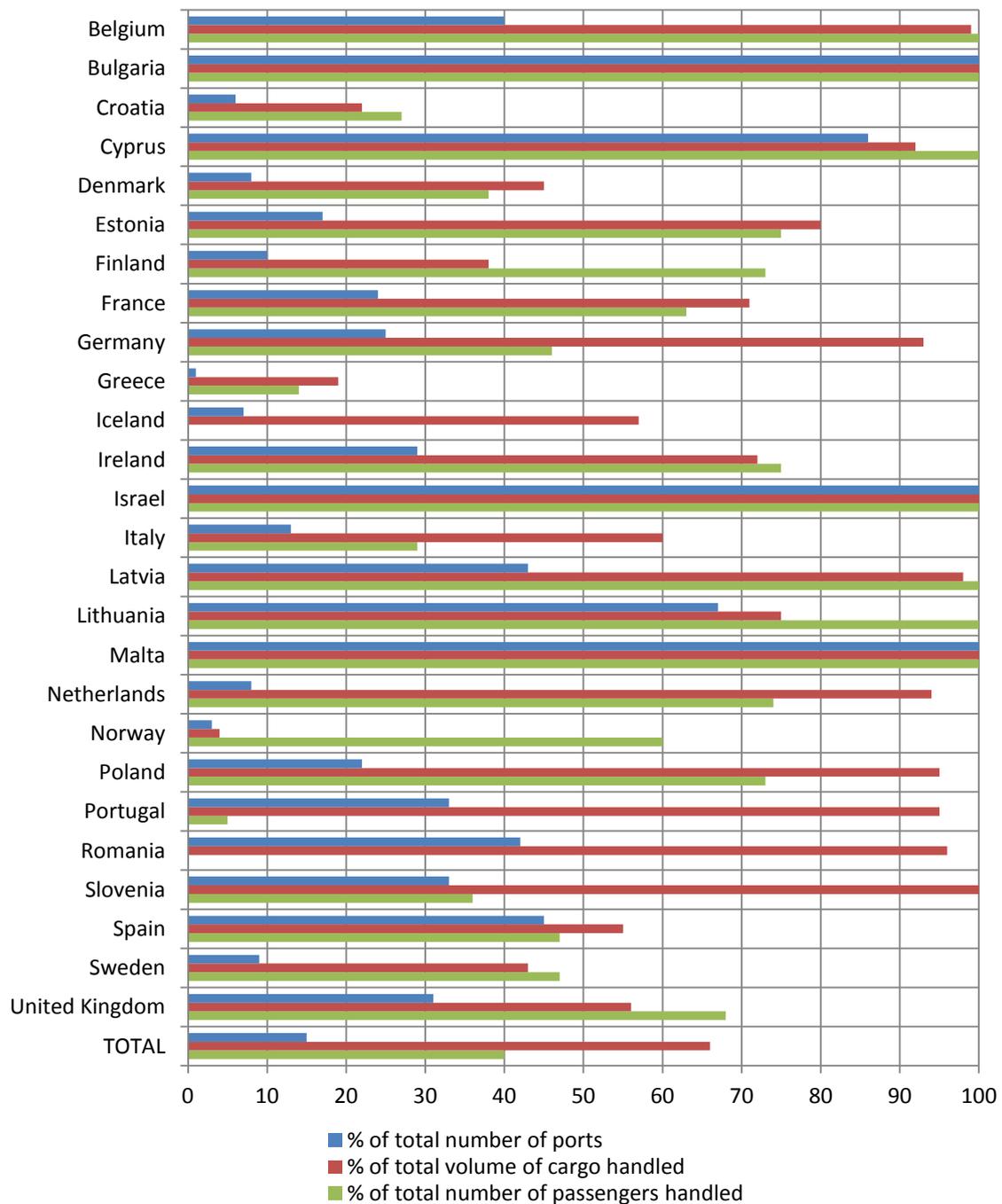
The principal questions of the survey can be grouped in seven distinct governance dimensions: (i) devolution, (ii) corporate governance, (iii) operational profile, (iv) functional autonomy, (v) functional pro-activeness, (vi) investment responsibility and (vii) financial autonomy. The meaning of each dimension is explained below.

- (i) The term 'devolution' is used here in the broad sense, to identify to which extent port management has been privatised, decentralised and/or corporatised.
- (ii) There is a difference between being corporatised in form and actually following principles of corporate governance that are customary in private undertakings. On the basis of the survey, the latter can be assessed from various perspectives, including the economic and non-economic objectives port authorities have, their organisational structure (including the appointment of top management executives and the composition of supervisory bodies), transparency through the use of public selection procedures to contract out land to port operators, corporate social responsibility (CSR) policies and the use of corporate accounting principles.
- (iii) The customary way to classify port authorities in operational terms is to distinguish between 'landlord ports', 'tool ports' and 'comprehensive ports', depending on whether, respectively, port authorities are not involved in (cargo-handling) operations at all, operate superstructure and related services or provide full operations in a comprehensive manner.
- (iv) Functional autonomy is analysed from the perspective of the landlord and regulator function. The landlord function can be considered as the principal function of contemporary port authorities. Important issues here are land ownership as well as the ability and autonomy in contracting land out to third parties. The regulator function is to a large extent performed by the harbour master's office, which can be an integral part of the port authority structure or a separate entity.
- (v) Functional pro-activeness can be assessed at the level of the port authority's own port(s) and beyond. The 'own port' dimension covers pro-active fulfilment of the traditional landlord and regulatory functions as well as the community manager one, which is pro-active by nature. The 'external' dimension looks at how port authorities transpose their functions beyond their own borders, including investment in hinterland networks, investment in other ports, export of regulatory and other expertise, etc.
- (vi) Investment responsibility concerns financial responsibility for the capital investment, administration, operation and maintenance of the capital assets that constitute a port, including maritime access, terminal-related infrastructure, transport infrastructure within the port area and transport infrastructure outside the port area. Also sources of port authorities' operating income are covered here, such as general port dues, land lease, services and public funding.
- (vii) Financial autonomy concerns first of all the legal nature, calculation basis and autonomy that apply to different categories of port authority income charges, in particular general port dues. Financial autonomy of port authorities is also analysed in terms of decision-making regarding new investments in capital assets, setting of wages, terms and service conditions of its own personnel and the requirement to meet certain financial targets.

3.2.2. Response rate

The survey was made available to all port authorities in the then 22 maritime Member States of the European Union and port authorities in four neighbouring countries that were represented in ESPO: Iceland, Norway, Croatia⁵ and Israel. The survey was online from 1 April to 15 July 2010. Figure 1 illustrates the response rate per country, expressed in percentages of the total number of ports, the total volume of cargo and the total number of passengers handled.

Figure 1– Survey response rate per country



Source: calculations based on Eurostat data

⁵ Croatia joined the European Union in 2013 and became full member of ESPO since.

Hundred and sixteen port authorities from the 26 countries represented in ESPO responded. Together, these 116 port authorities reported that they manage a total of 216 different ports. Compared to the total number of ports existing in the 26 countries this represents a sample of 15%. This sample however handles 66% of all cargo and 40% of all passengers handled in the 26 countries. These calculations are based on Eurostat data completed with national statistics for Iceland and Israel. 66 port authorities manage core network ports or port clusters of the Trans-European Transport Networks (TEN-T). It should be noted that in countries with lower response rates, the ports that replied mostly form a representative sample of the governance diversity that exists in these countries.

3.3. Research methodology

The research methodology we used to assess the survey results consists of two main steps. The first concerns the selection and clean-up of the data generated by the survey, while the second consists of the use of factor analysis, as data reduction technique, to help revealing the underlying factors that may explain port governance diversity in Europe. As an intermediate step, we introduced a series of dummy variables to test the hypothesis that regional characteristics may constitute an important factor that explains this diversity.

3.3.1. Survey data and selection of variables

As mentioned above, the Fact-Finding Survey contained 108 questions. These questions generated 269 individual variables. Most of these variables are of nominal, that is, categorical nature, containing several answer categories. First, we made a selection of variables to make the dataset more manageable and, notably, to obtain a workable ratio between the number of variables and the number of observations. Factor analysis requires that there are more observations than variables. Variables that generated no or only few observations were deleted and the most pertinent variables were selected from different questions that were addressing similar issues. Additionally, some variables were clustered into new ones.

This resulted in a dataset of 67 variables, classified according to the thematic groups that we described in the previous Section: devolution, corporate governance, operational profile, functional autonomy, functional pro-activeness within the port authority's own port(s), functional pro-activeness beyond the port authority's own port(s), investment and financial autonomy. In addition, a 'size' group was created, which includes variables related to the volumes of total cargo, containers and passengers handled in the port(s) managed by the port authority as well as the number of staff the port authority employs (SZ_CARGO, SZ_CONTR, SZ_PASSG, SZ_STAFF).

The 'devolution' (DV) variables measure to what extent responsibility for port management is transferred from central government, through privatisation (DV_PRIVA), decentralisation (DV_DECEN) and corporatisation (DG CORPT). An additional variable measures whether governance reform took place in 2000 or later (DG REFYR). The 'corporate governance' (CG) variables measure the existence and nature of the port authority's objectives and mission Statement (CG_OBJEC, CG_PROFI, CG_VALUE and CG_MISSI), competences and composition of supervisory boards (CG_CEOAP, CG_BORPO, CG_BORSZ), use of public selection procedures to contract land out (CG_SELEC), existence of CSR policy (CG_CSRPO) and accounting practices (CG_ACSEP, CG_ACAUD, CG_ACPUB, CG_ACANL). The 'operational' (OP) variables identify whether the port authority directly

or indirectly provides operational services, including technical-nautical services (OP_TECNA), ancillary services (OP_ANCIL), cargo-handling services (OP_CARHA), passenger-handling services (OP_PAXHA) and transport services (OP_TRANS). The ‘functional autonomy’ (FA) variables measure to what extent the port authority can autonomously take management decisions, as regulator (FA_ENTIT, FA_HMAST and FA_POLIC), and as a landlord (FA_LANDO, FA_LANDP, FA_LANDD). The ‘functional pro-activeness’ variables are split between those that cover the port authority’s own port(s) (PO) and those that go beyond its own port(s) (PB). The first group measures the degree in which the port authority assumes a facilitating or entrepreneurial attitude in its different functions within the area of the port(s) it has directly under its supervision. This relates to its function as landlord (PO_CLAUS, PO_URBAN) and regulator (PO_ENVIR, PO_RULES, PO_SUSTA), as well as the economic (PO_BOTTL, PO_IMPL, PO_ITSYS, PO_PROMO, PO_TRAIN) and societal (PO_SOCIE) dimension of its community manager function. The second group measures to what extent the port authority is active beyond the port(s) it has directly under its supervision, in terms of relations with other ports (PB_STRAP, PB_DINVE), export of regulatory expertise (PB_REGEX), provision of operational services (PB_SERVI), investment in hinterland networks (PB_HINTE) and provision of training (PB_TRAIN). The ‘investment’ (IR) variables look at the extent to which the port authority bears investment responsibility for the main capital assets that constitute the port (IR_CAPAS) and looks at its main sources of income (IR_INCOM, IR_PDUES, IR_LEASE, IR_SERVI, IR_PUBFU). The last category seeks to measure the financial autonomy (FI) of port authorities through analysis of general port dues (FI_PRICE, FI_NEGOT, FI_PROMO, FI_CROSS, FI_LEVEL, FI_COLLE, FI_BENEF) and other variables (FI_WAGES, FI_RESUL, FI_TARGT).

Table 8 contains a full description of all variables, including the regional dummy variables that are explained below.

3.3.2. Introduction of regional dummy variables

As an intermediate step, we added five dummy variables, in order to test the hypothesis that the region where the port authority is located determines the governance diversity of European port authorities. These dummy variables were based on the geographical typology that was developed by Suykens (Suykens 1988; Suykens and Van de Voorde 1998). His typology however does not take into account the fall of the iron curtain which has brought a number of new ports around the Baltic Sea, the Mediterranean and the Black Sea in the competitive arena. These were under planned economy regimes for almost fifty years and underwent varied liberalisation processes after the political changeover. These ports can be brought together in two additional regions: ‘New Hanse’, consisting of countries around the Baltic Sea, and ‘New Latin’, consisting of countries in the East Mediterranean and the Black Sea.

Table 8 – Port governance variables

CODE	DESCRIPTION	CATEGORY	TYPE
SZ_CARGO	Total volume of goods handled by the ports managed by the port authority, in 2009, in tons	Identity	Continuous
SZ_CONTR	Total volume of containers handled by the ports managed by the port authority, in 2009, in tons	Identity	Continuous
SZ_PASSG	Total number of passengers handled by the ports managed by the port authority, in 2009	Identity	Continuous
SZ_STAFF	Total staff employed by the port authority, in FTE	Identity	Continuous
RG_HANSE	Port authority is located in the Hanse region	Identity	Categorical
RG_NWHAN	Port authority is located in the New Hanse region	Identity	Categorical
RG_ANGLO	Port authority is located in the Anglo-Saxon region	Identity	Categorical
RG_LATIN	Port authority is located in the Latin region	Identity	Categorical
RG_NWLAT	Port authority is located in the New Latin region	Identity	Categorical
DV_PRIVA	Port authority is predominantly privately owned	Devolution	Categorical
DV_DECEN	Port authority is predominantly owned at local level	Devolution	Categorical
DV_CORPT	Port authority has corporatised form	Devolution	Categorical
DV_REFYR	Governance reform took place in 2000 or later	Devolution	Categorical
CG_OBJEC	Port authority has general formal objectives	Corporate governance	Categorical
CG_PROFI	Economic objective port authority is maximisation of own profit	Corporate governance	Categorical
CG_VALUE	Economic objective port authority is maximisation of added value	Corporate governance	Categorical
CG_MISSI	Port authority has a mission Statement	Corporate governance	Categorical
CG_CEOAP	Supervisory body port authority has end responsibility to appoint CEO	Corporate governance	Categorical
CG_BORPO	Supervisory body port authority has significant number of elected politicians	Corporate governance	Categorical
CG_BORSZ	Number of members in the supervisory body of the port authority	Corporate governance	Continuous
CG_SELEC	Port authority uses public selection procedure to contract land out	Corporate governance	Categorical
CG_CSRPO	Port authority has a Corporate Social Responsibility (CSR) policy	Corporate governance	Categorical
CG_ACSEP	Port authority maintains separate financial accounts	Corporate governance	Categorical
CG_ACAUD	Port authority has its financial accounts audited by an external auditor	Corporate governance	Categorical
CG_ACPUB	Port authority publishes its financial accounts	Corporate governance	Categorical
CG_ACANL	Port authority has an internal analytical accounting process	Corporate governance	Categorical
OP_TECNA	Port authority provides technical-nautical services	Operational profile	Categorical
OP_ANCIL	Port authority provides ancillary services	Operational profile	Categorical
OP_CARHA	Port authority provides cargo handling services	Operational profile	Categorical
OP_PAXHA	Port authority provides passenger handling services	Operational profile	Categorical
OP_TRANS	Port authority provides transport services	Operational profile	Categorical
FA_ENTIT	Port authority is the only entity with statutory responsibilities for the port(s) it manages	Functional autonomy	Categorical
FA_HMAST	Harbour master is fully integrated in the port authority	Functional autonomy	Categorical
FA_POLIC	Port authority employs its own police force	Functional autonomy	Categorical
FA_LANDO	Port authority is the main owner of port land	Functional autonomy	Categorical

CODE	DESCRIPTION	CATEGORY	TYPE
FA_LANDS	Port authority is able to sell port land	Functional autonomy	Categorical
FA_LANDP	Contracting of port land to third parties is governed by private law	Functional autonomy	Categorical
FA_LANDD	Port authority is free to set durations of land use contracts	Functional autonomy	Categorical
PO_CLAUS	Port authority actively uses performance clauses in terminal agreements	Functional pro-activeness	Categorical
PO_URBAN	Port authority engages in urban real estate management	Functional pro-activeness	Categorical
PO_ENVIR	Port authority engages in environmental land management	Functional pro-activeness	Categorical
PO_RULES	Port authority sets own regulations that go beyond legal requirements	Functional pro-activeness	Categorical
PO_SUSTA	Port authority generally goes beyond legal requirements in actions to enhance sustainability	Functional pro-activeness	Categorical
PO_BOTTL	Port authority is leader in solving various types of bottlenecks	Functional pro-activeness	Categorical
PO_IMPL	Port authority assists and facilitates port community with implementation of regulations	Functional pro-activeness	Categorical
PO_ITSYS	Port authority runs IT system for the entire port community	Functional pro-activeness	Categorical
PO_PROMO	Port authority leads the overall promotion and marketing of the port	Functional pro-activeness	Categorical
PO_TRAIN	Port authority provides training / educational programmes for the port community	Functional pro-activeness	Categorical
PO_SOCIE	Port authority is leader in various societal integration initiatives	Functional pro-activeness	Categorical
PB_STRAP	Port authority has strategic partnerships with other ports	F pro-act beyond own port	Categorical
PB_DINVE	Port authority has direct investments in other ports	F pro-act beyond own port	Categorical
PB_REGEX	Port authority exports regulatory expertise to other ports	F pro-act beyond own port	Categorical
PB_SERVI	Port authority provides operational services in other ports	F pro-act beyond own port	Categorical
PB_HINTE	Port authority invests in hinterland networks outside own port	F pro-act beyond own port	Categorical
PB_TRAIN	Port authority provides training / educational programmes outside its own port	F pro-act beyond own port	Categorical
IR_CAPAS	Degree of investment responsibility port authority for main capital assets that constitute the port	Investment	Continuous
IR_INCOM	Total operational income of the port authority, in 2009, in Euro	Investment	Continuous
IR_PDUES	General port dues form highest percentage of income	Investment	Categorical
IR_LEASE	Land lease forms highest percentage of income	Investment	Categorical
IR_SERVI	Services form highest percentage of income	Investment	Categorical
IR_PUBFU	Public funding forms highest percentage of income	Investment	Categorical
FI_PRICE	General port dues are commercial prices	Financial autonomy	Categorical
FI_NEGOT	General port dues are negotiable	Financial autonomy	Categorical
FI_PROMO	Port authority can give commercial promotions on general port dues	Financial autonomy	Categorical
FI_CROSS	Port authority can cross-subsidise between different sources of income	Financial autonomy	Categorical
FI_LEVEL	Port authority autonomously sets the level of general port dues	Financial autonomy	Categorical
FI_COLLE	Port authority autonomously collects general port dues	Financial autonomy	Categorical
FI_BENEF	Port authority is final beneficiary of general port dues	Financial autonomy	Categorical
FI_INVES	Port authority autonomously decides on port investments	Financial autonomy	Categorical
FI_WAGES	Port authority sets wages, terms and conditions of service of its own personnel	Financial autonomy	Categorical
FI_RESUL	Port authority decides autonomously how to allocate the annual financial result	Financial autonomy	Categorical
FI_TARGT	Port authority does not have to meet certain financial targets	Financial autonomy	Categorical

In this way, we can classify the port authorities in five regional groups:

- Hanse (RG_HANSE): Belgium, Denmark, Finland, Germany, Iceland, the Netherlands, Norway and Sweden
- New Hanse (RG_NWHAN): Estonia, Latvia, Lithuania and Poland
- Anglo-Saxon (RG_ANGLO): Ireland and the United Kingdom
- Latin (RG_LATIN): Cyprus, France, Greece, Israel, Italy, Malta, Portugal and Spain
- New Latin (RG_NWLAT): Bulgaria, Croatia, Romania and Slovenia

Most port authorities participating in the survey are either to be found in the Hanse (38%) or Latin (35%) region; third comes the Anglo-Saxon region (14%). The two 'new' regions contain relatively few port authorities (New Hanse 7% and New Latin 6%).

3.3.3. Factor analysis

After cleaning up the results of the survey and adding the regional dummy variables, the database still contained 72 variables. Applying a data reduction technique may therefore help reveal the relations between governance practices of port authorities in Europe, to explain port governance diversity. Factor analysis is commonly applied to explore datasets with many variables which are then summarised into a limited number of unobserved factors. Doing this, the analysis tries to keep the number of factors as low as possible while maintaining a maximum of the information which is present in the original data. For each factor, the factor loadings indicate to which extent they are correlated with each variable. If the factor loadings of two variables show similarities, these variables are related. On the basis of the resulting pattern, factors are often labelled and, accordingly, clusters of observations can be detected (Stevens 2002).

Two problems remain when analysing the ESPO database. First, a considerable amount of observations has missing values for one or more variables. Second, most variables are categorical in nature. Classical factor analysis, however, assumes continuous and normally distributed variables. Among others Nisenbaum *et al.* (2004) and Vanoutrive *et al.* (2010) applied binary (categorical) factor analysis to get insight in questionnaires containing an extensive list of binary yes/no questions. The software employed in these studies, Mplus (Muthén and Muthén 2006), allows one to carry out factor analyses with a mix of both continuous and categorical variables. Furthermore, this package can handle missing data without omitting valuable information as is the case with standard list-wise or pair-wise deleting options in other software.

Although the chosen technique can handle missing data, we deleted 6 from the 116 observations because these six port authorities did not provide data on more than 40% of the variables. Furthermore, the categorical variables were re-coded in binary variables since this did not bring along an important loss of information, that is, some rare categories would not positively contribute to an analysis of the main patterns present in the data. Finally, we attributed the label 'missing' for the cargo variable instead of a value of zero to ports, which do not handle any cargo at all. Given the limited number of ports with only passenger traffic, we do not expect that this affects the results in a major way.

We estimate two models, one with and one without the regional dummy variables. These variables have a value of one if the port belongs to the Hanse, New Hanse, Anglo-Saxon, Latin or New Latin region, respectively, and a value of zero if not. As these dummy variables are mutually exclusive, and to avoid that this pre-specified clustering influences the results

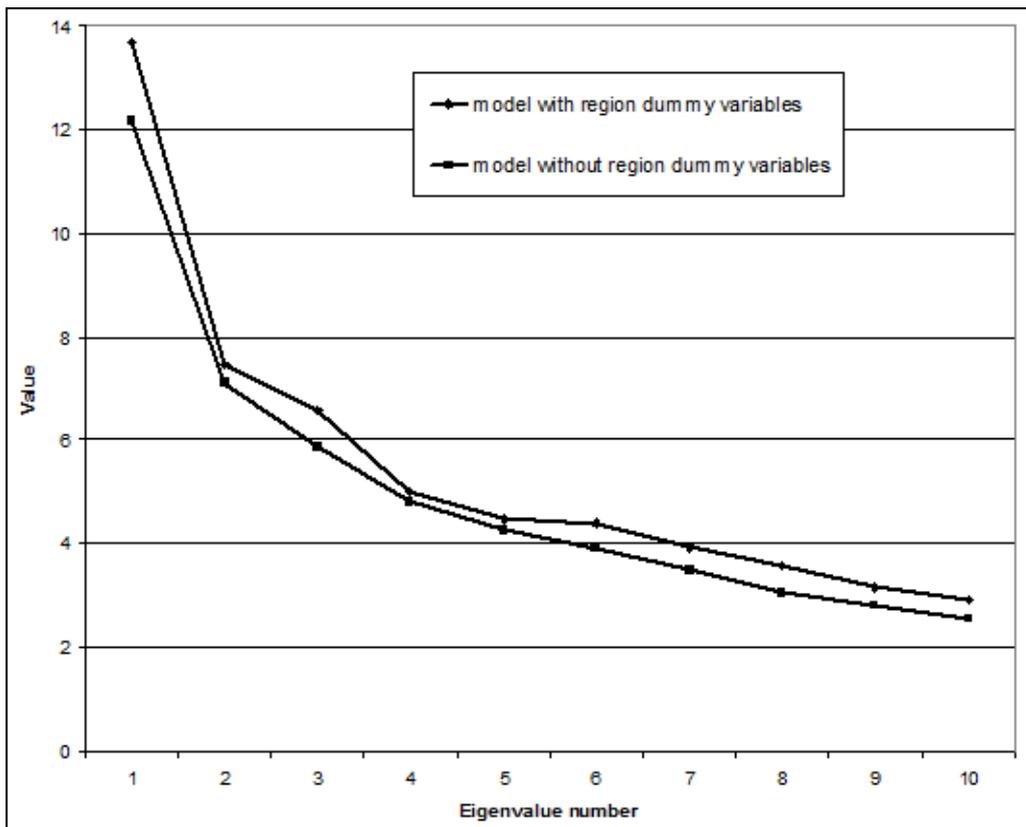
and their interpretation, we will first look at the model without these regional variables and use the model with the regional variables to check our findings.

3.4. Results of the factor analysis

3.4.1. Number of factors and factor loadings

As in standard factor analysis, the eigenvalues are used to select the number of factors. Figure 2 pictures the scree plot which shows the eigenvalues. The twists in a scree plot indicate possible values for the number of factors.

Figure 2 – Scree plot of the models with and without regional dummy variables



The scree plot suggests a model with four factors, after which the lines level out. The results (Varimax rotated) are given in Table 9. Factor loadings ≥ 0.4 are shown in bold as these are considered meaningful. Values ≥ 0.3 are also large enough to be important.

Table 9 – Factor loadings of the 4-factor models without region dummy variables (left) and with region dummy variables (right)

Variable	Factor1	Factor2	Factor3	Factor4	Factor1	Factor2	Factor3	Factor4
SZ_CARGO	0.14	0.54	0.21	0.13	0.11	-0.04	0.10	0.53
SZ_PASSG	-0.03	-0.01	0.15	-0.07	-0.01	0.14	0.04	0.05
SZ_STAFF	-0.04	0.57	0.11	0.40	0.06	0.10	-0.26	0.65
IR_CAPAS	0.12	0.02	-0.27	0.20	0.22	-0.12	-0.32	0.04
IR_INCOM	0.13	0.80	0.37	-0.12	0.08	-0.02	0.32	0.80
CG_BORSZ	0.71	-0.06	0.02	-0.20	0.64	-0.24	0.35	-0.13
RG_HANSE					-0.82	-0.10	0.42	-0.10
RG_NWHAN					-0.02	0.30	-0.16	0.00
RG_ANGLO					-0.18	-0.24	-0.88	-0.28
RG_LATIN					0.95	-0.14	0.21	0.15
RG_NWLAT					0.26	0.67	-0.15	0.03
DV_PRIVA	-0.23	-0.31	-0.45	0.93	0.00	0.01	-0.92	-0.27
DV_DECEN	-0.71	-0.07	-0.04	-0.23	-0.84	-0.13	0.17	-0.18
DV_CORPT	-0.39	0.21	-0.24	0.42	-0.27	0.08	-0.56	0.30
DV_REFYR	-0.52	0.04	0.38	0.01	-0.54	0.32	0.20	0.10
CG_OBJEC	0.43	0.21	0.40	-0.18	0.38	0.19	0.39	0.26
CG_PROFI	-0.48	-0.01	-0.26	0.41	-0.29	-0.01	-0.66	0.04
CG_VALUE	-0.11	0.36	-0.19	-0.24	-0.24	-0.38	0.25	0.23
CG_MISSI	0.09	0.41	-0.04	-0.42	-0.02	-0.22	0.25	0.33
CG_CEOAP	-0.58	0.22	-0.09	-0.27	-0.63	-0.11	-0.01	0.16
CG_BORPO	-0.49	-0.10	-0.22	-0.58	-0.71	-0.30	0.42	-0.25
CG_SELEC	0.54	0.46	0.19	-0.10	0.55	0.05	0.17	0.53
CG_CSRPO	0.30	0.49	-0.37	0.19	0.31	-0.41	-0.18	0.42
CG_ACSEP	-0.22	0.74	0.37	0.02	-0.21	0.19	0.13	0.81
CG_ACAUD	-0.48	0.86	-0.02	0.03	-0.45	-0.10	-0.17	0.88
CG_ACPUB	-0.11	0.53	-0.56	0.03	-0.12	-0.68	-0.22	0.37
CG_ACANL	0.18	0.51	0.10	0.33	0.22	-0.01	-0.04	0.52
OP_TECNA	-0.33	-0.09	-0.73	-0.03	-0.31	-0.51	-0.49	-0.19
OP_ANCIL	-0.37	0.05	-0.68	-0.26	-0.44	-0.65	-0.14	-0.12
OP_CARHA	-0.34	-0.23	-0.55	0.39	-0.19	-0.15	-0.68	-0.20
OP_PAXHA	0.11	0.04	-0.49	0.02	0.14	-0.37	-0.21	-0.02
OP_TRANS	0.35	-0.31	-0.41	0.07	0.32	-0.28	-0.13	-0.38
FA_ENTIT	-0.42	-0.09	-0.21	-0.40	-0.48	-0.23	0.02	-0.19
FA_HMAST	-0.73	0.04	-0.25	-0.15	-0.76	-0.29	-0.18	-0.07
FA_POLIC	0.45	0.24	-0.22	-0.05	0.47	-0.34	-0.07	0.18
FA_LANDO	-0.55	-0.06	-0.07	-0.03	-0.53	-0.03	-0.18	-0.10
FA_LANDS	-0.48	-0.04	-0.11	-0.06	-0.48	-0.18	-0.15	-0.13
FA_LANDP	-0.58	0.13	0.16	0.11	-0.58	0.17	-0.09	0.15
FA_LANDD	-0.23	-0.32	-0.07	0.07	-0.19	0.02	-0.24	-0.33
PO_CLAUS	0.45	0.30	-0.18	0.05	0.40	-0.24	0.06	0.26
PO_URBAN	0.61	0.08	-0.20	-0.19	0.58	-0.29	0.10	0.04
PO_ENVIR	0.23	0.26	0.09	-0.03	0.23	0.06	0.05	0.29
PO_RULES	-0.07	0.33	-0.29	-0.10	-0.11	-0.42	-0.03	0.20
PO_SUSTA	0.40	0.28	-0.32	-0.07	0.34	-0.51	0.09	0.14
PO_BOTTL	0.34	0.18	-0.50	0.20	0.37	-0.51	-0.27	0.07

Variable	Factor1	Factor2	Factor3	Factor4	Factor1	Factor2	Factor3	Factor4
PO_IMPL	0.30	0.26	-0.13	-0.16	0.23	-0.23	0.09	0.20
PO_ITSYS	0.25	0.54	-0.25	-0.1	0.22	-0.25	0.01	0.52
PO_PROMO	0.10	0.06	-0.36	-0.12	0.07	-0.25	-0.06	0.01
PO_TRAIN	0.42	0.11	-0.23	-0.04	0.37	-0.37	0.02	0.00
PO_SOCIE	0.33	0.43	-0.29	-0.28	0.19	-0.57	0.27	0.27
PB_STRAP	0.78	0.20	-0.01	-0.08	0.64	-0.29	0.37	0.12
PB_DINVE	0.44	0.29	-0.08	0.00	0.36	-0.23	0.19	0.23
PB_REGEX	0.41	0.66	-0.12	0.02	0.33	-0.43	0.16	0.54
PB_SERVI	0.06	-0.17	-0.45	0.03	0.02	-0.24	-0.16	-0.21
PB_HINTE	0.63	0.32	-0.07	0.19	0.60	-0.16	0.05	0.31
PB_TRAIN	0.52	0.43	-0.19	-0.02	0.47	-0.42	0.11	0.33
IR_PDUES	-0.23	-0.33	0.01	-0.3	-0.24	0.08	-0.04	-0.31
IR_LEASE	0.22	0.44	-0.13	-0.23	0.08	-0.36	0.34	0.32
IR_SERVI	-0.09	0.07	-0.05	0.80	0.13	0.22	-0.54	0.17
IR_PUBFU	0.30	-0.47	0.11	0.17	0.34	0.23	-0.02	-0.44
FI_PRICE	-0.64	0.12	-0.34	0.21	-0.58	-0.28	-0.48	0.07
FI_PROMO	0.05	0.10	0.05	-0.44	-0.06	-0.15	0.35	0.02
FI_CROSS	-0.13	0.07	-0.40	-0.30	-0.21	-0.44	0.01	-0.04
FI_LEVEL	-0.82	0.00	-0.11	-0.17	-0.79	0.04	-0.22	0.00
FI_COLLE	-0.61	0.27	-0.43	-0.38	-0.68	-0.40	-0.07	0.18
FI_BENEF	-0.35	-0.02	0.03	-0.48	-0.38	-0.05	0.18	-0.01
FI_INVES	-0.31	-0.11	-0.47	0.14	-0.23	-0.22	-0.54	-0.14
FI_WAGES	-0.59	-0.16	0.00	-0.06	-0.56	0.18	-0.21	-0.12
FI_RESUL	-0.11	-0.08	-0.30	0.10	-0.05	-0.15	-0.36	-0.10
FI_TARGET	-0.08	-0.12	0.46	0.13	-0.01	0.49	0.05	0.00

Notes: factor loadings are Varimax rotated; values ≥ 0.4 in bold; RMSEA model without region dummy variables (left): 0.155; RMSEA model with region dummy variables (right): 0.162.

The presence of missing and binary data and the relatively limited number of observations, together with a rather large number of variables, can explain the low values of test statistics indicated at the bottom of Table 9. In addition to the fact that the first 23 eigenvalues stay above 1, also the Root Mean Square Error of Approximation (RMSEA) stays above 0.1 even for a model with ten factors, while a moderately well-fitting model has an RMSEA < 0.10 (Gilbert and Meijer 2006) or even RMSEA < 0.08 (Stevens 2002, p. 433) (numbers for the model without regional dummy variables). Although fit statistics suggest that the model does not perform well, many factor loadings have values ≥ 0.4 and we could detect patterns that correspond with the literature. As a consequence, we did not try to improve the model by omitting variables since this would imply a loss of information.

In general, the results of the models with and without region dummy variables are similar, which is a first indication that this clustering of ports in regions could also reflect differences in governance practices. This will be explored further in the next Section which discusses the results. Table 10 already marks the correspondence between the factors in both models.

Table 10 – Correspondence between factors in models with and without dummy variables

Model without dummy variables	Relationship	Model with dummy variables
Factor 1	+	Factor 1
Factor 2	+	Factor 4
Factor 3	+	Factor 2
Factor 4	-	Factor 3

3.4.2. Description of the factors

In this Section, we describe the four factors individually, looking first at the factor in the model without region dummy variables and then comparing it with the corresponding factor in the model with the dummy variables. For each factor, loadings with a value higher than 0.3 are represented in individual tables. In each table, variables with an estimated residual variance lower or equal to 0.5 are highlighted in bold. Estimated residual variances indicate how much of each variable is explained through the entire model, i.e. comprising all factors. Appendix 2 gives the estimated residual variances for all variables.

Factor 1: ‘Latin – Hanseatic contrasts in autonomy and pro-activeness’

Table 11 illustrates that Factor 1 is generally characterised by positive loadings for variables that relate to functional pro-activeness, both within (PO) and beyond (PB) the own port. Negative loadings exist for variables that relate to financial (FI) and functional autonomy (FA), as well as devolution (DV). Variables on corporate governance (CG) demonstrate a mixed picture. Positive loading exists for the size of the supervisory boards (CG_BORSZ), but a negative one on politicians being significantly present in them (CG_BORPO). Negative loadings exist on profit maximisation as the main economic objective (CG_PROFI) and the external audit of financial accounts (CG_ACAUD). A positive loading appears for the use of public selection procedures to land contracts (CG_SELEC). Although the factor loadings are not high for operational variables (OP), they are generally negative (except for transport services (OP_TRANS)).

Table 11 – Loadings: Factor 1 (with and without dummy variables)

Model without region dummy variables (Factor 1)		
Positive factor loading	> 0.7	PB_STRAP, CG_BORSZ
	> 0.6	PB_HINTE , PO_URBAN
	> 0.5	CG_SELEC , PB_TRAIN
	> 0.4	FA_POLIC, PO_CLAUS, PB_DINVE, CG_OBJEC, PO_TRAIN, PB_REGEX , PO_SUSTA
	> 0.3	OP_TRANS, PO_BOTTL, PO_SOCIE
Negative factor loading	< -0.8	FI_LEVEL
	< -0.7	FA_HMAST , DV_DECEN
	< -0.6	FI_PRICE , FI_COLLE
	< -0.5	FI_WAGES, CG_CEOAP, FA_LANDP, FA_LANDO, DV_REFYR
	< -0.4	CG_BORPO , FA_LANDS, CG_PROFI, CG_ACAUD , FA_ENTIT
	< -0.3	DV_CORPT, OP_ANCIL , FI_BENEF, OP_CARHA , OP_TECNA , FI_INVES

Model with region dummy variables (Factor 1)		
Positive factor loading	> 0.8	RG_LATIN
	> 0.6	CG_BORSZ, PB_STRAP, PB_HINTE
	> 0.5	PO_URBAN, CG_SELEC
	> 0.4	FA_POLIC, PB_TRAIN
	> 0.3	PO_CLAUS, CG_OBJEC, PO_TRAIN, PO_BOTTL, PB_DINVE, PO_SUSTA, IR_PUBFU, PB_REGEX, OP_TRANS, CG_CSRPO
Negative factor loading	< -0.8	RG_HANSE, DV_DECEN
	< -0.7	FI_LEVEL, FA_HMAST, CG_BORPO
	< -0.6	FI_COLLE, CG_CEOAP
	< -0.5	FI_PRICE, FA_LANDP, FI_WAGES, DV_REFYR, FA_LANDO
	< -0.4	FA_ENTIT, FA_LANDS, CG_ACAUD, OP_ANCIL
	< -0.3	FI_BENEF, OP_TECNA

Note: variables with an estimated residual value < 0.50 are indicated in bold.

In summary, we could say that, somehow paradoxically, Factor 1 matches limited autonomy with a substantial degree of pro-activeness. If we compare this picture with the model that has regional variables included, we find that Factor 1 has a strongly positive loading for the Latin region (RG_LATIN) and a strongly negative one for the Hanse region (RG_HANSE).

Factor 2: ‘Large corporately governed landlord port authorities’

Table 12 shows that factor 2 has positive loadings for size-related variables (income (IR_INCOM), number of staff (SZ_STAFF), volume of cargo (SZ_CARGO)). Positive loadings also exist for transparency-related variables in the category of corporate governance (for example where it concerns financial accounts (CG_ACSEP, CG_ACAUD, CG_ACPUB) and the use of public selection procedures for contracting out land to third parties (CG_SELEC)). It furthermore has positive loadings on functional pro-activeness, both within (PO) and beyond the own port (PB). Within the investment category, a positive loading is present for land lease being the highest percentage of operational income (IR_LEASE) and a negative one for public funding being the highest percentage (IR_PUBFU). A negative loading also appears for private ownership of the port authority (DV_PRIVA).

In summary, Factor 2 combines the size of the port authority with principles of good corporate governance and functional pro-activeness. Compared with the corresponding Factor 4 in the model with regional dummy variables, we notice that these do not appear in the list of significant variables. The regional adherence does not therefore play a role.

Factor 3: ‘New European public conservators’

It appears from Table 13 that Factor 3 shows predominantly negative loadings, especially for variables that relate to operational involvement in port services (OP), corporate governance (transparency) (CG), functional pro-activeness within (PO) and beyond the port (PB), as well as financial autonomy (FI). A negative loading also exists for private ownership of the port authority (DV_PRIVA), whereas a positive loading appears for the variable that indicates whether the port authority obtained its present legal form in the last decade (DV_REFYR).

Table 12 – Loadings: Factor 2 (without dummy variables) and Factor 4 (with dummy variables)

Model without region dummy variables (Factor 2)		
Positive factor loading	> 0.8	CG_ACAUD, IR_INCOM
	> 0.7	CG_ACSEP
	> 0.6	PB_REGEX
	> 0.5	SZ_STAFF, PO_ITSYS, SZ_CARGO, CG_ACPUB, CG_ACANL
	> 0.4	CG_CSRPO, CG_SELEC, IR_LEASE, PO_SOCIE, PB_TRAIN, CG_MISSI
	> 0.3	CG_VALUE, PO_RULES, PB_HINTE
Negative factor loading	< -0.4	IR_PUBFU
	< -0.3	IR_PDUES, FA_LANDD, OP_TRANS, DV_PRIVA
Model with region dummy variables (Factor 4)		
Positive factor loading	> 0.8	CG_ACAUD, CG_ACSEP, IR_INCOM
	> 0.6	SZ_STAFF
	> 0.5	PB_REGEX, CG_SELEC, SZ_CARGO, PO_ITSYS, CG_ACANL
	> 0.4	CG_CSRPO
	> 0.3	CG_ACPUB, CG_MISSI, PB_TRAIN, IR_LEASE, PB_HINTE, DV_CORPT
Negative factor loading	< -0.4	IR_PUBFU
	< -0.3	OP_TRANS, FA_LANDD, IR_PDUES

Note: variables with an estimated residual value < 0.50 are indicated in bold.

Table 13 – Loadings: Factor 3 (without dummy variables) and Factor 2 (with dummy variables)

Model without region dummy variables (Factor 3)		
Positive factor loading	> 0.4	CG_OBJEC,
	> 0.3	DV_REFYR, IR_INCOM, CG_ACSEP
Negative factor loading	< -0.7	OP_TECNA
	< -0.6	OP_ANCIL
	< -0.5	CG_ACPUB, OP_CARHA
	< -0.4	PO_BOTTL, OP_PAXHA, FI_INVES, FI_TARGT, PB_SERVI, DV_PRIVA, FI_COLLE, OP_TRANS, FI_CROSS
	< -0.3	CG_CSRPO, PO_PROMO, FI_PRICE, PO_SUSTA, FI_RESUL
Model with region dummy variables (Factor 2)		
Positive factor loading	> 0.6	RG_NWLAT
	> 0.4	FI_TARGT
	> 0.3	DV_REFYR, <i>RG_NWHAN (0.299)</i>
Negative factor loading	< -0.6	CG_ACPUB, OP_ANCIL
	< -0.5	PO_SOCIE, PO_SUSTA, OP_TECNA, PO_BOTTL
	< -0.4	FI_CROSS, PB_REGEX, PO_RULES, PB_TRAIN, CG_CSRPO
	< -0.3	FI_COLLE, CG_VALUE, OP_PAXHA, PO_TRAIN, IR_LEASE, FA_POLIC, CG_BORPO

Note: variables with an estimated residual value < 0.50 are indicated in bold.

Factor 3 bears resemblance to the ‘conservator’ type of port authority that was identified in Table 7 above. Compared with the corresponding Factor 2 in the model with regional dummy variables, we see a strong positive loading for the New Latin region (RG_NWLAT) and a modest positive loading for the New Hanse region (RG_NWHAN).

Factor 4: ‘Anglo-Saxon private comprehensive entrepreneurs’

Finally, Table 14 shows that Factor 4 has positive loadings for devolution variables (DV), most strongly for privatisation (DV_PRIVA). It also has a strongly positive loading for the variable that indicates that the provision of services forms the highest percentage of income of the port authority (IR_SERVI). This corresponds with the positive loading for the variables that indicate that the port authority provides cargo handling services (OP_CARHA) and has maximization of its own profit as an economic objective (CG_PROFI). The factor has negative loadings on financial autonomy variables (FI). A negative loading appears on politicians being significantly present in the supervisory board of the port authority (CG_BORPO).

Table 14 – Loadings: Factor 4 (without dummy variables) and Factor 3 (with dummy variables)

Model without region dummy variables (Factor 4)		
Positive factor loading	> 0.9	DV_PRIVA
	> 0.8	IR_SERVI
	> 0.4	DV_CORPT, CG_PROFI
	> 0.3	SZ_STAFF, OP_CARHA , CG_ACANL
Negative factor loading	< -0.5	CG_BORPO
	< -0.4	FI_BENEF, FI_PROMO, CG_MISSI
	< -0.3	FA_ENTIT, FI_COLLE , IR_PDUES, FI_CROSS
Model with region dummy variables (Factor 3)		
Positive factor loading	> 0.4	CG_BORPO, RG_HANSE
	> 0.3	CG_OBJEC, PB_STRAP , FI_PROMO, CG_BORSZ , IR_LEASE, IR_INCOM
Negative factor loading	< -0.9	DV_PRIVA
	< -0.8	RG_ANGLO
	< -0.6	OP_CARHA, CG_PROFI
	< -0.5	DV_CORPT, IR_SERVI, FI_INVES
	< -0.4	OP_TECNA, FI_PRICE
	< -0.3	FI_RESUL, IR_CAPAS

Note: variables with an estimated residual value < 0.50 are indicated in bold.

This factor has elements of the entrepreneurial type we identified in Chapter 7 and points at a comprehensive operational configuration. The negative loadings on financial autonomy (FI) are more difficult to explain however. Factor 4 relates negatively to Factor 3 in the model with regional dummy variables. Taking this into account, it is obvious that the Anglo-Saxon regional variable (RG_ANGLO) plays a very important role.

3.5. Conclusions

There exists a wide range of studies that discuss port governance in general or focus on particular aspects. However, up until now, research on port governance practices was largely limited to case studies or rather descriptive analyses. The present Chapter extends this research by analysing a large number of European port authorities (n = 110) in a quantitative manner, using factor analysis. The 2010 ESPO Fact-Finding Survey proved to be a valuable source of information to explore differences in governance practices between European ports.

The results confirm the existence of different types of port governance in Europe, which to some extent correspond with the hypothetical typology developed in Chapter 2, according to which port authorities can be conservators, facilitators or entrepreneurs. Differences are to a large extent geographically defined and the subdivision in Hanseatic, Latin, Anglo-Saxon and new Member State port authorities proves to be a valuable one. Taking into account that, proportionally, most port authorities in Europe belong to either the Hanse or Latin tradition, the difference between them translates itself in a north-south duality which not only involves simple ownership differences, but covers many other governance elements, especially functional and financial autonomy, which is typically more limited in the south. This, somehow paradoxically, does not always appear to be a constraint for functional pro-activeness.

Besides this geographical explanation of diversity, we however could also detect differences in terms of governance practices between small and large ports. Port authorities of the latter generally follow a more pro-active approach and score higher on transparency-related variables.

Rephrasing these conclusions in terms of our research questions, we can say that port governance in Europe is still largely determined by regionally-based traditions. The analysis of the survey results does not allow us to draw firm conclusions as regards the future relevance of these governance traditions, as this depends on further reforms⁶ and, possibly, the influence of the European Union that we will explore in the next Chapter. But the apparent convergence of larger port authorities, may point at a certain dynamic that is independent from the geographical traditions in which these port authorities are embedded.

⁶ The 2010 ESPO Fact-Finding Report contained a summary overview of port reforms and re-organisations, updated in April 2011. The overview shows that several countries were privatising or liberalising operational services, or had just completed such processes. This was mainly significant for ports in the Latin, New Latin and New Hanse regions. In Anglo-Saxon countries, further privatisation of (some) ports was at stake. In most countries, co-operation between (neighbouring) ports appeared to be an issue, which was either driven bottom-up by port authorities themselves, or stimulated by national or regional government. Somewhat paradoxically, the latter seemed more characteristic for the Hanse region where some governments were also discussing the selection of 'ports of national interest' (Verhoeven and ESPO 2011). The 2008 economic crisis furthermore triggered debate on port privatisation in several countries, mainly in the south of Europe. The primary objective of these reforms was to generate cash for the State budget, but also to make ports more competitive (Verhoeven 2014).

4. EUROPEAN UNION PORTS POLICY

4.1. Introduction

In Chapter 2, we identified the legal framework as one of the factors that influence the capability of port authorities to address the multiple challenges they are faced with and that allow them to develop their core competencies. For European port authorities, this framework is influenced at the supra-national level of the European Union (EU). Ever since the signing of the Treaty of Rome⁷ in 1957, several attempts have been made to develop a specific EU⁸ policy framework for seaports. Most of these attempts, however, remained unsuccessful or only led to partial results.

We start this Chapter with an overview of how EU ports policy evolved over time, paying specific attention to developments occurring during the past fifteen years. Next, in addressing our second research question, we explore to what extent EU ports policy influences port governance diversity in Europe.

4.2. Evolution of EU ports policy

We trace the evolution of EU ports policy back to its very origins, but focus especially on the period since 2001, which includes the rise and fall of the port services' Directive. This debate very much influenced all further attempts to devise a common policy framework. Throughout the review, we will pay attention to the evolving attitudes of both European policy-makers⁹ and stakeholders.

⁷ Every action taken by the EU is founded on treaties that have been approved voluntarily and democratically by all EU Member States. A Treaty is a binding agreement between EU member countries. It sets out EU objectives, rules for EU institutions, procedures on how decisions are made and it defines the relationship between the EU and its member countries. Treaties are amended to make the EU more efficient and transparent, to prepare for new member countries and to introduce new areas of cooperation, such as the single currency. The first Treaty established the European Community of Coal and Steel (1951). This was followed by the Treaties of Rome, which established the European Economic Community (EEC), and Euratom (1957). The European Union was established through the Maastricht Treaty (1993) and the latest modifications came about through the Lisbon Treaty (2007). Under the treaties, EU institutions can adopt legislation, which the member countries then implement. EU legislation usually comes in the form of Directives and Regulations. Member States need to transpose the former into national legislation, whereas the latter apply directly (http://europa.eu/eu-law/decision-making/treaties/index_en.htm).

⁸ Throughout this Chapter, we use the term 'European Union' even when reference is made to facts taking place before the entry into force of the Maastricht Treaty.

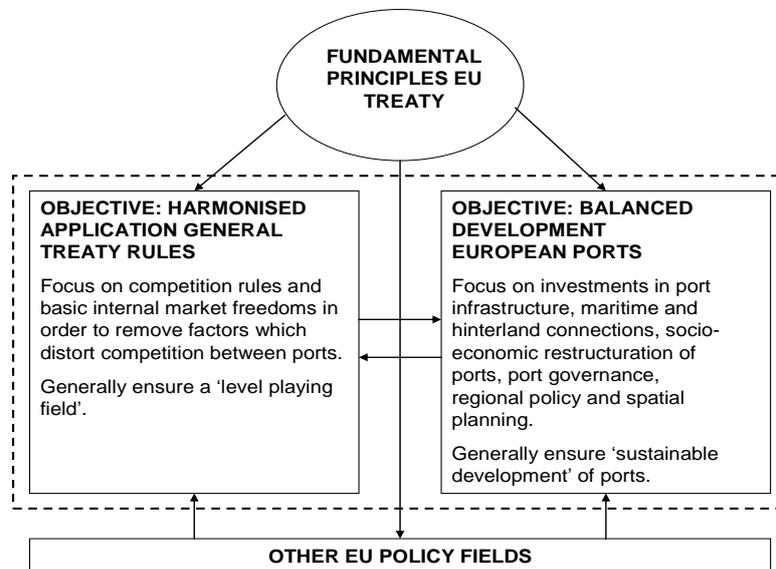
⁹ The three principal policy-makers of the European Union are the European Commission, the European Parliament and the Council of the European Union. In simplified terms, the Commission can be seen as the executive power, which formally holds the main initiative to propose new policies and laws. The legislative powers are in the hands of Parliament and Council. The former is directly elected by EU citizens and the latter represents the interests of EU Member States. Initially, Parliament only had an advisory role, but its powers greatly increased over time. Today, both institutions generally have equal weight in the legislative process.

4.2.1. 1957-2000: identification of the main objectives and first initiatives

Chlomoudis and Pallis (2002) qualify the very first stages of EU port policy development as phases of ‘exclusion’ and ‘non-intervention’. This does not mean that this period was totally devoid of initiatives. It was the European Parliament in particular that advocated an ambitious ports policy agenda, covering governance-related issues such as port revenues and financing (Assemblée Parlementaire Européenne 1961, Parlement Européen 1967; Parlement Européen 1972).

In a non-published note from 1970, the European Commission identified the two main objectives that would characterise all of its future attempts to devise a common ports policy. These are illustrated in Figure 3. On the one hand, the Commission aims to achieve a consistent application of general Treaty rules, notably with regard to competition and the basic internal market freedoms. On the other hand, it wants to ensure a balanced development of European ports. The Commission explains that both objectives stem from the fundamental principles of the EU Treaty, are inter-related and can therefore not be seen as alternatives (Commission des Communautés Européennes 1970).

Figure 3 – Objectives of EU ports policy



Source: based on Commission des Communautés Européennes 1970

In 1974, the Commission set up a Port Working Group from port authority representatives of Europe’s major ports, which produced the first version of the so-called ‘fact finding report’ on the institutional and administrative structure of Europe’s ports (Commission of the European Communities 1977). The report showed considerable diversity in the organisation, management, operations, finance and legal obligations of the ports that were surveyed in the then eight Member States of the European Union. The majority of the experts came to the conclusion that these differences however did not seem to be capable of provoking serious distortions of competition which would require solutions at Community

level (Commission of the European Communities 1980)¹⁰. The Commission initially followed this opinion and concluded that, in so far as seaports were an essential link in the Community's transport chain, they would be covered by the general development of the common transport policy (report quoted in European Parliament 1982)¹¹.

Chlomoudis and Pallis (2002) explain the factors which incited the European Commission to make progress in the early 1990s with a common transport policy, which aimed to develop a coherent European infrastructure network through the concept of the Trans-European Transport Networks (TEN-T) and aspired to make transport and mobility more sustainable. The latter gave a prominent place to intra-European maritime transport as an environment-friendly alternative to congested road transport. A specific communication on short sea shipping followed in 1995, which contained a Section on ports policy featuring concrete proposals on the inclusion of port projects in the TEN-T, transparency and State aid, application of competition rules as well as the general improvement of port efficiency (Commission of the European Communities 1995). These issues were based on the original 1970 objectives and would from now on form the core of the European agenda for ports.

Shipowners, united in the European Community Shipowners' Associations (ECSA), were instrumental in getting short sea and ports policy on the agenda of the European Commission. The response of European port authorities, which had in 1993 organised themselves at EU level through the European Sea Ports Organisation (ESPO), can best be described as 'passively reactive'. This did not fundamentally change when the European Commission adopted in 1997 its first genuine publication on ports, the Green Paper on Sea Ports and Maritime Infrastructure (Commission of the European Communities 1997). This discussion paper took a rather outspoken liberal view on ports, considering them as terminals having mainly commercial activities with greater involvement of the private sector. This incited the Commission to suggest a framework Directive on port charging which would be based on cost recovery principles to ensure that new investments would be demand-driven and ensure fair competition between ports in the longer term. In addition, the Commission suggested producing a regulatory framework aimed at a more systematic liberalisation of the port services market. Both proposals met with opposition from European port authorities (ESPO 1998). Paradoxically, the port sector found an ally in the European Parliament – once a champion of an ambitious ports policy – in its reticent attitude (European Parliament 1999) and its criticism was also shared by several Member States.

4.2.2. 2001-2006: the port services' Directive saga

Despite the scepticism from Parliament, Member States and the port sector, but encouraged by European shipowner interests, the European Commission published in 2001 a communication on the improvement of quality services in ports. The operational part of this communication was a Directive proposal on market access to port services (European Commission 2001).

¹⁰ A new edition of the fact finding report followed in 1986, after the enlargement of the EU with the maritime nations Greece, Spain and Portugal. The European Sea Ports Organisation, which succeeded the Port Working Group, published three further editions, respectively in 1997, 2005 and 2010. The latter formed the basis of the analysis we made in Chapter 3.

¹¹ Parliament did not agree with this conclusion and produced further reports and resolutions, urging the Commission to develop a specific policy for ports. Another ten years passed before the Commission took up the challenge.

The aim of the Directive proposal was to establish rules for market access to port services, including the use of transparent selection procedures. The political debate, animated by aggressive trade union protests, focused on labour-related aspects of the proposal, including a notorious article on 'self-handling', which meant that port users could provide port services with their own personnel. The essence of the Directive was, however, about the way in which port authorities would use concession-type instruments to regulate market access for potential service providers, thus ensuring market contestability and intra-port competition (De Langen and Pallis 2006; Verhoeven 2006; Pallis 2007a). The Directive proposal also set rules to avoid discriminatory behaviour from port authorities that were directly or indirectly engaged in the provision of port services.

The principles which the Directive tried to introduce were initially quite rigid. This made it, therefore, relatively easy for the port sector to continue its past defensive attitude. Internal dividing lines within ESPO had, however, reached a culmination point, which made it much more difficult to come to a united view. Opposition to the Directive mainly came from north European ports, which, for various reasons, saw their particular governance system threatened. Comprehensive ports resented the 'one size fits all' approach of the Directive which especially favoured landlord ports. Comprehensive ports in the UK were particularly appalled at the potential interference with their private ownership structure. But also north-west European landlord port authorities that had gone through commercialisation and corporatisation processes feared that the Directive would mean a step backwards by curtailing their autonomy to that of a license-issuing public authority. This northern alliance met with opposing views from south European ports. These were bound by a common desire to improve their competitiveness in order to correct what they perceived as a 'north-south' imbalance in Europe. The Directive was thus seen as a tool to develop a more balanced European port system. In addition, national motives played a role. The views of Spanish and Greek port authorities were for instance largely dominated by those of their respective governments, which were seeing the Directive as a means to get national reform plans towards landlord governance systems more easily accepted, especially by labour interests (Tovar *et al.* 2004; Pallis and Vaggelas 2005; Pallis 2007b). Italian port authorities, on the other hand, saw in the Directive a confirmation of the reform programme that had already been imposed upon them through decisions of the European Court of Justice and the European Commission (Armani 2001). Also, south European port authorities felt much more vulnerable to the growing influence of carriers and terminal operators than some of their northern colleagues initially did. Common EU rules on market access for port services were believed to reinforce their position.

To defuse the situation, ESPO went through a process of internal reflection and consultation. Forced by the awareness that only a common position would be able to influence the legislative process on the Directive, a basic compromise was found which confirmed that a European legal framework on market access to port services could have added value, provided that a series of substantial amendments would be introduced to the Commission's proposal (ESPO 2001a). ESPO asked, in particular, for recognition of the strategic function of the port authority. In this way, one of the traditional elements of diversity in the European port system, i.e. the governance of ports, was gradually evolving into a binding and converging factor. A consensus was indeed growing among the larger continental port authorities, both in north and south Europe, whereby port management was essentially seen as a public responsibility, independent from the provision of (cargo handling) services, but one which could only be performed effectively if port authorities were able to pursue a pro-active policy towards the market and had sufficient power to solve conflicts of interest (ESPO 2001b). Provided that port authorities would retain sufficient discretionary

powers to select potential service providers, a common European system on market access to port services was gradually appreciated as a tool that could reinforce the role of port authorities.

ESPO's amendment proposals were to a large extent taken over by Parliament and Council¹². Influenced by continued and violent labour unrest as well as internal political meddling, the European Parliament nevertheless rejected – albeit with a very narrow majority – the final compromise on the Directive proposal in November 2003. Efforts were made to try and salvage the rather inconsiderate and ill-timed second version of the Directive, something which already proved impossible in the first stage of the political process, leading to the final downfall of the Directive in January 2006.

The significance of the five years' debate on the port services' Directive can hardly be overestimated. From an EU institutional point of view, it formed a remarkable precedent. A legislative proposal of the Commission rarely fails to find political agreement twice. The downfall of the Directive furthermore caused the 'steady course towards a European port policy' identified by Chlomoudis and Pallis (2002) to come to an abrupt stop, leaving the Commission with some kind of a trauma on port policy. Also, the Directive saga reinforced the power of European dockers' unions, which, in a number of Member States, meant a serious drawback to further reform. The failure of the Directive can be seen as a missed opportunity for governments and port authorities wishing to introduce, complete or refine governance reform or reorganisation programmes. The Directive would furthermore have provided port authorities with a set of common principles on the use of market access instruments which would have clarified and potentially strengthened their role in the changing market surroundings. The debate on the Directive did however characterise a kind of 'coming of age' period for ESPO. It made members reflect about their role as port authorities and strengthened the internal cohesion of the organisation (Drankier 2005).

4.2.3. 2007-2010: soft-law interbellum

Following the final demise of the port services' Directive, it looked for a while as if the prospect of a European ports policy was definitely off the table. This would have left ports governed by the basic principles of the Treaty and secondary, non-sector specific legislation. But would it be in the interest of ports to be subject to such an incoherent patchwork of jurisprudence and legislation?

ESPO was instrumental in getting the debate on a common ports policy back on its feet. Between June 2006 and June 2007, the organisation facilitated a Commission-led stakeholder consultation process, which consisted of two conferences and six thematic workshops. This resulted in the adoption on 18 October 2007 of a communication of the Commission on European ports policy (European Commission 2007). The communication came under the Commission's integrated maritime policy and formed part of its freight transport agenda which were both adopted around the same time.

The communication's actual policy proposals were spread over six areas, including port performance and hinterland connections, sustainable capacity expansion, modernisation, level playing field and legal certainty, port-city dialogue and port labour. The proposals were

¹² The role of Spain, which had the presidency of the Council in the first half of 2002, should be highlighted here. Since the Spanish government wanted to have the Directive in place to support its national port reform plan, it was ready to accept many amendments to the Commission's original proposal.

essentially of a non-legislative, ‘soft law’, nature and very much focused on areas that were likely to stimulate a more consensual approach. The role of ESPO in the preparatory process made that the communication very much emphasised the pro-active and autonomous role of port authorities. The generally positive responses of most stakeholder organisations, including those of shipowners and trade unions, confirmed that the views of the Commission and the sector were more closely aligned again after a long period of friction and antagonism. The Commission’s new ports policy could also count on the broad political support of all EU institutions.

The concrete implementation of the 2007 policy programme led to a series of guidelines on the implementation of Community environment legislation to port development (European Commission 2011a), proposals to reduce administrative barriers, a project on the development of port performance indicators (PPRISM) and, after a cumbersome process, the establishment of a sectoral social dialogue committee on ports (in 2013). Little progress was however made on issues that directly concerned port governance and the role of port authorities, such as the announced State aid guidelines for ports and dissemination of best practices on transparency of port charges.

4.2.4. 2010-present: new regulatory attempt

In 2010, a new college of Commissioners took office. The conciliatory approach of outgoing Transport Commissioner Jacques Barrot made way for the more outspoken liberal policy of his successor Siim Kallas. One of Kallas’ prime ambitions was to revise the Trans-European Networks (TEN-T) policy, so that it would become more effective and focused, ensuring an efficient allocation of EU resources. This in turn triggered a discussion on the position of ports in the TEN-T and, notably, the selection of ports that would be part of the so-called ‘core network’. Those ports would be eligible for EU financial support from the Connecting Europe Facility (CEF), in the form of grants and contributions to innovative financial instruments, developed with entrusted financial institutions such as the European Investment Bank. The Commission reasoned that if ports were to obtain a more prominent position in the TEN-T, then ports policy should be more ambitious as well¹³. Other reasons included the economic crisis, which, under pressure of the so-called ‘Troika’¹⁴, had triggered a number of port reforms in Member States (Verhoeven 2014), and the conclusion that the soft measures proposed in 2007 had little or no impact on market access to port services and financial transparency (European Commission 2013). Commissioner Kallas announced in September 2011 that a new package of measures for ports would therefore be forthcoming in 2013, focusing on three areas: (1) measures on port services, (2) support for measures to cut more red tape in ports, and (3) proposals to improve the transparency of port financing (European Commission 2011b).

Another elaborate stakeholder consultation process was mounted, resulting in a new ports policy package that was issued on 23 May 2013 (European Commission 2013a). The Commission communication ‘Ports: an engine for growth’ identified eight areas of action, which are summarised in Table 15. Meanwhile, ports had become firmly embedded in the Trans-European Networks as well. The new TEN-T framework, which was formally adopted at the end of 2013, features 329 seaports, of which 94 were included in the core

¹³ The Commission contemplated to make the granting of EU funding for core network ports conditional to full application of market access and transparency rules, something which it noted in the ensuing ports policy communication (European Commission 2013), but did not pursue so far.

¹⁴ European Commission, European Central Bank and International Monetary Fund

network, most of them connecting to the main transport corridors (European Parliament and Council 2013a; 2013b).

Similar to the 2001 ports package, the most visible element of the new package was a legislative proposal on market access to port services and public financing (European Commission 2013b). The proposed Regulation was both softer and broader in scope than the original port services' Directive. It was softer, because the market access rules as such were fairly balanced, making room for restrictions based on public service and safety reasons. Moreover, cargo handling and passenger services were not covered. The proposal was also broader in scope, because it included measures on transparency of public financing and financial autonomy of port authorities regarding port infrastructure charges as well as soft provisions on users' consultation and supervision of port authorities (for a detailed analysis, see Haralambides and Acciaro 2015). In this way, the Commission wanted to appease those stakeholders that had triggered the downfall of its earlier proposals. Officially, cargo handling and passenger services were excluded from the market access chapter because horizontal Directives on concessions and public contracts were being prepared, but the real motivations were clearly political.

Table 15 – Areas of action contained in the 2013 ports policy communication

Policy area	Proposed actions
Connect ports to the TEN-T	1. Use of the new TEN-T planning instruments 2. Target EU funding
Modernise port services	3. Fair market access (R) 4. Supervision of price and quality (R) 5. Administrative simplification in ports
Attract investments to ports	6. Transparent funding in ports (R) 7. Clarify State aid rules 8. More efficient port infrastructure charges (R) 9. Unfair competition from ports in third countries
Promote the social dialogue	10. Facilitate sectoral social dialogue for ports 11. Concerted action project on health, safety and training
Raise the environmental profile of ports	12. Principles for environmental charging 13. Review Directive on port reception facilities
Encourage innovation	14. Priority tasks under the Horizon 2020 research programme

(R) = issues wholly or partly covered by the Regulation proposal on market access to port services and public financing accompanying the communication

Source: European Commission 2013a

Despite the efforts of the Commission to put forward a less contentious proposal, the response from stakeholders has not exactly been positive. Whereas there is little opposition to the financial transparency Chapter, port service providers and trade unions, but also port authorities, remained critical about the need to establish legislation on market access to port services. Port authorities welcomed the proposals on financial transparency and, in particular, on financial autonomy regarding infrastructure charges. They however expressed concerns about the proposal to install a supervisory body that would oversee the application of the Regulation and deal with complaints. Port users, including shipowners, shippers, freight forwarders and ship agents, have welcomed the new proposal, but are disappointed by the limited scope of the market access Chapter.

The European Parliament and Member States have responded in skeptical terms as well. The Council of Ministers adopted a general approach in October 2014, which not only endorsed the exclusion of cargo-handling and passenger services from the market access chapter, but also added the possibility for Member States to exclude pilotage services as well. This further limited the scope of the Regulation while increasing the heterogeneity in the legal framework applicable to EU ports. Provisions pertaining to the consultation of port users and the supervision mechanism were removed as well (Council of the European Union 2014). The debate in the European Parliament was interrupted in April 2014 because of the European elections and only resumed a year later. The Rapporteur for the Transport Committee has proposed to replace the market access chapter with a lighter chapter on ‘organisation of port services’ that would still exclude cargo handling and passenger services as well as pilotage services (European Parliament 2015). There are also voices in Parliament calling for a full rejection of the entire proposal. The legislative procedure is expected to be finalised in the course of 2016.

4.2.5. State aid and taxation

Next to the Regulation proposal, discussions continue on the clarification of State aid rules, a long-standing issue (see: Haralambides *et al* 2001; Haralambides 2002), which has not been properly addressed so far. In 2010, the responsibility for transport-related State aid issues was moved from the Commission Directorate-General for Transport to the Directorate-General for Competition, the latter being notoriously averse to creating sector-specific rules. This further diminished the prospect of having port-specific State aid guidelines anytime soon. The 2013 ports policy communication announced that the Commission was investigating the possibility to clarify the notion of aid as regards the financing of infrastructure in general. This would be done in the context of the overall modernisation of State aid rules for all economic sectors, in particular in view of the evolving case law of the European Court of Justice (European Commission 2013a). The latter has mainly come about through decisions on airport infrastructure¹⁵, and has also given a new direction to the Commission’s own decision practice for seaport cases (Mellwig 2014). Notably, the Commission has abandoned its former legal assessment, according to which a number of activities in ports did not constitute an economic activity and, therefore, were not captured by the principal interdiction of State aid. Instead, the Commission has considered ports as undertakings and, as a general rule, considered all activities that are necessary to render the port operational as economic activities. Rather than addressing the principal question whether a measure constitutes State aid or not, the Commission has shifted the focus to the question whether measures that in principle qualify as State aid, can be declared compatible with the EU Treaty. This necessarily requires a notification and grants the Commission the right to decide whether or not a measure may be deemed compatible with the internal market (Mellwig 2014). Practice appears to be diverging in this respect, for instance with regard to the presumption that competitively selected operators would not receive an undue advantage (Nicolaidis and Preziosi 2015). The Directorate-General for Competition is nevertheless in the process of exploring the possibility to include certain types of port infrastructure investments under a general block exemption regulation that would not make it necessary to notify them. In addition, the Commission also consulted stakeholders on a draft communication providing guidance on the concept of State aid, including a section providing guidance on the financing of infrastructure (European Commission 2014, ESPO 2014, Rotterdam Port Authority 2014). Another aspect of the State aid discussion concerns the taxation of port authorities. Triggered by an investigation into tax exemptions for Dutch

¹⁵ Notably the ‘Aéroports de Paris’ (C-82/01) and ‘Leipzig-Halle’ (C-288/11) cases.

public companies, including Rotterdam Port Authority, the European Commission has become aware of possible corporate tax advantages for publicly and privately owned ports in several Member States¹⁶. This raised questions about whether the public financing of those ports, for example the recurrent compensation of their losses, respects EU State aid rules. The Commission's investigation particularly concerns the immediate competitors of Rotterdam in the Hamburg-Le Havre range (European Commission 2014). A similar investigation into possible distortion of competition through non-taxation of Finnish State-owned companies already made the Finnish government decide to corporatise Finnish port authorities. As from 1 January 2015, port authorities in the country have become limited liability companies, mostly owned by municipalities, but subject to common corporate taxation (Mäkilä 2015).

4.3. The influence of EU ports policy on port governance diversity

Throughout the more than fifty year old debate on European ports policy, the question of having a more uniform governance model for ports has been raised several times. In a 1988 resolution, the European Parliament felt it was 'highly important' that Community rules were drawn up for port management. These would, *inter alia*, have to be based on the principle that port authorities should be independent (European Parliament 1988). These views were further developed a few years later in a study which Parliament commissioned from Ocean Shipping Consultants and Marconsult. This study recommended the evolution towards a common philosophy of port management rather than a formal harmonisation of the legal status of the different ports. Such a common philosophy would have to be based on the landlord concept, which was seen as the ideal model (European Parliament 1993). Although the study was not politically endorsed by Parliament and, therefore, only reflected the opinion of the consultants, it did touch upon an important point: it would stretch beyond the competence of the EU to impose a common management model for ports. The question that is being addressed in this Section is therefore not whether the EU envisages a formal harmonisation of port management, but whether EU law and EU policy are, either directly or indirectly, promoting a particular port management philosophy and thus steering port governance diversity in a particular direction.

EU law regards port authorities as undertakings engaged in economic activities. This makes them subject to the provisions of the EU Treaty, regardless whether they are in public or private ownership. Most relevant in the context of port governance are the rules of the Treaty with regard to competition, including State aid, and the four basic freedoms, notably the freedom of establishment. A point of particular interest is that port authorities are, under certain conditions, bound by a principle of independence *vis-à-vis* port users, which also implies that they have to treat service providers such as terminal operators on equal footing (Van Hooydonk 2003). Although this principle does not prevent a port authority from being directly or indirectly engaged in the provision of port services of a commercial nature, it goes without saying that a port authority which works in a landlord configuration, having separated the management of infrastructure and the provision of utility services, will find it much easier to comply. This is, for instance, clear from the impact of the decisions of the

¹⁶ This is mainly thanks to the lobbying of Rotterdam Port Authority and the Dutch government who felt it unjust that only Dutch ports would be targeted. The Dutch government even commissioned a study to demonstrate that there is an 'unlevel playing field' in the Hamburg-Le Havre range, not just due to taxation differences, but thanks to diverging public financial support measures in general (RHV-Erasmus Universiteit / Ecorys 2014, Ministerie van Infrastructuur en Milieu 2014).

European Court of Justice and the European Commission on the reform of the Italian port system (Armani 2001; Ferrari and Musso 2011). The separation of infrastructure management from the provision of services is commonly applied in other EU policy fields as well, such as railways, postal services, telecommunications and energy (Van Hooydonk 2003). It is therefore not surprising that, in its specific policy initiatives regarding ports, the Commission has advanced this principle too.

In its 1997 Green Paper, the Commission confirmed that public and private port undertakings should compete under equal conditions as regards port services of a commercial nature. When port authorities themselves, as public undertakings, provide port services of a commercial nature such as cargo-handling, in competition with other operators, separate accounts should be kept for these activities (Commission of the European Communities 1997). The port services' Directive, which resulted from the debate on the Green Paper, tried to codify this principle together with the obligation for Member States to designate a separate competent authority that would oversee or even substitute decisions of the port authority in case of conflict of interest. The Directive would also have obliged port authorities to select service providers, in case of limitations, by means of a transparent selection procedure. Again, although the port services' Directive did not prevent comprehensive port systems, its application would – at least in its original form – have been much easier for ports that strictly adhered to the landlord model.

The 2007 ports policy communication included a specific section on the role of port authorities. The Commission recognised the diversity of port management systems in Member States and made a distinction between ports that are managed by private entities which own port land (or avail themselves of rights similar to those of an owner) and ports – a large majority in continental Europe – that are managed by public entities or undertakings. The Commission only qualified this latter category as 'port authorities', the first being regarded as private businesses. The Commission furthermore noted that these port authorities more and more benefit from a high degree of autonomy in taking operational decisions and financial autonomy from public authorities. The Commission also recognised that, while some port authorities provide cargo-handling and/or technical-nautical services, others focus on management and development. The Commission confirmed that it does not intend to intervene in order to harmonise this heterogeneous scenario. On the contrary, it said that it is at the national or local level that the best setting for port management can be shaped. Remarkably however, the Commission did recognise explicitly that the important tasks of port authorities can be better fulfilled if they enjoy a sufficient degree of autonomy from an organisational, operational and financial perspective. The Commission recalled that financial autonomy in particular is a pre-requisite for allowing an efficient allocation of investments and, in the end, for allowing ports to develop. The Commission furthermore underlined throughout the communication the pro-active role of the port authority, for instance with regard to concessions, port development, environmental management and port-city relations.

The 2013 package continues in this spirit. In the new ports policy communication, the Commission repeats the by now standard message that European ports policy respects the diversity of governance models and ownership structures and does not seek to impose a uniform model for ports (European Commission 2013a). The Regulation proposal however refers to port governance factors, including lack of financial transparency and limited autonomy of port authorities, as being fundamental in explaining a "current and overall unattractive investment climate in several TEN-T ports". The Regulation proposal therefore explicitly stipulates that port authorities – referred to as 'managing bodies of ports' – must

define port infrastructure charges in an autonomous way and according to their own commercial and investment strategies. The Regulation proposal furthermore proposes de facto wide discretion for port authorities in granting market access to port services. Furthermore, it remains possible for a port authority to provide commercial services in-house, but it can only do so in case of public service obligations and within the confinement of its own port. To curb potential abuse, the proposal generally foresees in light-touch measures on transparency and supervision, far from the hard-line economic regulation the Commission has introduced for other sectors¹⁷.

From this brief overview, we see there is both consistency and evolution in the European Commission's view on port governance. Whilst it does not – and legally cannot – impose a uniform model, it de facto continues to promote the landlord concept, advocating a separation between the management of the port as such and the provision of (commercial) services. Port authorities can provide services in-house, but only in exceptional circumstances and subject to conditions. Political motivations have prevented a full-scale application of this principle¹⁸, but the overall spirit remains unchanged. The evolution appears in how the Commission perceives the role of the (landlord) port authority. From a rather mechanistic 'conservator' view under the port services' Directive, the 2007 and 2013 proposals implicitly support the autonomy and pro-active 'facilitator' role of port authorities.

4.4. Conclusion

Looking back at the dual objective identified back in 1970, we can conclude that the aim to promote the sustainable development of the port system as a whole has seen a concrete step forward with the integration of ports in the Trans-European Transport Networks. Priorities have been established with the identification of 'core network' ports, something which was impossible to achieve in the past.

The realisation of the other objective, the establishment of a level playing field between ports, in terms of application of competition rules and Treaty freedoms, still appears to have some way to go. The trauma of the port services' Directive has had a lasting impact and explains the continued resistance against the latest Regulation proposal of the European Commission. The Commission's attempts to soften and broaden the proposal to appease potential critics do not appear to convince and may even be counterproductive.

Still, the potential impact of a common European ports policy on the governance of seaports is fairly high. Whereas the EU cannot impose harmonisation of port governance models, individual cases, like the 1994 reform of the Italian port system and the more recent reform of Finnish ports, demonstrate the effect that application of EU competition and internal market rules can have on the position of port authorities. Port management is clearly

¹⁷ The impact assessment that preceded the proposal opted for a combination of 'regulated competition and port autonomy' as opposed to full 'regulated competition', which would have included price supervision and rules that link the setting of port infrastructure charges to actual costs (European Commission 2013).

¹⁸ Apart from the dock labour provisions, this was one of the main other factors of resistance against the original port services' Directive proposal. In the 2013 Regulation proposal, the principle is part of the market access Chapter. By a priori excluding cargo handling and passenger services from the scope of application of that Chapter, the Commission avoided a discussion about comprehensive ports which are mostly present in the United Kingdom.

recognised as an economic activity, even if it partially entails public tasks and services of general economic interest. Furthermore, ports working in a landlord configuration align easier with the principle of separating infrastructure management from operations that is commonly applied in other transport and network sectors.

It is expected that the political discussion on the new EU ports' Regulation will yield only partial and limited results. If the market access Chapter survives at all, it will apply to very few services. Re-inserting principal services like cargo handling through ex-post amendments will find little political support. Financial transparency rules may cover only larger ports and the obligation for port authorities to consult users will no doubt remain non-committal. The principle that port authorities should autonomously decide on port infrastructure charges is popular with the port management lobby, but meets with considerable resistance from several Member States that are not ready to give up their prerogatives in this respect. Finally, the already light-touch provisions on regulatory supervision risk being diluted even further.

Case-law may bring further incremental steps forward in the EU ports policy process. Leaving aside potentially ground-breaking cases on dock labour, there are pending cases on land lease contracts and, especially, State aid. The investigation of the Commission into corporate taxation of port authorities may not only have immediate financial consequences, it may also have a harmonising impact on the very nature of port authorities, as the Finnish case demonstrates. Other aspects of State aid may bring about consequences for the way in which service providers are selected and, above all, the investment capacity of port authorities. The fact that most of these issues are being pursued by the Directorate-General for Competition makes them less vulnerable to political and stakeholder pressure.

We seem to find ourselves again in a situation where the future of European ports policy will be a fragmented one. As mentioned earlier, it is doubtful whether this would be in the interest of legal certainty and predictability for the port sector and, in particular, port authorities (see also Ferrari *et al.* 2015). Still, that appears to be what stakeholders currently want. The pro-active attitude that came about during the process on the port services' Directive and which led to the 2007 ports policy communication, emphasising the value-added European port policy might have to strengthen the position of port authorities, has come to a halt. Self-regulatory industry initiatives that were started in the wake of the 2007 communication, such as a code of good practice on terminal awarding contracts (Notteboom *et al.* 2012), have been shelved. The potentially converging influence of stakeholders on European port governance has thus evaporated. This could be due to the fact that the 'sense of urgency' to adopt a common stance on port governance issues is provoked less by the newest Regulation proposal.

5. THE ECONOMICS OF PORT MANAGEMENT REFORM: A FRAMEWORK FOR EX-POST EVALUATION

5.1. Introduction

Port reform has been a topical issue since the 1970s. Together with globalisation of trade and new philosophies on public management, the changed technological, market and societal environment have created the context and drivers for port reform programmes all over the world (Brooks and Cullinane 2007a). Early adopters could be found in countries with Anglo-Saxon roots, such as the UK, Australia and New Zealand, where reforms were often quite radical, leading to full-blown privatisation of ports. Global institutions such as the World Bank have however promoted a more balanced reform scheme, which brings in private operators for the provision of cargo-handling services, supervised by a publicly owned, but commercialised or corporatised, port authority (World Bank 2010).

Global experience with port reform has demonstrated that results are not always satisfactory. One of the principal difficulties is to link port reform to port performance, a problem which is even more so for the specific economic impact of reforming port management, i.e. reforming port authorities (Brooks and Cullinane 2007a).

In this Chapter, we aim to explore theoretical foundations and possible ways of isolating and measuring the economic impact of reforming port management¹⁹. We focus in that respect on the nodal function of a port, i.e. its position within the broader transport chain, and not so much on its location function for industrial and logistics companies²⁰. To understand the impact, we must also understand the reform process itself and the post-reform governance framework (Australian Competition and Consumer Commission 2010). We develop a comprehensive framework for ex-post evaluation of port management reform which consists of four key elements. These are developed in individual Sections of the Chapter: the analysis of the reform process, the assessment of post-reform governance, the economic impact of reform on the economic performance of the port authority and the economic impact of reform on the competitiveness of the port. We consider the latter to be the most original part of the framework, which is why we are giving it considerably more attention than the others. Before elaborating these four building blocks, we present the overall framework in an introductory Section where we link it to existing literature and empirical evidence on port management reform.

5.2. Evaluating port management reform

From Chapter 2 we retain how a port authority can conceptually contribute to the overall competitiveness of a port. Success however depends on the existing governance frameworks, which can either enable or hamper ambitions. This is where management reform comes in. In this Section, we will first situate port management reform in the wider context of port reform. This is followed by a brief overview of previous experience in empirically evaluating

¹⁹ The theoretical research was developed with Eddy Van de Voorde of the University of Antwerp. The results were published in a jointly authored paper (Van de Voorde and Verhoeven 2014).

²⁰ One could argue that the location function of a port is in fact derived from, and therefore subordinate to, the nodal function.

port management reform. Finally, we present the framework for ex-post evaluation of port management reform that we will elaborate further in this Chapter.

5.2.1. The port reform context

Port reform covers several aspects of which port management reform is only one. The most visible elements of port reform are those related to the overall ownership of the port and the provision of cargo handling operations and other port services. Privatisation of port ownership is overall a rather exceptional phenomenon, but one that is widely commented on, as we for instance can see from the vast amount of literature that exists on the privatisation of UK ports (Verhoeven 2014). A number of countries have also witnessed decentralisation, whereby central government cedes ownership of ports to lower government levels. Vertical unbundling of operations often occurs in the port sector, which is in fact the essence of the landlord model. In some cases, horizontal unbundling has occurred as well, whereby national port authorities were split up into local ones. Vertical unbundling has often been preceded or gone hand in hand with liberalisation of port services, for instance the abolishment of port labour restrictions. The reform of port authorities themselves may be less visible, but it is certainly quite common and substantially discussed in literature. Here again, privatisation is the least common form, with corporatisation and commercialisation being much more widespread. Both aim at establishing the port authority as a separate and more autonomous legal entity from government, one of the main differences being that corporatisation involves the creation of share capital.

Port management reform is often part of a wider reform package and introduced simultaneously with other port reform elements. This is especially the case when, prior to reform, port authorities were directly involved in the provision of cargo handling operations and port services. This may make it therefore rather difficult to evaluate its economic impact as we will discuss later on.

5.2.2. Previous experience in evaluating port management reform

Extensive research has been done on the impact of reform on the efficiency of ports, but this mainly concerns the impact of ownership reform, privatisation of terminal operations and liberalisation of services (for a comprehensive overview see González and Trujillo 2007, Bichou 2007 and Barros et al 2011). The terminal often forms the unit of analysis of these studies. Most of them make use of parametric methods, such as stochastic frontier analysis (SFA), or non-parametric methods, such as data envelopment analysis (DEA). There is however very little quantitative research dealing specifically with the economic impact of reforming port management as such, i.e. independently from other reform aspects. A noteworthy exception is the paper of Cheon *et al.* (2009) which tests the hypothesis that a port authority with a more decentralised corporate structure and administration would make a port more efficient in its terminal operations. Using the Malmquist Productivity Index, they however do not find evidence for this hypothesis. De Langen and Heij (2014) analysed performance effects of the corporatisation of the Port of Rotterdam Authority by comparing a series of performance indicators for the port authority prior and after corporatisation. They found that, in terms of yearly growth rates before and after corporatisation, improvements were most significant for market share, turnover per employee, operating costs and EBITDA. They were however not able to link all effects to corporatisation as such.

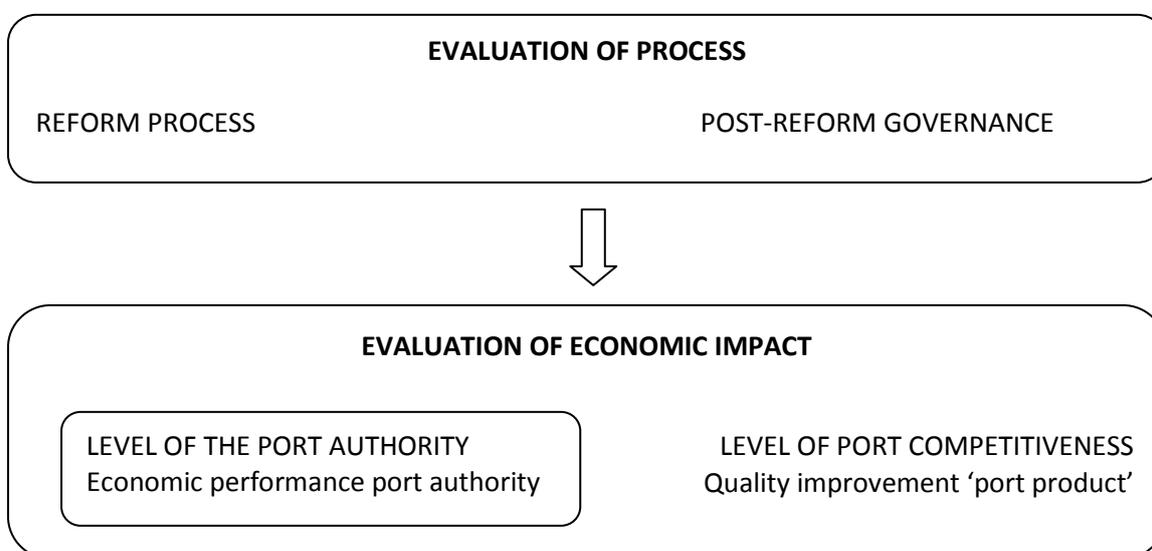
The impact of port management reform has mostly been studied in qualitative terms. Baltazar and Brooks (2001; 2007) used contingency theory to devise a ‘matching framework’

that predicts the impact of the fit (or misfit) between environment, strategy and structure on organisation performance. It was initially applied to Canadian and Philippine ports and then used by other authors in qualitative case studies covering port authorities in various parts of the world (papers brought together in Brooks and Cullinane 2007). Since then, other qualitative studies were made on reforms in specific countries (for an overview, see De Langen and Heij 2014).

5.2.3. A comprehensive framework for ex-post evaluation of port management reform

By developing a multi-layered framework, which has both an impact and process dimension, we aim to provide a comprehensive tool to evaluate port management reform ex-post, producing both quantitative and qualitative results that complement each other. The design of the framework is inspired by frameworks that governments use to evaluate infrastructure reform programmes. Especially the Australian government has developed extensive guidance in this field that puts efficiency of reforms centre-stage, using theoretical and methodological insights (Australian Competition and Consumer Commission 2010, 2011).

Figure 4 – Interaction elements evaluation framework



The process dimension aims at understanding both how the reform programme was devised and delivered, seeking to evaluate its effectiveness, i.e. to evaluate whether reform achieved what it set out to do and explain why it did (or did not). It consists of two elements, an assessment of the actual port reform process and assessment of post-reform governance. The impact dimension also consists of two elements. First, we identify a number of indicators that can measure the impact of reform on the economic performance of the port authority itself. The second element is the centerpiece of the framework. It builds on welfare economics concepts and introduces a methodology based on techniques of cost-benefit analysis and a generalised cost concept in order to measure economic impact of port management reform on the competitiveness of the port. Figure 4 summarises the interaction between the different elements of the framework. Sections 5.3 to 5.6 elaborate each element in detail.

5.3. Analysis of the port management reform process

To analyse the port management reform process, we focus on the objectives, driving forces and environment factors that are behind the reform, bringing in concepts of bounded rationality and path dependency. These factors play a key role in the well-established model of public management reform of Pollit and Bouckaert (2011), which we discuss at the end of this Section as a possible frame for analysis.

5.3.1. Objectives

Port management reform – and port reform in general – may not always be driven by objectives of economic efficiency and competitiveness. Reform may for instance aim at tackling problems in the economy, such as unemployment. Whereas the first best solution would exist in a general measure, for instance reducing salary costs, governments may look at reform as a second best solution (Blauwens 1986). Another driver may be to generate income for the State, which explains why port reforms are often pursued in times of economic crisis. This is for instance what happened in a number of European countries recently (Verhoeven 2014). In short, reforms may be carried out for short-sighted political aims, ‘milking for cash, not for trade’ (Sherman 1995). The difference in objectives of port reform may also relate to different perspectives on the economic function of a port (Suykens and Van de Voorde 1998). Finally, ideological and legal motivations can play a significant role as well (Van Thiel 2010).

5.3.2. Initiators: formal initiators and stakeholders

Whereas government will almost always be the formal initiator of port management reform processes, informally there may be other actors that have actually given the spark of ignition in a bottom-up way, either within the wider port community or outside. It is therefore important to clearly identify the principal stakeholders involved in the reform process, their actual objectives and the lobbying influence they may have had. The existence of regulatory capture and rent-seeking behaviour deserves specific attention. The implicit initiator may also be a supra-national body. We have discussed in the previous Chapter how the European Union can, mainly in individual cases, push reform forward. Also, in return for financial support, EU institutions insisted on port reform in countries hit by the recent economic crisis (Verhoeven 2014). Some EU countries have in the past adopted a ‘wait and see’ policy on reform, since following EU-level decisions minimises political costs (Psaraftis and Pallis 2012).

5.3.3. Environment: bounded rationality, path-dependency and cultural factors

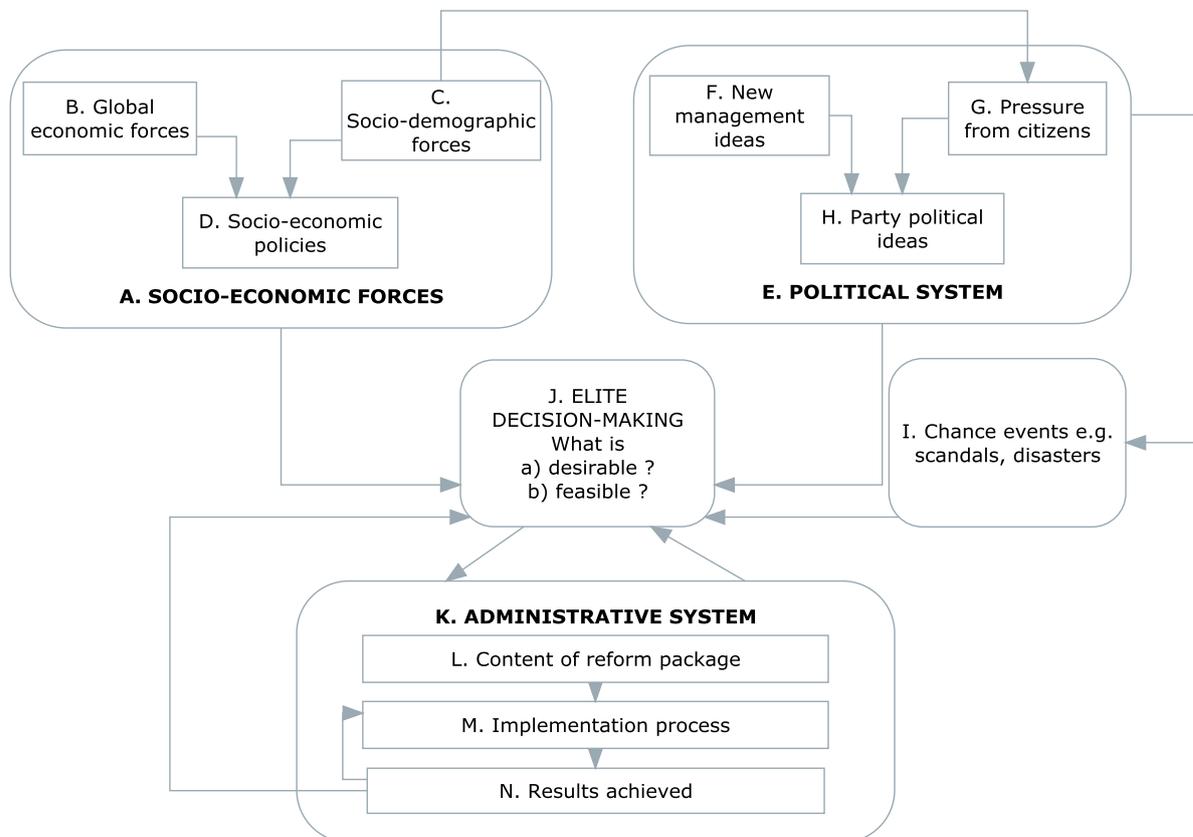
Organisational and institutional theories may help to better understand the realities of reform processes. Although it is more than fifty years old, Linblom’s ‘science of muddling through’ (1959) still provides some extremely useful insights in this respect. He found that policy-making is anything but a methodological and rational process, but rather one that is marked by successive limited comparisons through a non-comprehensive analysis, addressing policy options that only differ incrementally, limiting the focus on small, marginal variations from present policy. A ‘good’ policy is then in the end one that finds agreement, i.e. a compromise. In that respect, it is not irrational for an administrator to defend a policy as being ‘good’, without exactly being able to say why.

Path dependency and historical institutionalist theories (Pollitt and Bouckaert 2011) would furthermore explain why more radical reforms are possible in countries with a majority, single-party government like the United Kingdom. Notteboom *et al.* (2013) applied the mechanisms of path dependency to port governance and concluded that a process of institutional stretching takes place when port authorities see a need to develop new capabilities and activities. In this process, new layers are added to existing arrangements, gradually leading to a formalised governance reform without breaking out of the existing path of development. Ng and Pallis (2007; 2010) refer to political culture and argue that newly established seaport governance structures follow a path largely affected by the local and/or national institutional frameworks and the political traditions in place. The concepts of path dependency and institutionalism can indeed be linked to existing governance traditions. In Europe, the three major geographically-based traditions (Hanse, Latin, Anglo-Saxon) identified by Suykens (1988) still appear to explain a great deal of governance diversity, as we concluded from Chapter three.

5.3.4. Model of public management reform

The above discussion of objectives, initiators and environment are at the core of the model of public management reform developed by Pollit and Bouckaert (2011) represented in Figure 5, which forms an adequate basis to analyse port management reform processes.

Figure 5 – A model of public management reform



Source: Pollit and Bouckaert 2011

At the centre of the model stands the process of elite decision-making, distinguishing between what is desirable and what is feasible. Surrounding the elite decision-making are

three groups of influential factors: economic and socio-demographic factors (top left), political and intellectual factors (top right) and administrative factors (bottom half of the figure). It is from the interplay between these three groups, as well as chance events, that reforms emerge. The model focuses on the government of a single country, which is to some extent an over-simplification because of international influences, e.g. of supra-national institutions such as the EU. Also, for our case, it ignores that decisions are in some countries taken at local government level. Nevertheless, the interplay between different forces provides useful insight to assess the various dimensions of the reform process. The role of the administrative system and the implementation process makes the link to the second element in our evaluation framework, which looks at post-reform governance.

5.4. Post-reform governance

Post-reform governance is one of the factors explaining why reforms, or policy in general, may not work (Pressmann and Wildawsky 1973). Applied to the port sector, Everett (2003a) argues that political interference is not the cause of port inefficiency, but an effect of something more endemic, of a model and legislative framework which is not appropriate for any commercially-focused operation. A bad implementing framework may give rise to numerous problems, adverse principal-agent effects, rent-seeking behavior etc. Governments appear too often focused on getting the reform deal done, but do not seem to care much about their role after reform (Estache 2001).

Stern and Holder (1999) developed a check-list for assessing the performance of regulatory systems, which they used to assess the regulation of Asian infrastructure industries. The check-list can be easily adapted to appraise governance following port management reform. It is based on three aspects that primarily relate to institutional design and three aspects that primarily relate to regulatory processes and practices, as represented in Table 16.

Table 16 – Appraisal framework for regulatory systems

Institutional design	Regulatory processes and practices
Clarity of roles and objectives	Participation
Autonomy from political intervention	Transparency
Accountability	Predictability

Source: Stern and Holder 1999

The institutional design criteria include clarity of roles and objectives, autonomy and accountability. To obtain clarity of roles and objectives, regulation must be separated from both (a) policy-making and (b) the commercial management of companies. This is particularly relevant for port authorities which, given their hybrid nature, often combine regulatory and commercial tasks. Autonomy from political intervention is equally relevant. Many so-called ‘autonomous’ port authorities maintain close ties with politicians, who are often represented in the board of directors, and port authorities need political contacts to secure public funding. Accountability requires that decisions of port authorities can be challenged in an effective way. Participation refers to effective contribution of stakeholders to decisions of the port authority, rather than being invited to state views on decisions that have been made already. Port authorities should be transparent in the decisions they make,

which is essential for ensuring effective accountability²¹. It will also help secure more effective participation. Finally, predictability is essential where firms are undertaking investments which need to be recovered over a number of years. It means these firms can be reasonably confident that the rules of the game will not suddenly change. Predictability should also include the ability to achieve evolutionary change in regulatory methods and practices to meet changes in circumstances in an orderly and consistent way (Stern and Holder 1999). The application to port authorities is obvious, e.g. when concluding port concession agreements with terminal operators.

5.5. Economic impact on the port authority

5.5.1. Theoretical basis and performance indicators

Principal-agent theory has been widely used to explain why privatisation of firms would lead to higher performance (Parker and Saal 2003). We found that port management reform can take the form of privatisation, but overall – and certainly in Europe – this is rather exceptional. Reform more commonly leads to commercialisation or corporatisation.

Bilodeau et al (2006) specify that, in addition to the formal status change, corporatisation almost always involves a portfolio of other changes, such as narrower task domains, explicit performance measures and targets, a greater focus on the chief executive to deliver on targets and greater discretion to manage budgets and employees. The authors argue that, similar to privatisation, principal-agent theory may also explain improved performance of corporatised firms, due to reduced asymmetric information at government-firm level and firm-employee level, the firm being embodied in the person of the chief executive. To assess changes in organisational behaviour and performance of corporatised government agencies, Bilodeau et al (2006) develop a series of hypotheses – or, rather, expectations – that are translated in performance indicators. These are summarised in Table 17.

Table 17 – The impact of corporatisation – expectations and performance indicators

Expectation	Performance indicator
1. Corporatisation increases the total output supplied by agencies	total output
2. Corporatisation increases the total revenues collected by agencies	total revenue
3. Corporatisation improves the revenues-to-expenditures ratio	total revenue / total expenditure
4. Corporatisation improves cost-efficiency of agencies	total output / total expenditure
5. Corporatisation improves the employee productivity of agencies	total output / total number of employees

Source: Bilodeau et al. (2006)

²¹ An extreme form of non-transparent behaviour would be corruption, a phenomenon which even leading European ports have been confronted with.

To measure the impact of corporatisation on Canadian government agencies, the authors applied a statistical approach which tests for a structural break in a relatively long time series, whereby the break in this case is the corporatisation ‘event’. The methodology thus boils down to a ‘before / after’ comparison of the indicators listed in Table 17.

5.5.2. Discussion

The paper of Bilodeau *et al.* (2006) forms an interesting point of departure to measure the economic impact of port management reform at the level of the port authority itself. Nevertheless, we have to make some important caveats that must be considered before embarking on an empirical exercise.

First, with regard to the principal-agent theory, we have to recognise – as the authors do as well – that it can cut both ways. If corporatisation decreases political control, without significantly increasing market controls, it might, in the absence of regulatory oversight, lead to worse performance. This is why it is important to analyse the reform process and post-reform governance as well.

Second, we should understand that the performance indicators related to the first two expectations (increased output and revenue) do not provide an indication of productive efficiency. Output and revenue may be indicators that have an important perceptive role towards principals and other stakeholders (compare with the obsession that exists in the port sector with throughput of cargo or passengers or the focus of shipping interests on gross or deadweight tonnage), but they do not say anything about their relation to inputs or costs. The three other indicators do provide information on technical and cost efficiency, but some caution is needed here as well if we want to apply them to port authorities. This is notably the case for the selection of variables. A first problem concerns the output of port authorities. Throughput of cargo or passengers may seem an obvious choice, but in a landlord configuration it is not the port authority that is directly responsible for handling operations. Relating volumes to input of port authority employees would therefore be problematic. If cargo or passenger volume is nevertheless selected as a proxy variable for output, then this assumes that the corporatised port authority has powers to increase the efficiency of terminal operators and that it is able to attract more business to the port.

Further research may yield an alternative output variable that can be attributed more directly to the port authority²². Next to the labour input, capital and land may be relevant inputs as well. Revenues and expenditures are more straightforward, although it may be difficult to obtain or compare data with the situation prior to reform. We should consider adding profitability as an indicator. Contrary to other government agencies, port authorities are to a considerable extent active in competitive markets.

Finally, as Bilodeau *et al.* (2006) mention themselves, a ‘before/after’ comparison has the fundamental disadvantage that it does not control for other changes that might occur in the period during and after reform. The authors remedy this bias by having inherent variability in the sample of agencies, first by having agencies from two independent levels of government, second by having agencies that were corporatised at different periods in time and third, in

²² The Canadian government agencies studied by Bilodeau *et al.* (2006) produce primary outputs such as passports, licenses, training courses, registrations, applications, grants etc, which are directly attributable to their employees. Taking into account its diverse functions, it will be difficult to set one primary output indicator for a port authority, but it should theoretically be possible to develop a mixed indicator, based on the core tasks port authority employees perform.

several cases the event windows cross administrative changes. Our framework however follows a single-agency approach. Given that we address the performance of the port authority itself here, and not the wider economic impact discussed in the next Section, it may however be easier to single out the effect of the reform, by comparing the effects on the indicators with qualitative information on events that took place in the period during and after reform that may also have had an effect on performance.

5.6. Economic impact on port competitiveness

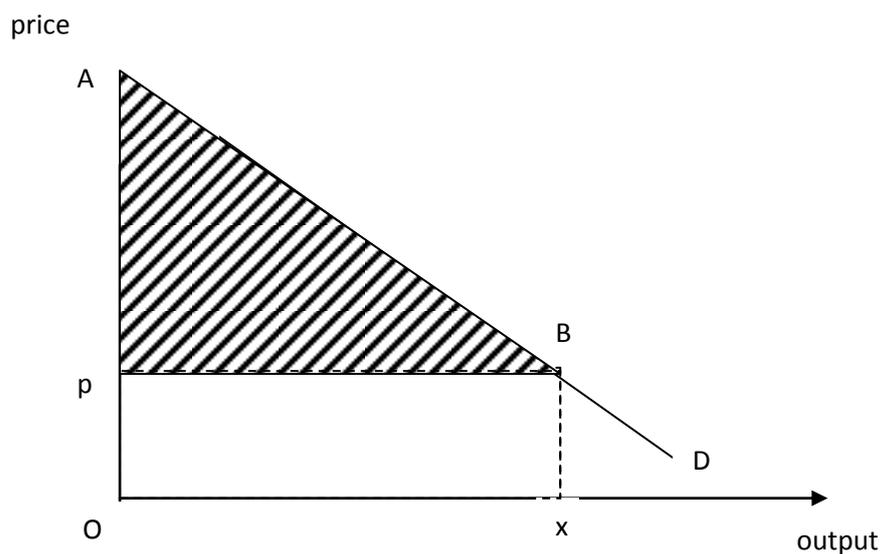
We now arrive at the principal element of our evaluation framework. Reforming port management should not be a goal in itself. The ultimate aim should be to contribute to the competitiveness of the port. Using theoretical insights of welfare economics and allocative efficiency, we will visualise in the first, conceptual, part of this Section how port management reform can be presented as a quality improvement of the port product. We then develop a methodology to measure that quality improvement, by using techniques of cost-benefit analysis and the generalised cost concept.

5.6.1. Conceptual basis: improving the quality of the port product

Goss (1990a) stated that the economic function of a seaport is to provide benefits to the original producers of the exports and the ultimate consumers of the imports passing through it. This definition of the ‘port product’ rightly implies that a port is an element in a wider logistics chain (Suykens and Van de Voorde 1998). Goss further holds that improving the economic efficiency of a port will enhance economic welfare by increasing the producers’ surplus of the originators of the goods being exported and the consumers’ surplus for the final consumers of the goods being imported.

This means that the contribution of a port authority exists in creating an environment in which (a) the port remains competitive, (b) the user has to pay ‘acceptable’ prices (compared to competing ports / chains) and (c) the overall benefits for society are maximised. These benefits represent the total willingness to pay of the users of the port and can be graphically illustrated by the surface under the demand curve. Figure 6 illustrates this.

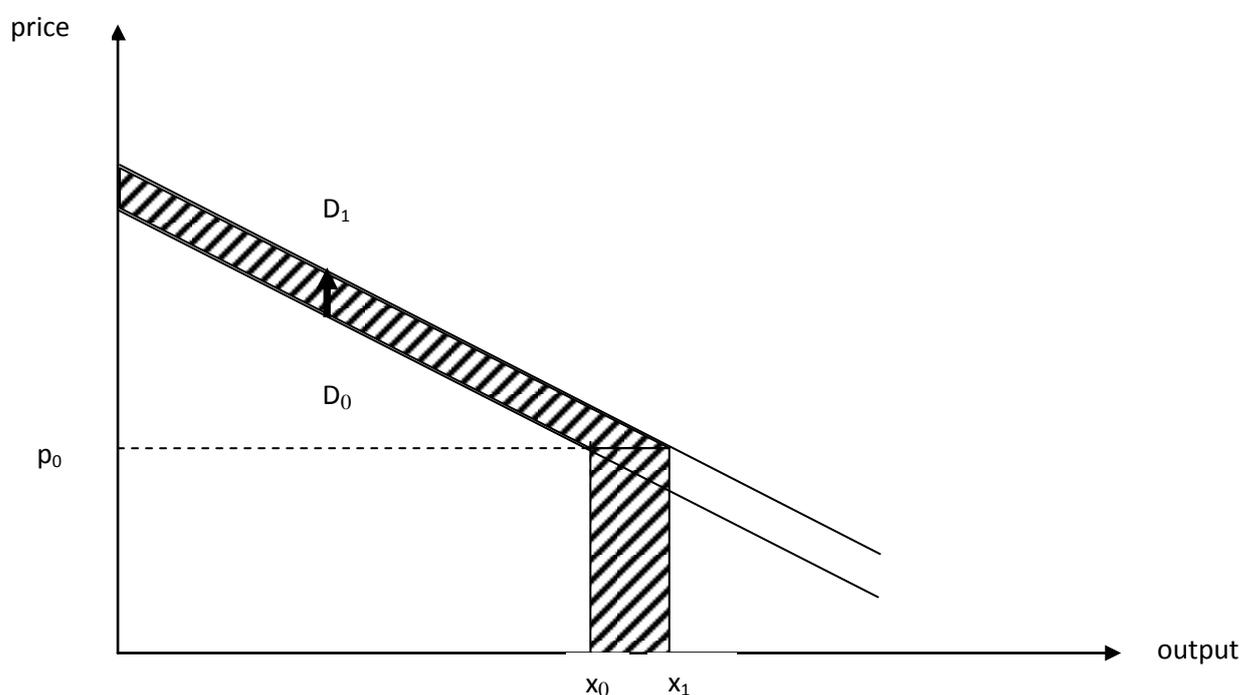
Figure 6 – Benefits of the port product



The horizontal axis represents the output of the port as a whole, which can be measured in cargo or passenger throughput, ships tonnage, number of ship calls or a combination of those. The vertical axis represents the theoretical price which users pay for the port product. The surface under the demand curve (D) consists of revenue generated by the port authority and the other providers of the port product (rectangular surface pBx_0) and the consumer surplus (triangular surface ABp). The consumer surplus is the difference between what consumers are willing to pay for a certain good or service and what they actually pay for it in the market place.

We can present port management reform as a quality improvement of the port product. This improvement should shift the demand curve for the port product from D_0 to D_1 , as illustrated in Figure 7. If we assume that the theoretical port price remains unchanged, the quantity of demand will increase from x_0 to x_1 . The benefit of the quality improvement is the increase in user satisfaction with the port, represented through the shaded surface, which consists of the increase in total revenue for the port authority and other providers of the port product and the increase in consumer surplus (Blauwens 1986;1988)²³.

Figure 7 – Quality improvement through port management reform



Source: adapted from Blauwens (1986; 1988)

²³ We have to be aware of the fact that figures 6 and 7 represent benefits in a perfect economy, which does not exist in reality. Nevertheless, some economists claim that, even in an imperfect economy, benefits should be limited to the surface under the demand curve, which represents the first-best approach to measure them. Political reality may however have its own logic (Blauwens 1986; 1988) and, applied to our case, governments may pursue port authority reform to remedy certain imperfect elements in the economy.

5.6.2. Methodology: estimating the impact of port authority reform on demand

In welfare economics, the classic methodology to measure allocative efficiency is cost-benefit analysis (CBA). CBA was originally developed to measure the economic impact of infrastructure works, but it is nowadays also frequently used to evaluate the impact of policy decisions in general, and forms as such often part of regulatory impact assessments. In this Section we use CBA techniques to determine how benefits can be concretely measured²⁴.

We return first of all to Goss' economic function of the port. He held that this function would be achieved by reducing the generalised cost of moving goods through the port (Goss 1990a). The concept of 'generalised cost' is extensively used in transport economics as a way to capture all relevant components affecting transport performance. It implies that not only the direct, out-of-pocket, monetary cost is considered, but that also non-monetary costs are included, that play a role in perception and selection of a transport mode, such as time and reliability. These costs are then expressed in a monetary value so that they can be added to the out-of-pocket costs (Button 2010, Marchese 2001, Grosso 2011). In our case, we would have to look at all costs, monetary and non-monetary, that influence the quality of the port product.

We have to be aware that the quality of the port product itself will not fully explain the competitiveness of the port. As ports are part of a wider logistics chain, there are other elements which determine that competitiveness, on which the port authority has no or only very limited influence, e.g. geographical location, proximity and connectivity to cargo-generating hinterlands, structural changes in markets etc. Reducing the generalised costs of moving cargo or passengers through the port is therefore but one element that will in the end determine the competitiveness of a port. Through reform, a port authority can seek to maximise its influence on the generalised costs that influence the quality of the port product.

By combining the impact on generalised cost with price elasticities, we can estimate the effect on demand for the port product, as visualised in Figure 7 above. Table 18 summarises the main steps involved.

Table 18 – Measuring effect of port authority reform on demand for the port product

1. Define generalised cost elements
2. Identify indicators to measure the generalised cost elements
3. Estimate the effect of port authority reform on the indicators
4. Calculate the effects on generalised port call cost (monetisation)
5. Determine price elasticities and calculate effect on demand for port product
6. Sensitivity testing of results

²⁴ In our ex-post evaluation, we do not explicitly address the costs of port authority reform. Costs are generally represented by the surface under the supply curves of input factors. In CBA practice, the simplifying assumption is often made that marginal costs are constant and supply curves are therefore horizontal. The producer surplus then disappears. By buying input factors for the project, the prices are assumed not to increase. The costs of the project or policy measure then simply consist of the expenses and there is no producer surplus to be subtracted (Blauwens 1988). Expenses associated with port authority reform would relate, inter alia, to social restructuring, including adaptation of remuneration schemes, modernisation of IT and managerial systems, rebranding as well as studies, legal advice, meetings and lobbying processes to get the reform programme adopted.

Step 1: Define generalised cost elements

Following on from the above conclusion that there are several factors influencing port competitiveness, it is essential in this first step to identify those cost elements on which a port authority can have direct and/or indirect impact, an impact which should in theory be improved through port authority reform. We will list here a potential range of costs, since the actual choice will depend on the configuration of the port and the port authority as well as the scope of reform. We focus here on the monetary and non-monetary costs directly associated with a port call.

If we first look at out-of-pocket costs associated with a port call, most port authorities will have some degree of direct influence on the port dues (C_{pd}), i.e. the charges levied to the ship and/or cargo for the general use of port infrastructure. This is however not always the case. In some countries port dues have a fiscal status and are set at government level. Port authorities normally have direct influence on the charges for services they provide in-house (C_{sp}) and may have indirect influence on the charges of service providers with whom they have a contractual relationship, e.g. through a concession, a lease contract or a license (C_{ss}).

For the non-monetary cost elements, a distinction is usually made between those related to time, risk and reliability.

Time-related costs are threefold: the time the ocean carrier (T_{oc}) spends in port, the time the inland carrier spends in port (T_{ic}) and the time-related costs incurred by shippers while their shipments are in port (T_{sh})²⁵ (Talley 2007). We could also add time-related costs incurred by passengers (T_{px}) where applicable. Time-related costs do not fully depend on the port authority, but the port authority can work on the reduction of these costs, by providing adequate infrastructure and hinterland connections, information systems and catalyst actions to reduce waiting times (e.g. coordination programmes developed in some ports to reduce barge waiting times).

Risk costs are usually related to damage users encounter in the port, which can be split into damage incurred by the ocean carrier (D_{oc}), the inland carrier (D_{ic}), damage to cargo shipments (D_{sh}) and damage to passengers (D_{px}). The port authority again has no full control over the damage risk, but will be able to minimise it, for instance by ensuring an effective harbour masters' service and enforcing an adequate safety and security policy for the port.

A port will be perceived to be reliable when it provides a seamless service, free from incidents. A stable labour environment, e.g. where there are no interruptions through strikes, is one of the key elements. The port authority will have a direct influence on its own staff (R_{sp}), but it may also play a role in social dialogue between service providers and their personnel (R_{ss}), either through direct involvement in negotiations or indirectly through its moral leadership, influence of public opinion etc. which would incite employers and employees to agree on (reforming) labour conditions. Although less evident, the port authority may also have an influence on the reliability of other authorities (R_{sa}), e.g. State pilot services and customs. As advocate of the port sector it can plead with government for efficient services, warding off strikes etc. Reliability will also be determined through the safety and security record of the port, which we covered through the damage factors.

²⁵ We must be aware however that the time cargo shipments spend in a port may be influenced by free cargo storage periods offered by port authorities or terminal operators.

If we bring the monetary and non-monetary cost elements together, we can formulate the generalised cost function as follows:

$$G = g(C_{pd}, C_{sp}, C_{ss}, T_{oc}, T_{ic}, T_{sh}, T_{px}, D_{oc}, D_{ic}, D_{sh}, D_{px}, R_{sp}, R_{ss}, R_{sa})$$

G = generalised cost function

C_{pd} = port dues

C_{sp} = service charges port authority

C_{ss} = service charges service providers

T_{oc} = time ocean carrier spends in port

T_{ic} = time inland carrier spends in port

T_{sh} = time cargo shipments spend in port

T_{px} = time passengers spend in port

D_{oc} = damage incurred by ocean carrier while in port

D_{ic} = damage incurred by inland carrier while in port

D_{sh} = damage incurred by cargo shipments while in port

D_{px} = damage incurred by passengers while in port

R_{sp} = reliability staff port authority

R_{ss} = reliability staff service providers

R_{sa} = reliability staff other authorities

This function represents a range of cost elements on which a port authority can have direct or indirect impact. The list is not exhaustive²⁶. Depending on the concrete case to be assessed, some elements may even have to be omitted from the analysis, because the port authority is not able to exercise direct or indirect impact (e.g. port authorities are not providing services in full landlord configurations, some ports may not have passenger traffic ...).

Step 2: Identify indicators to measure the generalised cost elements

When the selection of generalised cost elements on which the port authority may have direct or indirect influence is made, the next step consists of selecting the potential indicators that can measure the effect of port authority reform on the cost elements.

Table 19 presents a series of potential indicators. The final selection must meet criteria of (a) conciseness, (b) consistency with objectives, (c) data availability, (d) data collection and time, (e) measurability, (f) minimisation of uncontrollable factors and (g) robustness (Talley 2007). Some of the indicators may have to be specified further, e.g. according to cargo type, to the ship type or to the type of service provided.

²⁶ Although usually not included in a generalised cost approach, one could also consider taking up transaction costs, e.g. costs related to information and bargaining, and environmental costs. This would make sense given the assumption that a successful port authority needs to focus both on easing business and improving societal integration. More importantly, port customers are increasingly paying attention to the green profile of a port, which is therefore becoming an element of port choice (Acciaro *et al.* 2014). Environmental costs associated with ports are manifold. They typically include noise, dust, waste, emissions, water pollution, energy efficiency, land contamination and loss of biodiversity. Contemporary port authorities are expected to raise the environmental performance of their ports. The European Sea Ports Organisation (ESPO 2012) identified five ways in which they can do this, through exemplifying, enabling, encouraging, engaging and – as a last resort – enforcing.

Table 19 – Potential indicators for generalised cost elements

Cost element	Indicator
C_{pd} (port dues)	Annual average port dues per unit of calculation
C_{sp} (charges port authority)	Annual average service charges port authority per unit of calculation
C_{ss} (charges service providers)	Annual average service charges service providers per unit of calculation
T_{oc} (time ocean carrier)	Annual average time ocean carrier spends in port
T_{ic} (time inland carrier)	Annual average time inland carrier spends in port
T_{sh} (time cargo shipments)	Annual average time cargo shipments spend in port
T_{px} (time passengers)	Annual average time passengers spend in port
D_{oc} (risk ocean carrier)	Annual average number of damage incidents incurred by ocean carriers in port
D_{ic} (risk inland carrier)	Annual average number of damage incidents incurred by inland carriers in port
D_{sh} (risk cargo shipments)	Annual average number of damage incidents incurred by cargo shipments in port
D_{px} (risk passengers)	Annual average number of damage incidents incurred by passengers in port
R_{sp} (reliability staff port authority)	Annual average number of strikes due to personnel of the port authority
R_{ss} (reliability staff service providers)	Annual average number of strikes due to personnel service providers
R_{sa} (reliability staff other authorities)	Annual average number of strikes due to personnel other authorities

Source: Talley (2007) and author

Step 3: Estimate the effect of port authority reform on selected indicators

In estimating the effect that port authority reform will have on the selected indicators, we suggest to initially follow a single-port approach, i.e. evaluating performance over time. A multi-port approach would have to be done with great care, given that ports operate in very different economic, social and fiscal environments (Talley 2007).

But also the single-port approach needs caution. By comparing the evolution of port call costs over time, we engage in a before/after comparison, which has the principal disadvantage that bias may occur due to other factors influencing generalised port call costs. In other words, it may be difficult to single out the effect of reform. Also, we must take into account that a reform programme always has a certain transitional and running-in period. The time series should therefore be sufficiently long, both before and after the moment of reform. Data availability may be one of the most important limitations here.

Step 4: Calculate the effects on generalised port call cost (monetisation)

To fully compare the effects on generalised port call costs, the non-monetary cost elements of time, risk and reliability need to be put in monetary terms. This means we have to combine the relevant indicators with the monetary value they represent.

The value of time spent by ocean and inland carriers in port can be monetised by taking into account depreciation of ships and vehicles, fuel and labour costs. The time shipments spend in port can be calculated on the basis of inventory costs such as insurance, obsolescence and depreciation costs (Talley 2007). The value of time passengers spend in ports can be derived from research done into the passengers' choice (e.g. modal choice) and value of time in air travel. Such comparison should of course make a distinction between passengers that choose shipping as a means of transport and those for which it is essentially a holiday experience.

The value of risk incurred by ocean and inland carriers can be derived by estimating damage and repair costs to ships and vehicles. Damage of cargo shipments is a function of the value of the cargo and the damage to passengers is a function of the value of life, in case of mortal accidents, or the cost of injuries, as well as the value of their luggage.

The value of reliability is based on the cost a day of strike causes to a port. Apart from foregone income to the port authority, service providers and users, this also needs to include costs of policing, potential damage etc.

We should be aware that risk and reliability are somehow interrelated with the time element, i.e. we must assess the variance they have on the time element.

Step 5: Determine price elasticities and estimate effect on demand for the port product

For the penultimate step in the process, we need to estimate the effect of the change that port authority reform causes on the demand for the port product. For that, we must determine the price elasticity of demand for the port product. This elasticity will differ according to cargo commodities. Container throughput responds for instance more sensitively to flows that are related to transshipment via the hinterland. This greater sensitivity is due to the fact that shipping companies can switch from one transshipment port to another fairly quickly (Meersman *et al* 2003). Price elasticity will also depend on the level of competition from other ports serving the same hinterland, which may also have gone through similar reform processes.

Step 6: Sensitivity testing of results

To assess the robustness of the results, a sensitivity test can be applied, varying assumptions and choices made. This can be limited to the most sensitive variables.

5.6.3. Discussion

Even though the methodology we described here is less demanding than a full cost-benefit-analysis, it still represents a number of important challenges, such as data availability over a sufficiently long period, the elimination of bias caused by other elements, monetisation of impact and the determination of price elasticities. Depending on the case at hand, concessions may therefore have to be made. Available quantitative data should be complemented by qualitative information on the selected indicators.

5.7. Conclusion

We have specified in this Chapter that port authorities have the potential to contribute to the competitiveness of their ports, by generating more demand for the overall port product. To release this potential, reform is often needed, in order to enable port authorities to perform their various functions in an efficient and effective manner. Experience with port authority reform in Europe and elsewhere in the world indicates that results are not always satisfactory and often disputed (Brooks and Cullinane 2007a). Measuring the economic impact of port authority reform is therefore a necessary but challenging task, given that several other internal and external factors influence the competitiveness of a port. Port authority reform is furthermore often part of a wider reform package, which makes its particular impact even more difficult to isolate and measure.

The multi-layered framework for ex-post evaluation that we have presented in this Chapter gives governments and other stakeholders the basis to develop a pragmatic tool to objectively and quantitatively evaluate the economic impact of reform on both the actual performance of the port authority and the competitiveness of the port. By adding a process dimension, governments and stakeholders will furthermore be able to understand better why the reform scheme worked or not.

We are fully aware that the practical application of this theoretical framework remains a challenging task, especially where it concerns the measurement of economic impact. The collection of data is the first hurdle to take. Whereas this may appear to be relatively straightforward for variables to measure the economic performance of the port authority, information on revenue, expenditure and staff employed may not always be available for the period prior to reform, or may not be calculated in the same way as port authority reform often involves a change in accounting methods. The variables needed to calculate generalised costs are the most difficult to obtain. Even the out-of-pocket costs may not be readily available, because of commercial sensitivity. They may also pose numerous comparison problems. The same goes for the variables measuring effects on time, risk and reliability, which pose the additional difficulty of monetisation. To measure the effect on demand, correct price elasticities have to be estimated as well.

The second major challenge is the elimination of bias caused by other internal and external factors that occurred during and after reform. The ideal way to do so is through the construction of a counterfactual, which is however a very demanding exercise. By collecting qualitative information on relevant events that happened in the period during and after reform, it should however be possible to draw meaningful conclusions, at least for the evolution in the economic performance of the port authority itself. The analysis of the reform process and post-reform governance will furthermore allow to explain why reform had the impact it had. But also gathering qualitative information may have its problems. Information on process and post-reform governance will inevitably require feedback from relevant stakeholders and experts that were involved in the period prior, during and after reform. Given that this period of analysis is fairly long, these people may be hard to find.

Depending on the case to be assessed, methodological rigor may therefore need to be offset with pragmatic alternatives. The application of the framework to a concrete port authority reform case, which is the subject of the next Chapter, will reveal the actual challenges more clearly.

6. REFORM OF ROTTERDAM PORT AUTHORITY: AN EX-POST EVALUATION OF PROCESS AND ECONOMIC IMPACT

6.1. Introduction

The governance of the port of Rotterdam has attracted widespread attention, from professionals and scholars alike. This is hardly surprising, not just because Rotterdam has led the global port league for many decades and is still Europe's largest commercial seaport, but also because organisational changes and institutional reforms have been at the vanguard of international trends.

This is certainly the case for the 2003 reform, which transformed Rotterdam Port Authority from a semi-autonomous municipal department into a private-law limited company with government shareholders. So far, no other major port in Europe has gone as far as Rotterdam in adopting private company form and organisation for their port authority, whilst retaining public ownership.

Although the results of this corporatisation process are generally perceived to be positive and have been a source of inspiration for port governance reforms elsewhere, a comprehensive economic assessment of the reform, set in a broad institutional and historical context, was never attempted so far. The multi-layered nature of the analytical framework developed in the previous Chapter provides a solid basis for making such a full analysis.

We place the 2003 corporatisation of the port authority in the broader context of governance changes that occurred in Rotterdam over the period 1970-2013. The application of the analytical framework is divided in two main Sections. First, we address the process component of the framework, which, preceded by a brief historical introduction, covers the process that led to the 2003 reform as well as post-reform governance. We then measure the economic impact of governance changes, respectively on the economic performance of the port authority itself and on the competitiveness of the port of Rotterdam as a whole. For the qualitative analysis, we were able to use both public and undisclosed reports and studies as well as records of political discussions. The quantitative analysis uses a statistical database, which was largely composed from data published in the annual reports of Rotterdam Port Authority. Data availability and resource constraints have prevented us from making a complete, in-depth assessment of the economic impact. This case-study should therefore be regarded as a try-out, as a demonstration of the comprehensive potential that the analytical framework has to offer.

6.2. Analysis of process

The process component of our analysis consists of three parts. In Section 6.2.1, we dive into the history of Rotterdam port governance, to identify a number of governance characteristics which influenced the most recent reform of the port authority. We also describe the main features of the four distinct management periods that make up our period of analysis. Section 6.2.2 zooms in on the process that led to the 2003 reform of Rotterdam Port Authority. Next to a chronological overview of the main steps that occurred in the process, it also identifies

the main factors that influenced the outcome. Finally, Section 6.2.3 appraises post-reform governance, assessing how the port authority fulfills its key functions after the changes.

6.2.1. Historical context

Rotterdam Port Authority was established in 1932, bringing together several municipal services with responsibility for port matters under one roof. In the years prior to its establishment, the dispersion of interests was increasingly perceived to be ineffective, causing the port to miss out on important commercial opportunities (Kolff 1928, Blom *et al.* 1997, Brolsma 2007). The form that the port authority should take was intensively discussed (Kolff 1928, Backx 1929). In the end the choice fell on the ‘Tak van Dienst’ model, a semi-autonomous municipal department. The port authority thus remained part of the city administration, obtaining its own budget in 1934, but not having its own financial accounts until 1970.

This choice is rooted in the Hanseatic tradition of which Rotterdam is a typical example. As we saw in Chapter 3, the qualification ‘Hanseatic’ refers to the historically rooted tradition of municipal port governance, which is typical for ports in Northern Europe (Suykens 1988). Prime features include strong spatial and economic ties between port and city, municipal participation in port management, autonomy from higher levels of government and focus on development of the local port economy as an engine of regional economic growth (Van Hooydonk 1997, Suykens and Van de Voorde 1998, Notteboom *et al.* 2013). In Rotterdam, the Hanseatic tradition was particularly influenced by a failed experiment with private port exploitation in the late 19th century, which left a deep trauma with the municipal government. It led to two basic port governance principles that were still very influential during the 2003 reform process: (1) port land must be owned by the municipality and cannot be alienated, and (2) the city must exercise unity of control and management over the Rotterdam port area.

The establishment of Rotterdam Port Authority meant to create more unity in port management, but it succeeded only in part. The powerful Municipal Works Department, which was responsible for port engineering and construction works, remained outside the new structure. This Department had gained particular fame at the end of the 19th century under the direction of Gerrit-Jan de Jongh, who famously said that “the quay has to await the ship”, in other words: port capacity must always anticipate future traffic development (De Klerk *et al.* 2008). This engineering culture equally reigned at the port authority. It was especially outspoken in the post-war period, first focusing on reconstruction of the port and then on expanding the port area further towards the North Sea. This particular management culture was embodied in the person of the two ‘engineer-directors’ that led the port authority during the first forty years of its existence: Nicolaas Koomans (from 1932 to 1959) and Frans Posthuma (from 1959 to 1973). Expansion projects in the post-war period were approved by political acclamation, under the mantra ‘what is good for the port, is good for the city’. There was little conflict between port authority and city administration and the port management enjoyed a relatively high degree of de facto autonomy and trust.

The controversy over the gargantuan 2000+ expansion plan, which the port authority presented in 1969, demonstrated that times were changing however. Port expansion met with protest of farmers and ecologists. Other political priorities, such as housing and environmental protection, rivaled with the traditional port expansion claims (Blom *et al.* 1997, Van de Laar 2000, Brolsma 2007). The port authority’s engineering culture had to make way for a new management culture which had to focus more on value than on tonnes

(Blom *et al.* 1997). This transition did not come about easily. After Posthuma had handed in his resignation in 1973, subsequent management periods were marked by the search for a new direction and repositioning of the port authority. Initially, under the management of Frans Scheurleer (1973-1979) and Henk Molenaar (1980-1992), this was done within the existing ‘Tak van Dienst’ framework. In the 1980s, the port authority even found itself in a “quasi-permanent state of (internal) reorganization” (Brolsma 2007). Towards the late 1980s, room for growth appeared to be possible again, which was confirmed in the ‘mainport’ status that the Dutch government attributed to the port of Rotterdam (Brolsma 2007). Under the management of Willem Scholten (1992-2004), the process towards a new form for the port authority started, resulting in the 2003 decision to corporatise. Scholten had to resign in 2004 after he had become entangled in a bank guarantee scandal. Under the term of his successor Hans Smits (2004-2013), the new corporate form was implemented with a particular focus on transparency, efficiency and profitability (Havenbedrijf Rotterdam 2005).

Table 20 summarises the main features of the management periods from 1973 to 2013. It goes beyond the scope of our research to analyse the leadership qualities of the four port directors on the basis of theoretical insights (e.g. Boschken 1989, Ircha 1997, Hollen *et al.* 2013), but it shows from this brief and indicative comparison that their influence on port governance is potentially significant. Especially remarkable are the apparent contrasts in leadership style throughout the entire period, which to some extent were deliberate. After the authoritarian engineering culture of the 1950s and 1960s, a more democratic, participative leadership was sought. And after the charismatic, entrepreneurial drive of Scholten, integrity and transparency were the main desired qualities. The interaction with the contextual situation (French *et al.* 2008) is also worth exploring further.

Table 20 – Management Rotterdam Port Authority 1973-2013

Period	Director	Main features	Style
1973-1979	Frans Scheurleer	Changing political priorities port development Internal unrest port authority	Participative Not decisive
1980-1992	Henk Molenaar	Port authority as outpost of government and facilitator of business Frequent internal reorganisations	Reflective Consensual
1992-2004	Willem Scholten	Entrepreneurial role port authority Need for management reform Uncertainty about port expansion Increased formal / informal autonomy and centralisation of power at port authority	Charismatic Risk-taking
2004-2013	Hans Smits	New governance framework Good corporate governance Focus on efficiency, profitability and corporate social responsibility	Transparent Risk-averse

Source: based on Blom et al. (1997), Brolsma (2007), Koppenol (2013a), Hollen et al. (2013)

6.2.2. Reform process

In this Section we study the process that led to the formal decision taken in 2003 to establish Rotterdam Port Authority as a limited company. Scholars have addressed this process from different angles (e.g. Brolsma 2007; Jacobs 2007; Koppenol 2013a;b; Hollen *et al.* 2013, Notteboom *et al.* 2013), but a comprehensive study has not been undertaken so far. We use the model of public management reform developed by Pollit and Bouckaert (2011) as a basis for our analysis. As we saw in the previous Chapter, this model revolves around the process of elite-decision making and identifies three important spheres of influence: economic and socio-demographic factors, political and intellectual factors and administrative factors. Chance events can play a significant role as well. It is from the interplay of these forces that reforms emerge. Before applying each of the key elements of the model to our case, we will first present the main events and decisions that occurred during the process in chronological order.

6.2.2.1. Chronological overview

Determining the starting point of a process leading to reform is always somewhat arbitrary. We choose 1992 as the beginning of our analysis, the year in which Willem Scholten became director-general of the port authority. Although discussions about reform and, concretely, corporatisation occurred earlier (Havenbedrijf der Gemeente Rotterdam 1988, Brolsma 2007), Scholten was the main instigator and driving force behind the process (Koppenol 2013a). We extend the chronological overview to 2007, to include further changes that came about in the years after the port authority was corporatised, mainly as a result of the Dutch State becoming shareholder.

Table 21 presents the overview in three columns, to distinguish between events happening at the level of the municipality, the port authority and the State.

Table 21 – Events and decisions in corporatisation process Rotterdam Port Authority

Year	Municipality	Port Authority	State
1992	Scholten appointed director-general RPA		
1993	Port Plan 2010 confirms need MV2 and active role RPA		
1994-1995		Studies explore alternative forms for RPA	
1996	Corporate plan RPA: new role as ‘mainport manager’ Reorganisation RPA with centralised powers director		
1997	Study identifies LTD-C and TVD+ as viable alternative forms for RPA		PMR established as inter-governmental platform for development PoR / MV2
1998	Inter-governmental Commission recommends need for more autonomy RPA, if not all, then at least some tasks of RPA must be trusted to a LTD		
1999	Council agrees on reform ‘package deal’ within TVD form, including more autonomy for director and MHR for participations		Report highlights need for RPA and other Dutch port authorities to become more autonomous
2000	College agrees to advance evaluation governance RPA under pressure State		Government expresses support for LTD, even with private shareholder

Year	Municipality	Port Authority	State
2001	Report 'Hebben en Houden' identifies LTD as option with highest potential and sets out basic conditions		
	Council agrees with proposal College to explore LTD further, provided TVD+ is studied as a worthy alternative		
2002	Municipal elections + murder Pim Fortuyn : new College confirms intention to pursue LTD option		
	Covenant PMR: State will consider financial support MV2 if RPA becomes LTD		
	Report 'Ondernemende Overheid' outlines design LTD and includes negative assessment MHR		
2003	Council mandates College to take all measures to ensure RPA is established as LTD on 01/01/04	Trade unions and management RPA sign new collective agreement and social plan	
2004		RPA established as LTD	
	Principal agreement about participation State in RPA and financial support MV2		
	Bank guarantee scandal – Scholten resigns		
2005		Smits appointed CEO	
	Corporate plan RPA emphasises efficiency, transparency and good corporate governance		
		Introduction of various codes of conduct and internal reorganisation	
	More transparent port dues policy as result of screening by Netherlands Competition Authority		
2006	Final agreement about participation State in RPA and financing of MV2 Statutes RPA modified: no longer formally responsible for urban development		
2007	State formally acquires 30% of shares RPA		

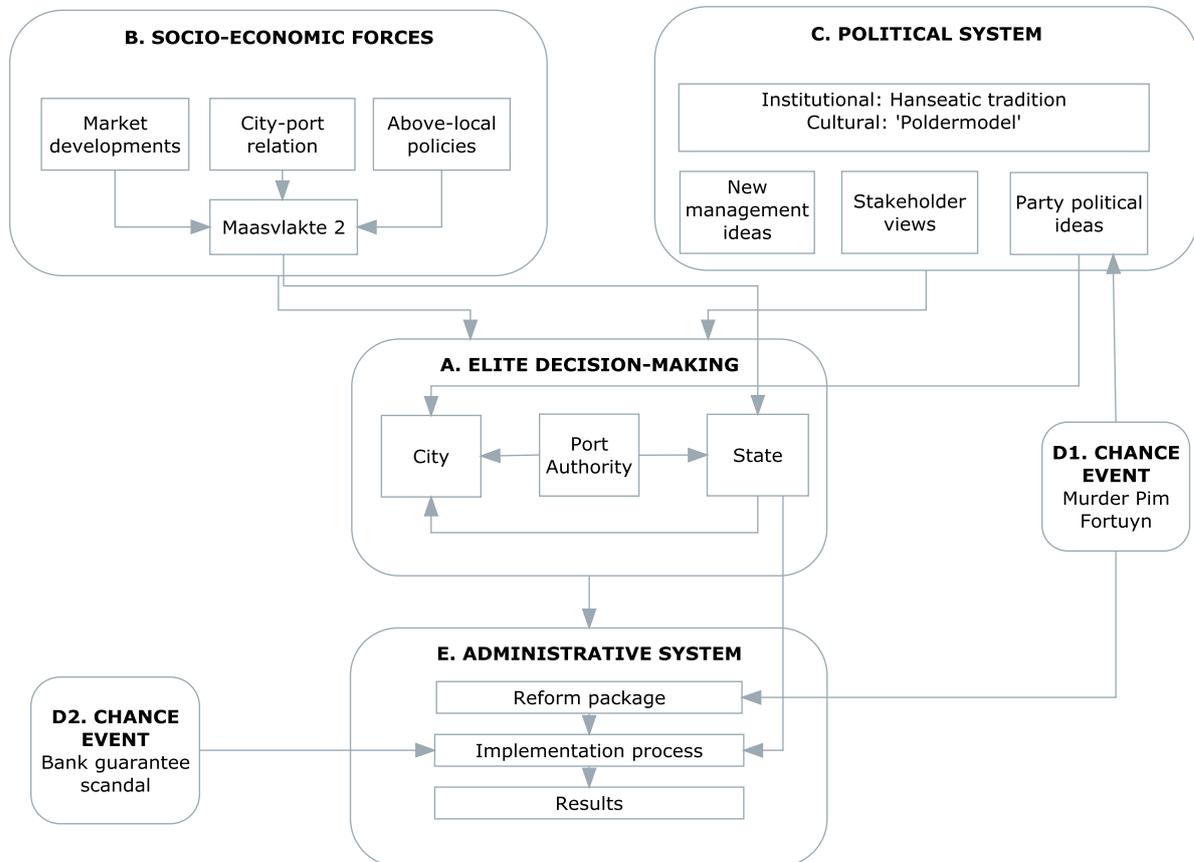
Abbreviations: College: Municipal College of Mayor and Alderman / Council: Municipal Council / LTD: Limited Company / LTD-C: Limited Company with City as unique shareholder / LTD-M: Limited Company with mixed shareholding City and State / MHR: Mainport Holding Rotterdam / MV2: Maasvlakte 2 / PoR: Port of Rotterdam / RPA: Rotterdam Port Authority / PMR: Project Mainport development Rotterdam MV2 and accompanying sustainability projects / TVD: Tak van Dienst, semi-autonomous municipal department / TVD+ : Tak van Dienst with extended autonomy

Sources: based on Wyler Soetekouw & Wyler (1994), Blom et al. (1997), Coopers & Lybrand (1997), Commissie De Vries (1998), GHK International / Berenschot Procesmanagement (2001), Gemeente Rotterdam (2001), Gemeente Rotterdam (2002), College Burgemeester en Wethouders Rotterdam (2003a), College Burgemeesters en Wethouders Rotterdam (2003b), Havenbedrijf Rotterdam (2007), Havenbedrijf Rotterdam (2008)

6.2.2.2. Analysis

Figure 8 shows the interaction between the various elements of the Pollit and Bouckaert model, as applied to our case. We discuss each of the elements below, starting with the process of elite decision-making.

Figure 8 – Analysis of the corporatisation process of Port of Rotterdam Authority



Source: adapted from Pollit and Bouckaert (2011)

A. Elite decision-making

The chronological overview already illustrates very well how important the role of elite decision-making is. Central in the process stands the port authority and, more in particular, the person of its then director-general, Willem Scholten. Supported by central government, he was able to gradually convince the municipal government of his ambition to turn the port authority into an enterprise, whilst extending his own personal autonomy along the way. The investigations made in the wake of the bank guarantee scandal in which he had become entangled describe how, under Scholten's charismatic and willful leadership, Rotterdam Port Authority had become a 'State within a State', with no adequate system of checks and balances (Lemstra 2004, Rekenkamer Rotterdam 2004). The twelve-year term of Scholten was marked by frequent political changes in the municipal government and a relatively weak central city administration, allowing Scholten to take a long-term strategic approach (Koppenol 2013a). His sense for decisiveness and results appealed to many politicians. A

council member qualified the relation between city and port authority management as follows: “In the land of the blind, Scholten was king” (Gemeenteraad Rotterdam 2004).

When addressing the role of the municipality, a distinction must be made between the municipal executive, the College of Mayor and Aldermen, and the elected assembly of the municipality, the Municipal Council. Making abstraction of party-political views, which we will address under point C, both College and Council were initially opposed to change, driven by the Hanseatic principles we identified in the historical overview. The College gradually became convinced about the need to reform the port authority. Especially the successive Aldermen responsible for the port increasingly showed support, influenced by the port authority management. The Council remained more skeptical overall, especially with regard to the option to turn the port authority into a limited company. In 1999, an intermediate compromise solution was found with a ‘package deal’, which brought further changes within the existing framework. Rather than improving performance, it however reinforced the uncontrolled autonomy of the port authority (Jacobs 2007, Koppenol 2013a, Notteboom *et al.* 2013).

The Dutch government already contemplated corporatisation of Rotterdam Port Authority in the late 1980s, in the context of its ‘mainport’ policy (Brolsma 2007). Once the development of Maasvlakte 2 was firmly on the political agenda, both at national and local level, the State further pushed its wish for corporatisation, by making it a condition for financial support to the expansion project. Eventually, the State would also express an interest to become shareholder in the port authority. The motivation for the State was not only driven by the wish to obtain a return on investment, but also by past experience. The Dutch government had financed the first Maasvlakte, but did not have any say on which activities would take place there (Nieuwsblad Transport 2004, Brolsma 2007).

The new political context that emerged in Rotterdam after the 2002 municipal elections, paved the way for a swift decision on corporatisation. The elite perceptions of what is ‘desirable’ and what is ‘feasible’ (Pollitt and Bouckaert 2011) found a match.

B. Socio-economic forces

Socio-economic factors were often invoked in the reform process. Broadly speaking, we can identify three distinct, re-occurring factors, which largely correspond with the main generic elements of the Pollitt & Bouckaert model: market developments, the evolving city-port relation and the influence of government policy.

Market developments mainly refer to the changes in the European port market which, in the period 1960 to 1990, evolved from a seller’s to a buyer’s market (Wylter, Soutekouw & Wylter 1994). Port customers increased scale, formed global networks and engaged in horizontal and vertical integration processes. At the same time, competition between ports increased fiercely. The dropping market share of the port of Rotterdam in the Hamburg-Le Havre range very much illustrates this phenomenon. To meet these challenges, it was argued that the port authority should have the possibility to operate beyond its traditional boundaries and move along with the customer, something which the ‘Tak van Dienst’ framework would not allow (Coopers & Lybrand 1997, Gemeente Rotterdam 2001, Gemeente Rotterdam 2002, Jacobs 2007). These arguments very much coincide with the drivers for change that we derived from the literature review in Chapter 2. We however tend to agree with Pollitt and Bouckaert that we should not exaggerate the explanatory power of global economic forces such as market developments in the port and shipping sector. They may have provided

pressure to do something, but would not supply the ideas of exactly what to do (Pollit and Bouckaert 2011).

The relationship between the city and port of Rotterdam changed both physically and functionally and brought along a lower societal acceptance of port activities (Coopers & Lybrand 1997, Gemeente Rotterdam 2001, Gemeente Rotterdam 2002). At first sight, it would appear that the separation of port and city is rather a reason to strengthen ties, not to sever them further through corporatisation. This was indeed a major element of political contention with the municipal government, who managed to ensure that contribution to urban development was one of the initial statutory objectives of the reformed port authority (De Brauw, Blackstone, Westbroek 2003).

It is however clear that a port like Rotterdam had largely outgrown its local importance and was in the first place a Dutch and European port. The more plausible argument for reform therefore lies in the last factor: the increasing influence of national and supra-national policy and legislation on the port and port authority (Gemeente Rotterdam 2001, Gemeente Rotterdam 2002). This is closely linked to the Dutch ‘mainport’ policy we cited earlier.

The concrete translation of these socio-economic forces can be found in the Maasvlakte 2 expansion project, which was in the first place a response to market developments. It also emphasised changing city-port relations and national policy priorities. Support from the Dutch government was used as leverage to ensure corporatisation of the port authority.

C. Political system

The general, structural features of the political system in which an object of reform is embedded have both institutional and cultural aspects (Pollit and Bouckaert 2011), which also affect seaport reform processes (Ng and Pallis 2007, 2010). We already mentioned the Hanseatic tradition of municipal port governance, which is historically strong in The Netherlands and limits the powers of central government on port policy. From a cultural point of view, The Netherlands is a country that is marked by a consensual political approach, with heavy emphasis on relatively polite collective discussion and agreement, which is generally referred to as the ‘poldermodel’ approach (Pollit and Bouckaert 2011), a political culture which has evaporated a little in recent times, but was still very much present in the 1990s. It explains why political discussions on the reform process took rather long, certainly when compared to port reform in a country like the United Kingdom, which is both institutionally and culturally very different (Verhoeven 2014).

Next to the deeply rooted structural elements of (national) political systems, Pollitt and Bouckaert (2011) further introduce three dynamic elements which, to a varying extent, we also encounter in our case: the introduction of new management ideas, the pressure from citizens – which we translate here as pressure from stakeholders – and party-political ideas.

New management ideas certainly influenced the reform of Rotterdam Port Authority. Experience with so-called ‘*externe verzelfstandiging*’, i.e. corporatisation, as opposed to ‘*interne verzelfstandiging*’, i.e. commercialisation, was well-established in The Netherlands when the reform process in Rotterdam started, notably in the field of telecommunications, railways and aviation (Stellinga 2012). Not surprisingly, the corporatisation of Schiphol airport, the other Dutch ‘mainport’, was often quoted as an example in the Rotterdam case. We should also mention the role of external consultants. At least twelve external reports were published during the process, commissioned either by the city, the port authority, the

State or a combination of them. The two main official reports on the repositioning of Rotterdam Port Authority, 'Hebben en Houden' (To Have and to Keep - Gemeente Rotterdam 2001), and, 'Ondernemende Overheid of Overheidsonderneming' (Enterprising Government or Government Enterprise - Gemeente Rotterdam 2002), also refer to reforms in other ports, including Antwerp, Hamburg, Felixstowe, Hong Kong, New York New Jersey and Singapore. But these foreign governance examples seem to have provided only limited inspiration.

Stakeholders either largely supported corporatising the port authority, or were neutral about it. Business stakeholders, represented through organisations like Deltalinqs, which defends the common interests of logistical and industrial companies in the Rotterdam area, and the Chamber of Commerce, were in favour of corporatisation, as long as the corporatised port authority would not take the place of the private sector and would be transparent (Kamer van Koophandel Rotterdam and Deltalinqs 2001). Compared to reforms in other ports, employees and trade unions were fairly easy-going. Most of the port authority staff appeared to be rather neutral about corporatisation, with the exception of the employees of the harbour masters' department (Rosendaal *et al.* 2002). Environmental and other societal pressure groups were quite vocal about the Maasvlakte 2 development, which was intrinsically linked to the repositioning of the port authority, but did not express strong feelings about the latter aspect.

We assess the last dynamic element, the influence of party-political ideas, through the two political parties that played the most influential role in our case: the centre-left PVDA ('Partij van de Arbeid', Labour Party) and 'Leefbaar Rotterdam' (Liveable Rotterdam), the local branch of the anti-establishment 'Leefbaar Nederland' party. Contrary to Leefbaar Rotterdam, which was only founded in the running up to the 2002 municipal elections, the PVDA played a dominant role in Rotterdam city politics since the Second World War. During the reform process, it was member of the municipal council until 2002. The Rotterdam branch of PVDA was not keen at all on corporatising the port authority, being afraid of losing political control over the port (Jacobs 2007). Despite pressure from the national government and, notably, the minister of transport who, from 1998 to 2002, was of the same party, PVDA city council members continued to stretch the possibility of having change within the existing structure rather than going for corporatisation (Jacobs 2007, Notteboom *et al.* 2013). Leefbaar Rotterdam was initially opposed to corporatisation as well. Local and national party leader Pim Fortuyn, whose personality very much embodied the party, was ideologically opposed to corporatisation in general and against corporatising Rotterdam Port Authority in particular. He regarded the ambitions of the port authority management with considerable suspicion. Fortuyn equally questioned the need to develop Maasvlakte 2 (Fortuyn 2002; Koppenol 2013b). His party won the local elections in 2002, ousting PVDA from executive power. Coalition partners CDA (Christian-Democrats) and VVD (liberals), who had supported corporatisation prior to the elections, tried to persuade Fortuyn's local mandatory Wim van Sluis, who was in the picture to become Alderman for the Port. A few days after Van Sluis' appointment, Fortuyn was murdered, leaving the decision to support corporatisation entirely to him. The Alderman quickly agreed with his coalition partners that corporatisation was needed to allow the financing of Maasvlakte 2 (Koppenol 2013b), thus relinquishing all political resistance.

D. Chance events

The effect that chance events, such as scandals, natural or man-made disasters, accidents, and unpredictable tragedies such as shootings and epidemics, have on reform programmes may

not be obvious, but occasionally they can be very significant (Pollitt and Bouckaert 2011). In our case, we encounter two of them, one during the process leading up to the actual reform and one which occurred shortly afterwards.

The first chance event is the murder of Pim Fortuyn, which we mentioned above. It stopped any further political resistance at municipal level and led to a relatively fast decision to corporatise the port authority. Fortuyn's murder had another effect on the speed of things. With his personal leadership missing, the national coalition between his party and CDA became unstable and collapsed after a few months. The port authority feared that the same might happen at local level, with a possible return of PVDA as a result, and did therefore everything possible to speed up the decision-making process (Koppenol 2013b).

The second chance event is the bank guarantee scandal that erupted in August 2004 and led to the resignation of Willem Scholten. It steered the implementation of corporatisation away from too much entrepreneurship, towards a model of good corporate governance, embodied in the person of the new CEO, Hans Smits. One can only wonder what would have happened if Scholten would have stayed on, for instance in his relation with the supervisory board, but we can assume that the change in management that occurred as a result of the scandal led to a different course for the port authority than Scholten would have pursued. Equally, things would have taken another turn if the scandal would have come out a year or two earlier, prior to the crucial political decisions about corporatisation.

Whilst the murder of Fortuyn is a true chance event, the bank guarantee scandal may be less so. By perpetuating the discussion about corporatising the port authority, the municipality actually continued to sustain the unclear framework, which made it possible for Scholten to take the decision to give out the bank guarantees. If corporatisation would have happened earlier, with the proper checks and balances of a good corporate governance system, the scandal would probably not have occurred.

E. Administrative system

The Rotterdam City Council agreed in June 2003 with the final content of the reform package, mandating the College of Mayor and Aldermen to undertake all operations and formalities needed to ensure that Rotterdam Port Authority would be established as a limited company on 1 January 2004 (College van Burgemeester en Wethouders 2003b). In the period up to 2007, two developments occurred which changed some elements of the original reform package and influenced its implementation. One was expected from the outset: the accession of the Dutch State as shareholder. The other development was not expected: the bank guarantee scandal, which led to a management change and had a profound effect on the corporate governance of the port authority.

Following an initial understanding in 2004, a final agreement about the accession of the Dutch State as shareholder was reached early 2006. According to this agreement, the State obtained one third of the shares of the port authority, valued at 500 million Euro at the time, and a veto right on important policy and investment decisions. In return, the State would lend 726 million Euro for the construction of the outer seawall of Maasvlakte 2 and 45 million Euro for nature compensation projects (Brolsma 2007). Once the European Commission had cleared the agreement, the State formally became shareholder in 2007. This resulted in a few changes to the corporate governance of the port authority. The original statutes were modified, whereby the objective stipulating that the port authority has to contribute to urban development was deleted. The composition of the Supervisory Board

changed as well, becoming fully independent. Until 2005, the Alderman for the Port had been a member. Before formally acceding as shareholder, the Dutch government also had the market power of the port authority investigated by the Netherlands Competition Authority, which led to a procedure on consultation of port dues that we will describe in the next Section. The agreement with the State also incited the port authority to cast off and liquidate all non-strategic participations that had been accumulated since 1999. Finally, the dividend policy was modified as well.

The bank guarantee scandal made the new management as distinct as possible from the old one, emphasising transparency and good corporate governance. The port authority voluntarily adopted a code of good governance for publicly listed companies as well as a series of internal codes of conduct. The port authority's first corporate plan under the new management clearly set out the new course (Havenbedrijf Rotterdam 2005a). In the same year, an internal reorganisation of top and senior management was carried out. Top and senior management functions were lifted from the collective agreement and salaries were made market conform²⁷.

Reform programmes often get bogged down or thwarted in the implementation process, through complex administrative processes, unwilling civil servants etc. (Pollitt and Bouckaert 2011). This appears not to have happened in our case. On the contrary, the accession of the State as shareholder and the bank guarantee scandal actually appear to have helped in carrying the objectives of the reform through and turn the port authority into a professionally run, more transparent and performance-oriented organisation. It is remarkable however that, at least to our knowledge, the results of the reform were never subject of an official, comprehensive review. An initial evaluation that had been requested by the Municipal Council during the reform process came about in 2005. This was rather early in the day and it therefore did not provide any conclusive results (Havenbedrijf 2005). De Langen (2011), employed by the port authority at the time, compared a selection of port performance indicators before and after reform, which were later subject of a scientific paper (De Langen and Heij 2014). Some of his initial results were used by outgoing CEO Hans Smits to refer to the reform as “perhaps the most successful corporatisation of a government department ever” (Smits 2013). For now, we should be careful with this conclusion as “rhetoric and reality can be very hard to disentangle” (Pollitt and Bouckaert 2011).

6.2.3. Post-reform governance

In this Section, we assess the governance at Rotterdam Port Authority during the decade that elapsed since corporatisation. We base ourselves on the appraisal criteria that Stern and Holder developed for the evaluation of regulatory systems. Corporatisation was meant to reinforce the economic activities of the port authority and would thus emphasise its hybrid nature even more. This makes clarity of roles and objectives, autonomy from political intervention, accountability, participation, transparency and predictability (Stern and Holder 1999) even more pertinent criteria than before.

From the process analysis, we retain how corporatisation and, in particular, the bank guarantee scandal and shareholding of the State, led to a policy of transparency and good corporate governance, which was characteristic for the management period 2004-2013. In

²⁷ A later proposal to further increase the salaries of top management led to a major conflict between the supervisory board and the municipal shareholder, whereby the former had to give in to political pressure. The chairman of the supervisory board handed in his resignation out of protest (Havenbedrijf Rotterdam 2011).

this Section, we analyse how this policy influenced the main functions of the port authority in the post-reform period. As a starting point, we use the assessment that the Dutch competition authority (then called ‘Nederlandse Mededingingsautoriteit – NMa’) made shortly after corporatisation. This assessment was commissioned by the Dutch State prior to it becoming shareholder. The assessment identified four key functions of the port authority which broadly correspond with the functional profile that we developed in Chapter 2. The NMa assessment only addressed two of them and only covered the possible abuse of the port authority’s dominant position in terms of pricing. Here we look at all functions and cover other elements than pricing as well. We will revisit the pricing policy of the port authority in more detail in Section 6.3.2.

6.2.3.1. Infrastructure provider function

The provision of infrastructure for ships calling at the port of Rotterdam is one of the port authority’s key functions. The related income from port dues constitutes one of its main sources of revenue. Before becoming a limited company, the port authority already obtained more autonomy in the setting of port dues and port dues were officially de-fiscalised in 1997 (Brolsma 2007).

The NMa assessment came to the conclusion that the port authority had a monopoly position for the provision of infrastructure, which it could potentially abuse by charging excessively high port dues or by discriminating between competing port users. The competition authority argued that port dues represented a relatively small part of total transport chain costs and would therefore, in themselves, not incite users to choose for another port than Rotterdam. The competition authority advised that, especially with regard to the level of port dues, some form of sector-specific measure should be introduced (Nederlandse Mededingingsautoriteit 2005).

This advice resulted in a self-regulatory measure. The port authority concluded a covenant with the Rotterdam port users’ organisation Deltalinqs, which obliges the port authority to annually consult Deltalinqs on its port dues policy. If the consultation would fail to result in an agreement, an independent arbitration procedure is foreseen to resolve the dispute²⁸. Up to now arbitration has not appeared to be necessary. The covenant indeed seems to work satisfactorily, judging from a joint statement that Deltalinqs and the port authority issued in 2013 in response to the attempt of the European Commission to impose a common supervisory measure for all European port authorities (Havenbedrijf Rotterdam 2013)²⁹.

On the specific aspect of discrimination, a Dutch court ruled in 2010 that oil tankers and container vessels cannot be compared, do not compete with each other and therefore do not have to be treated equally by the port authority (Kernkamp Advocaten 2010, Zippo 2010). The verdict concluded a case brought forward in 1998 by a number of Rotterdam ship agents representing the oil sector. As a result, the Dutch Petroleum Industry Association (Vereniging Nederlandse Petroleum Industrie – VNPI) concluded a covenant with the port authority, similar to the existing one with Deltalinqs (Havenbedrijf Rotterdam 2011).

²⁸ The port authority did consult users on a systematic basis before the introduction of this measure, but these consultations were not binding and were referred to by some as ‘ritual dances’, whereby the outcome was decided upon in advance (Charles River Associates 2004).

²⁹ The reaction is in itself rather remarkable, given that the proposal of the European Commission was inspired by the Rotterdam covenant.

6.2.3.2. Landlord: land lease policy

Leasing port land to cargo handling and industrial companies is the second core task and principal income source of Rotterdam Port Authority. The NMa assessment concluded that, as a landlord, the port authority only held a dominant position towards companies that are handling one or more of the four cargo types for which the port as a whole holds a dominant position: iron ore and scrap, coal, crude oil and other liquid bulk. The competition authority furthermore found that there was no particular risk that the port authority would abuse its dominant position by charging excessively high rent prices or through discrimination. A form of regulation was therefore not deemed necessary (Nederlandse Mededingingsautoriteit 2005).

The preparatory research report of the assessment was more precise. It pointed at an important conceptual relationship between the renting out of land and the provision of infrastructure. A port authority that controls land and access rights can, in principle, extract monopoly rents by setting a high lease price, high harbour dues, or a combination of both. Moreover, for a given rent the port authority would always prefer a tenant that generates harbour dues to one that does not. The research report argued that the potential of the port authority exercising market power depends on land that is or becomes available for new tenants. With the envisaged expansion of Maasvlakte 2 still considerably distant in time, space constraints made any major new tenants locating at the port unlikely (Charles River Associates 2004). The decision not to impose any form of regulation was therefore very much based on the capacity situation in 2004 and the years before Maasvlakte 2 became operational.

This caveat is important, since the port authority was indeed accused of abusing its dominant position when allocating new terminal sites on Maasvlakte 2. This accusation however concerned the port authority's overall land lease policy and, in particular, its policy on allocating sites to operators, not so much the pricing aspect of it.

Historically, the port authority's land lease policy was aimed at fostering quasi-monopoly service providers for each of the main cargo commodities. This choice was deliberate and based on the assumption that competition between ports was the relevant focus, not competition within ports (Klamer and Kombrink 2004). This is how ECT became the dominant terminal operator for containers. The company was established in 1966 following an initiative of the port authority, which fostered and protected ECT's privileged position for decades (Wildenberg 1998, Brandsma 1998). In 1999 the port authority even became shareholder, which was a much contested decision (Jacobs 2007). When the company eventually became fully owned by the global stevedoring group Hutchison Port Holdings, complaints about preferential treatment persisted (Charles River Associates 2004).

Under the management of Smits and in view of the development of Maasvlakte 2, the port authority started to change its pro internal monopoly policy, becoming keener on fostering competition between operators, especially in the container market. The port authority also started to take a more active interest in the performance of its leaseholders, by including performance and modal shift clauses in lease contracts (Jacobs 2007, De Langen *et al.* 2012).

This change of policy jeopardised ECT's privileged position, which, in response, started to contest the port authority's decision to allocate terminals on Maasvlakte 2 to competing operators. In 2011, ECT filed a 900 million Euro claim, accusing the port authority of creating overcapacity, not giving ECT a fair chance to obtain a terminal on Maasvlakte 2,

imposing stricter or more severe conditions on ECT than on other operators and making the company pay for infrastructure expansion works. In short, ECT accused the port authority of abusing its dominant position, violating transparency rules and behaving in a discriminatory matter (Rechtbank Rotterdam 2014).

The court in first instance rejected the claim, refuting most of ECT's arguments (Rechtbank Rotterdam 2014). It would lead us too far to make an in-depth analysis of the court's conclusions, but there are two points that are worth mentioning here. The court first of all found that ECT had not sufficiently motivated that the port authority has a dominant position on the relevant market for leasing land to terminal operating companies. Apart from the fact that ECT did not define what it considers to be the relevant market, the court found that, even if Rotterdam Port Authority has the exclusive competence to lease land, the port authority is dealing with large, professional and internationally operating market players which can provide sufficient countervailing buying power against any dominant position the port authority would have. The fact that the port authority wants to ensure more internal competition in the port can therefore hardly be seen as an abuse of dominant position. Secondly, the court did agree that, by introducing additional criteria after the bidding process had started and after ECT had already submitted its proposal, the port authority infringed a basic transparency principle. But the court argued that this was not a sufficient ground for compensation, the reason being that the port authority voluntarily chose to organise a competitive bidding procedure, where it was not obliged to do so under Dutch and EU law. Contractual freedom prevails, given that the port authority is a private law undertaking (Rechtbank Rotterdam 2014).

Even if the port authority was cleared in this case³⁰, the second conclusion does raise a fundamental point about the status of land lease contracts and the obligation for port authorities, regardless whether they are private or public law undertakings, to select service providers through competitive bidding or tender procedures. It amply illustrates the lack of legal clarity at EU level, which we underlined in Chapter 4.

The court case illustrates the ambivalent position of Rotterdam Port Authority's land lease policy, which results directly from its hybrid nature. Whilst the port authority wants to stimulate intra-port competition, it also wants to retain the autonomy to decide how it allocates land and deals with contracts. Whereas the current legal uncertainty at EU level might allow this approach, it can be questioned whether, in terms of transparency, accountability and predictability, it is an adequate policy. On the other hand, there is the concern that the port authority must be in a sufficiently strong position to match the substantial bargaining power of its tenants.

6.2.3.3. Nautical-maritime service provision: the role of the harbour master

As a nautical-maritime service provider, Rotterdam Port Authority is responsible for nautical traffic management, the safeguarding of public order and safety in the port area, the supervision of transport of dangerous and harmful substances as well as incident prevention. These tasks correspond with the regulatory function we identified earlier and form the core of the public tasks of Rotterdam Port Authority. They largely fall under the responsibility of the harbour master's division.

³⁰ ECT initially wanted to appeal the court's decision, but at the end of 2014 it reached an agreement with the port authority to drop the case (Havenbedrijf Rotterdam 2014).

In 1988, the responsibility for the nautical management of the port's maritime access was transferred from the Dutch State to the port authority. As a result, the harbour master obtained a special status, reporting to both the municipality and the State. Since 1979, the harbour master position had de facto been assumed by the port authority director (Blom *et al.* 1997) and the functions were formally merged in 1983 (Brolsma 2007). Although operational tasks were delegated to a 'real' harbour master, i.e. a senior person with nautical experience, usually a former merchant navy captain, the formal responsibility remained with the port authority management. With an increased focus on economic activities, this mixture of roles and responsibilities was far from optimal.

The situation was modified in 2003. In the corporatisation year, the Dutch State, the city of Rotterdam and the port authority concluded the so-called 'harbour master covenant' which ensured that the public tasks entrusted to the harbour master could be performed independently from the other tasks of the port authority. The covenant outlines in detail the position and appointment of the harbour master, the supervisory framework, financing and financial responsibility, the incompatibility of public tasks and commercial activities, regional cooperation, consultation procedures, information obligations and safeguards for port users (Havenmeester-convenant Rotterdam 2004). The covenant contributed to the clarity of the regulatory and commercial roles of the port authority as well as to overall transparency and accountability.

Public and commercial tasks are nevertheless not fully separated from each other and this will be difficult to achieve as such. Already since the 1970s, Rotterdam Port Authority has made it its explicit task to promote safety, security and environmental-friendliness of port operations. This task came more to the forefront since corporatisation, first and foremost because the port authority needs to secure its own license to operate and grow, which was well illustrated in the cumbersome decision-making process on Maasvlakte 2. But this is also because the port authority perceives global leadership in this field as a competitive advantage³¹. Examples from the post-corporatisation era include initiatives in the field of port security and carbon emissions, such as the Port Facility Security Toolkit³² and the Environmental Ship Index³³. We mentioned earlier that, in its land lease policy, the port authority has also introduced sustainability aspects, for instance through the inclusion of modal shift clauses (Van den Bergen and de Langen 2014). The port authority finds itself here in between its commercial and public role.

³¹ The world leadership role of the port authority was especially outspoken when Pieter Struijs was COO, helped by his prominent role in the International Association of Ports and Harbors (IAPH), the global organisation of port authorities. It often took missionary proportions. At the same time, the port authority tended to complain about the lack of level playing field because competing port authorities did not exactly share the same ambitions.

³² The Port Facility Security Toolkit was designed to enable port facilities to comply with the International Ship and Port facility Security (ISPS) regulations. It was developed initially by Rotterdam Port Authority and then commercialised through AON insurance and consultancy group.

³³ The Environmental Ship Index (ESI) is a tool intended for port authorities to reward environmental-friendly ships, e.g. through reduced harbour dues. It was developed under the leadership of Rotterdam Port Authority, under the auspices of the World Port Climate Initiative (WPCI). WPCI is run by the International Association of Ports and Harbours (IAPH), but was also initiated by the port authority.

6.2.3.4. Participations

The participations of Rotterdam Port Authority are linked to the community manager function we described in Chapter 2. This function has both a commercial and a societal dimension, the latter being most focused on port-city relations.

Commercial participations

To support its key functions, Rotterdam Port Authority has gradually sought to extend its sphere of influence through participations and partnerships both within and outside the Rotterdam port area. Following modest beginnings in the 1970s and 1980s (Blom *et al.* 1997, Doooms *et al.* 2013), commercial participations became part of the port authority's strategy under the management of Scholten, who saw this as one of the reasons to reform the port authority. We mentioned earlier how, in 1999, it was decided to set up a separate company for commercial ventures, Mainport Holding Rotterdam (MHR). A broad and diverse range of participations followed, but the duality between MHR and the port authority did not work (Berenschot 2002). The corporatised port authority pursued a much more cautious course. The bank guarantee scandal and pressure from the Dutch State led to a full sweep of all participations the port authority had become engaged in. Only those were retained (1) that corresponded to the basic tasks of the port authority, (2) were profitable and (3) on which the port authority had influence (Havenbedrijf Rotterdam 2005). This ended participations in such diverse operations as waste incineration, water treatment, energy supply and container haulage.

Since then, the port authority has focused its participations on three areas: (1) other ports, whereby a distinction must be made between neighbouring ports and ports elsewhere in the world (2), hinterland connections and (3) port community projects. MHR was kept as a separate organisation through which most participations were channeled, but not as an active company, rather more as a legal construction. Table 22 gives an overview of the current participations of Rotterdam Port Authority.

Foreign port activities are managed through Port of Rotterdam International (PoRint) and participations are channeled via Mainport Foreign Investments. The purpose of these activities is to offer customers of Rotterdam Port Authority to enter into new markets and thus create a positive contribution to generate traffic flows to and from Rotterdam. In addition, the aim is to attract foreign companies to do business in and with Rotterdam. Next to the existing participations in Oman and Brazil, Rotterdam Port Authority is currently also exploring participations in Indonesia and Romania (Havenbedrijf Rotterdam 2015). Recently, the port authority became responsible for the management of the neighbouring port of Dordrecht. This was done in two phases, initially as a harbour master and, in a second stage, as a full landlord. Since 2014, the port authority is a partner in the development of a new business park near the port area. Similar cooperation talks are currently ongoing with the ports of Vlaardingen and Moerdijk (Havenbedrijf Rotterdam 2015).

Hinterland connection ventures consist of participations in railway, pipeline, inland terminal and road traffic management organisations. The participation in Keyrail, the organisation that holds the concession to exploit the Betuwelijn, the dedicated rail freight line between the port and its German hinterland, was stopped as of January 2015. Together with Amsterdam Port Authority, who held 15% of the shares, the port authority decided to withdraw from the exploitation of the rail freight line because it would better to have one manager for the entire exploitation (Havenbedrijf Rotterdam 2014). Port community participations include the

continuation of participations that existed prior to corporatisation, including the IT port community system Portbase, which was set up in 2009 as a partnership with the port of Amsterdam, but found its origins in Port Infolink, in which the port authority already invested since 2002.

Table 22 – Principal participations of Rotterdam Port Authority – status 2014

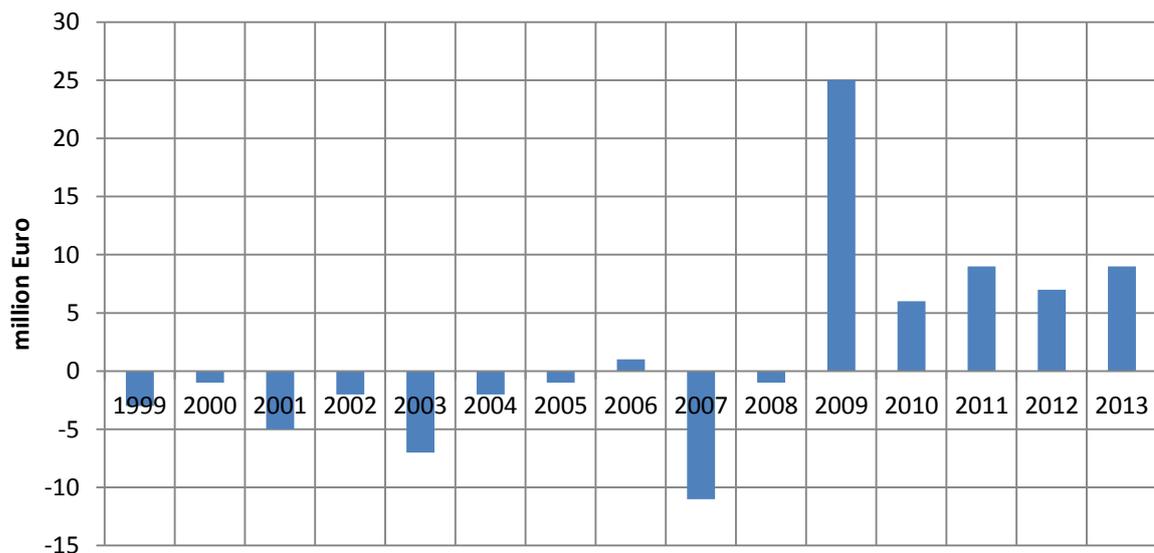
Other ports		
<i>Venture</i>	<i>Nature of venture</i>	<i>Share</i>
Sohar, Oman	Exploitation of port and free zone activities	50%
Porto Central, Brazil	Joint venture for port exploitation	99%
Dordrecht	Nautical management, exploitation and development sea port area (agreement with city of Dordrecht)	
Hinterland connections		
<i>Venture</i>	<i>Nature of venture</i>	<i>Share</i>
Keyrail	Shareholder in exploitation of rail freight line (stopped in 2015)	35%
Multicore	Exploitation of pipeline – joint venture with Vopak	75%
RC2	Exploitation of pipeline – joint venture with ARG	50%
Alpherium	Inland transshipment terminal in Alphen a/d Rijn Landlord role / operations by Van Uden	
Verkeersonderneming	Foundation with City	33,3%
Port community		
<i>Venture</i>	<i>Nature of venture</i>	<i>Share</i>
Portbase	Port Community System – shareholder with Amsterdam Port Authority	75%
Cruise Port Rotterdam	One stop service office for cruise traffic	100%
Royal Dirkzwager	Shipping signaling service	46%

Source: Havenbedrijf Rotterdam (2015)

Summarising, it appears that the objective formulated in 2005 to have a more focused and transparent participation policy has been met. Most of the participations are intended to contribute to innovation-driven competitiveness and strategic value creation (Hollen *et al.* 2013). Although the international participations are still subject to political criticism (‘what is in it for Rotterdam?’), these have evolved from an almost accidental involvement to a matured international expansion strategy that focuses on developing professional partnerships with growing economies (Dooms *et al.* 2013).

Also the profitability objective was met, as Figure 9 illustrates. Financial results from participations have been reported since the establishment of Mainport Holding Rotterdam in 1999. Until 2008 participations were largely loss-making, from 2009 onwards they became profitable. The outlier result of 2009 is due to the sale of one participation.

Figure 9 – Financial result participations Rotterdam Port Authority



Source: Annual Reports Rotterdam Port Authority (figures in real prices)

Societal participations

The original statutes of Rotterdam Port Authority Ltd. included the explicit objective to contribute to urban development, even if such activities would initially be loss-making. To make this objective operational, the development company ‘Stadshavens Rotterdam NV’ (City Ports Rotterdam Ltd.) was established together with the corporatised port authority. The city and port authority were holding the shares on a 50/50 basis. The task of the development company was to direct and transform those port areas that were no longer needed for pure port exploitation into a sustainable combination of port activity, urban economic functions and housing (Ontwikkelingsmaatschappij Stadshavens Rotterdam 2005). During the negotiations about State participation in the port authority, the Dutch government specifically requested that the urban development objective would be dropped. The State believed that this objective was not opportune for a business-oriented company and also demanded that the port authority would discontinue its share in Stadshavens (Havenbedrijf Rotterdam 2005). In the end, port authority and city agreed to dismantle the company and implement the port-city development strategy themselves. A project bureau was set up to ensure coordination. Concrete timings for transferring areas to the city for redevelopment purposes were agreed as well. These were less ambitious than originally planned, given that some of the major city port areas would remain necessary for port activities much longer than initially thought (Gemeente Rotterdam 2006).

Rotterdam Port Authority still engages in city-port projects today, which, similarly to its initiatives on safety and environment, are in the first place meant to secure its license to operate and grow. A multitude of initiatives was developed in the post-reform era, including projects on education and culture. Also here, the port authority wants to promote its leadership role internationally, for instance through the societal integration projects of the European Sea Ports Organisation (ESPO) and the activities of the International Association for Cities and Ports (IACP), although not as outspoken as in the case of safety and environment. As this field is far less regulated, there is also less of a level playing field concern.

6.2.4. Conclusions process

Rotterdam Port Authority has unmistakably become a much more professional and focused organisation during the decade that followed the 2003 reform. The port authority performs its functions in a more transparent and accountable manner, supported by a clear strategic direction. The port authority's hybrid roles as economic operator and regulator are defined more clearly, with safeguards in place to prevent collusion of interests. A professional supervisory board, free from political interference, oversees the activities of the port authority management. The new structure is bound by codes of conduct that further enhance transparency and accountability. Procedures have also been established to prevent the port authority from potentially abusing its dominant position on the provision of infrastructure, by charging excessively high or discriminatory port dues.

The port authority's land lease policy, which provides its other main source of income, is more ambivalent. The port authority has moved on from a monopoly-fostering policy to one which stimulates intra-port competition. But it has stopped short from embracing a fully transparent approach, notably with regard to the systematic and consistent application of open selection procedures. Whilst current uncertainty about the applicability of EU rules on concessions and market access to service providers may provide the port authority with sufficient legal grounds for now, it does not quite establish a transparent and predictable policy. This may expose the port authority's decisions to further litigation from service providers. On the other hand, there is the concern that the port authority must be in a sufficiently strong position to match the substantial bargaining power of its tenants.

The overall improvements in good corporate governance of the port authority are not just the result of corporatisation itself and the positive changes it usually brings along. The corporate form may have set the right framework, but the accession of the Dutch State as shareholder and the management change that came about after the bank guarantee scandal have been very influential as well, if not more so. Whereas the latter brought about a fundamental change in management culture, with a strong focus on integrity, efficiency and transparency, the former helped in establishing clear business-oriented objectives and roles. The downside of having a more cautious and risk-averse management and corporate culture could be that the entrepreneurial potential that the corporate framework allows was not exploited in full to maximise the port authority's influence on competitiveness.

The effect of the State shareholding further illustrates that persistent adherence to governance traditions may be counterproductive. During the reform process, municipal forces perpetuated a sub-optimal configuration which enabled the bank guarantee scandal. This could have been avoided if a clear choice for corporatisation and transparent corporate governance had been made earlier. Furthermore, if municipal resistance against corporatisation would have persisted, fundamental Hanseatic principles could, paradoxically enough, have been scattered through the establishment of a separate management company for Maasvlakte 2, an option which the Dutch government contemplated at some point (GHK International / Berenschot Procesmanagement 2001).

The process analysis finally shows that the reform resulted from a particular cocktail of factors that cannot so easily be transposed to other cases, not even within the same country, as the cumbersome reform process of Amsterdam Port Authority for instance illustrates³⁴.

³⁴ The reform process aimed at corporatising the Amsterdam municipal port authority, similar to the reform of Rotterdam Port Authority. Corporatisation of other Dutch port authorities, such as Zeeland Seaports and Groningen Seaports, not rooted in municipal traditions, went smoother.

6.3. Analysis of economic impact

From the analysis of process we retain that the formal change in the governance of Rotterdam Port Authority, i.e. the transformation from a municipal department into a limited company, is but one influential element. The change of management and reinforced emphasis on corporate culture that came about as a result of the bank guarantee scandal, and the clearer objectives and role that resulted from the Dutch State becoming shareholder, may have been at least as important. As these different elements occurred in a relatively short consecutive timeframe (2003-2006), it is very difficult to disentangle their individual effects. We therefore focus the economic impact analysis on the combined effect of these governance changes. We will first address the economic impact on the port authority itself and then study the impact on the competitiveness of the port of Rotterdam as a whole. Rather than comparing a brief 'before / after' period, we take a longer term perspective, tracing the evolution of selected indicators, where possible, back to 1970, the first year for which separate financial accounts of the port authority are available. This will not only allow us to assess whether the impact of the recent governance changes was exceptional, but it also gives us the possibility to identify potential impacts of other governance changes that occurred in this time period, such as management changes, which we identified earlier as being potentially significant. All graphs in this Section therefore systematically mark the management changes of 1973, 1980, 1992 and 2004. The statistical database we used ends in 2013, the last year under the management of Hans Smits. Financial figures are expressed in real prices of 2013, corrected for Dutch inflation, unless otherwise indicated. Raw data were largely derived from the annual reports of the port authority, but adjusted for comparability reasons, to accommodate changes in accounting and reporting methods over time.

6.3.1. Economic impact on Rotterdam Port Authority

To measure the impact of governance changes on the economic performance of Rotterdam Port Authority as an undertaking, we compare the evolution of output and revenue, profitability and productive efficiency. We follow the methodology of Bilodeau *et al* (2006), which we discussed in the previous chapter.

6.3.1.1. *Output and revenue*

Corporatised public agencies may be expected to seek increase of output and revenue. As long as these are not related to input or costs, output and revenue tell us in fact very little about actual performance improvement. But both indicators have a high perceptive value towards principals and stakeholders. Improvement of output and revenue is often perceived as proof of more businesslike behaviour, widely quoted in annual reports and other publications (Bilodeau *et al.* 2006).

We already mentioned that, taking into account its diverse functions, it is difficult to identify one single output indicator for a port authority. Rotterdam Port Authority has in the past reported, for internal purposes, the volume of 'primary tasks' carried out by its employees (Gemeentelijk Havenbedrijf 1993a), but these figures were not consistently available for the period of our analysis, nor were we able to trace the calculation method.

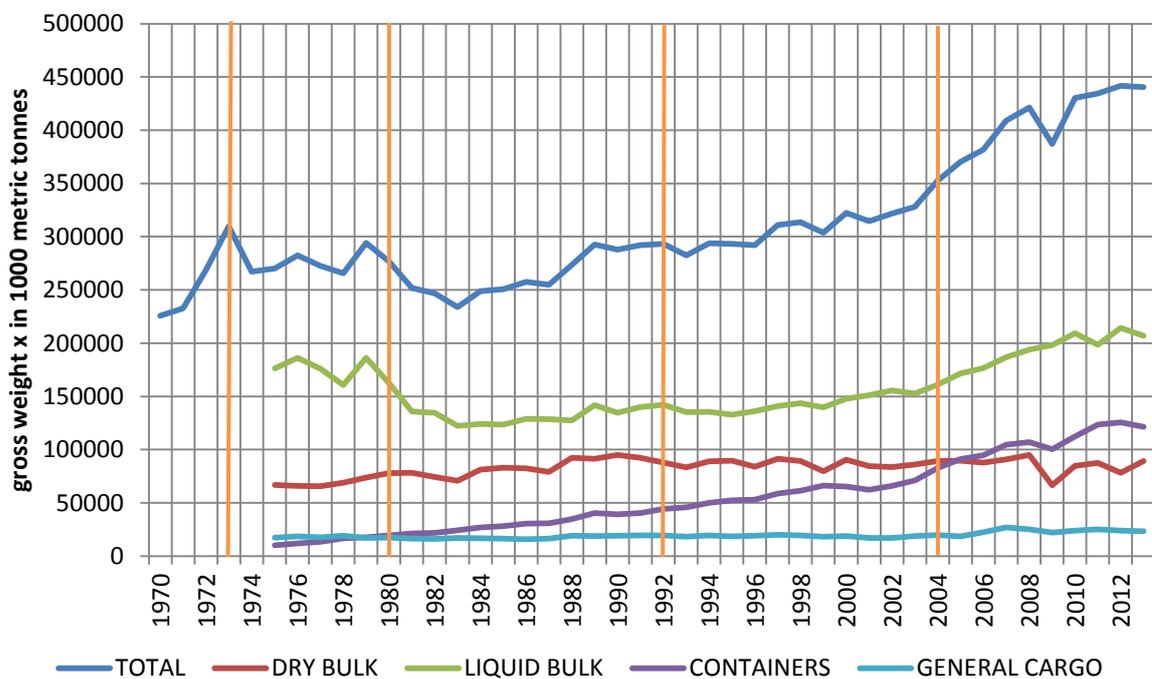
Most port authorities appear to measure their output 'successes' by the volume of cargo or passengers moving through the port. Attributing growth in cargo volume to the performance of a landlord port authority would first of all assume that the port authority has persuasive

powers to influence the performance of terminal operators and service providers and that it is, by itself or in cooperation with the port community, able to attract more business to the port as such.

Figure 10 shows the evolution of cargo volumes handled at the port of Rotterdam. It demonstrates that the evolution of total volume is to a large extent influenced by the evolution of liquid bulk cargo, a rather captive market for Rotterdam, and of containerised cargo, which has seen consistent growth. The evolution of dry bulk and general cargo has been much flatter.

Whereas the graph may give the impression that cargo volumes significantly increased in the years after corporatisation, we must note that this coincided with a period of exceptionally strong growth in seaborne trade and, especially, containerised trade. The sky seemed the limit, with double-digit growth figures, until the economic effects of the 2008 financial crisis set in (Rodrigue *et al* 2011).

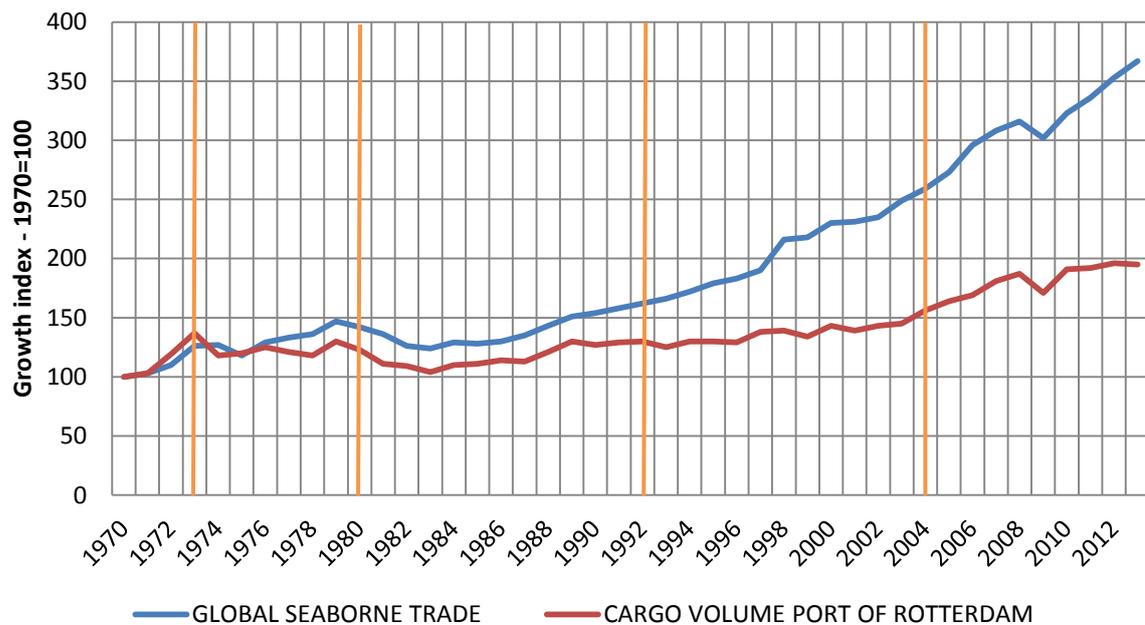
Figure 10 – Cargo volumes handled at port of Rotterdam



Source: Annual Reports Rotterdam Port Authority

Figure 11 compares growth indices for total cargo volume at the port of Rotterdam with the growth indices for global seaborne trade, with 1970 as base year. There is a remarkably parallel evolution until 1989, after which global seaborne trade starts growing much faster. Still, we notice how, particularly as of 1999, the pattern of global seaborne trade growth is reflected in the growth pattern of Rotterdam cargo volumes as well. Upward and downward movements tend to appear in parallel. The impact of global economic events is visible overall, such as the first and second oil crisis, the recession of the 1980s and the recent financial and economic crisis. Since 2010, global seaborne trade however appears to have picked up better than the Rotterdam cargo volumes, which remained relatively flat since.

Figure 11 – Growth world seaborne trade and growth cargo handled at port of Rotterdam



Source: UNCTAD / Annual Reports Rotterdam Port Authority

This example shows it is problematic to relate the aggregated evolution of cargo volume in the port of Rotterdam to governance changes. Other factors, not in the least the overall evolution in seaborne trade, have had simultaneous influences. It would serve little purpose here to apply statistical methods to isolate the effect of seaborne trade, as it will remain difficult as such to directly attribute growth in cargo volume to the performance of the port authority.

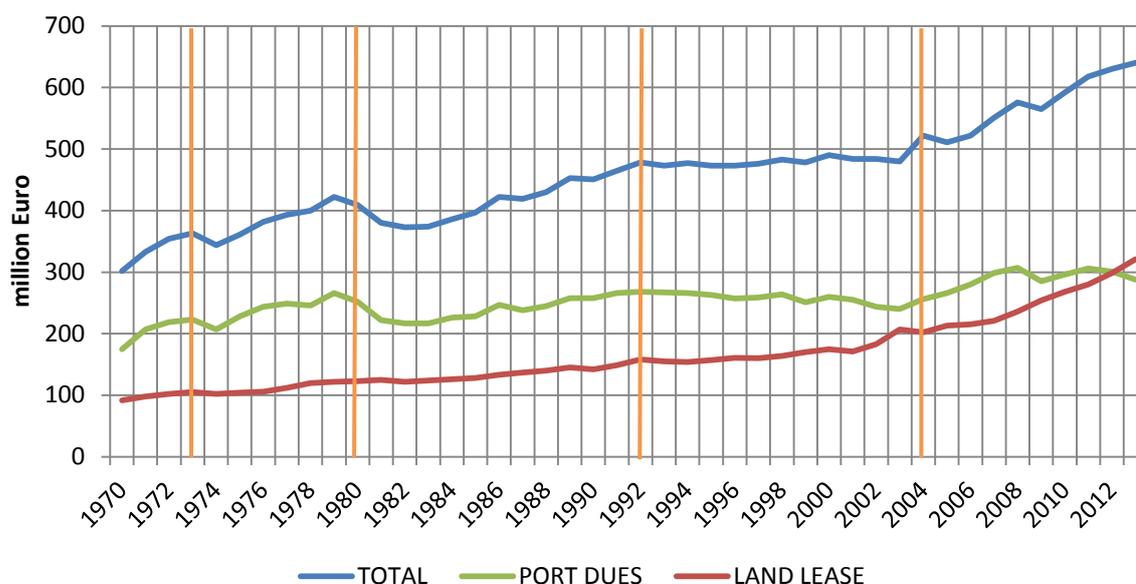
The revenue collected by a port authority may be more directly attributable to its own performance, although especially revenue from port dues will also be influenced by overall evolution in cargo volume and the number and size of ships calling at the port, elements which are themselves influenced by trade and other factors. Next to revenue from port dues, revenue from land leased to terminal operators and industrial companies forms the other main source of revenue of Rotterdam Port Authority. In addition, minor revenue flows come from port dues collected from inland barges and from ancillary service charges. Figure 12 shows the evolution of total revenue as well as revenue from maritime port dues and from land lease.

If we zoom in on the management period 1992-2004, we notice that revenue from port dues slowly decreases, whereas income from land lease largely continues the trend from the 1980s, with a stronger increase in 2002/2003. This is remarkable, since the activity in the port, upon which port dues are based, increased, whereas the surface of land, upon which rent is based, did not grow significantly in this period. The pattern becomes even clearer in the post-corporatisation era, where revenue from land lease sees its strongest increase ever. Total rented surface in the port however did not grow significantly during this period. Major expansion projects like Maasvlakte 2 only had their first tenants in 2013.

Lack of a proper output indicator does not allow us to confirm the expectation that Rotterdam Port Authority would seek to increase output. But the above findings do provide

prima facie evidence that the port authority increased its revenue in the post-reform period, especially from land lease activities.

Figure 12 – Revenue Rotterdam Port Authority



Source: Annual Reports Rotterdam Port Authority

Feedback received from Rotterdam Port Authority³⁵ confirmed the substantial increase in land lease revenue, compared to a relatively modest increase of rented surface (16.5% from 2004 to 2013) but the port authority does not attribute this to a new pricing policy that would result from corporatisation. The main explanation appears to lie in the fact that a substantial number of long-term lease contracts came up for review in the years after corporatisation. In such review processes rents are in principle adapted to the current economic value of the site³⁶. For long-term contracts, reviews generally occur every 25 years and would also have taken place if the port authority had not been reformed. In addition, additional surface that did become available during the observation period mostly occurred in better paying segments such as containers and independent tank storage. The port authority did also invest significantly in these areas, which would explain why rents are higher than in older port areas. The scarcity of available land in the years prior to Maasvlakte 2 coming on stream would also have had an upward effect on prices. We will return to this issue in Section 6.3.2.2, where we address the potential impact of governance changes on cargo handling costs.

6.3.1.2. Profitability

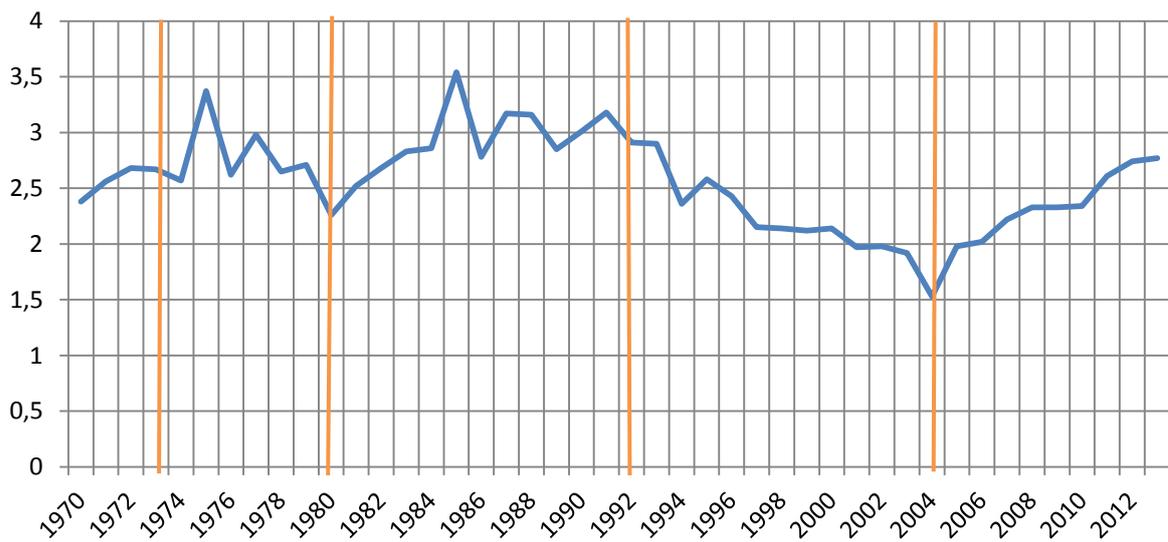
According to Bilodeau *et al* (2006), reform is likely to make public agencies more conscious about profitability in a broad sense. The authors use the expenditure coverage ratio as indicator to measure this, since many public agencies do not have the potential to make profit in the private sector sense. In the case of Rotterdam Port Authority, we can add profit as such, since corporatisation has led to an increasingly commercial approach to port development (De Langen and Heij 2014).

³⁵ Feedback received by email, on 27 July 2015.

³⁶ In some cases this is done with the help of independent valuation. Rents are also indexed annually, but that effect is filtered out in Figure 12, as we have used revenue figures corrected for inflation.

The revenue-to-expenditure ratio of Rotterdam Port Authority is presented in Figure 13. It compares total revenue to operational expenditure. Governance changes appear to have had an influence. Notably the difference between the 1992-2004 and 2004-2013 management periods is remarkable. The ratio immediately drops after the 1992 management changeover and deteriorates further until the deepest point is reached in 2004, which is the result of provisions made for the claims related to the bank guarantee scandal (Havenbedrijf Rotterdam 2005). The ratio gradually re-establishes itself over the next management period, interrupted briefly in the crisis years 2009-2010. The figure also shows that, although more erratic, high ratios were frequently achieved until the late 1980s. Whilst the 2004-2013 management period clearly demonstrates a better expenditure coverage ratio, the ratio did so far not reach the peak levels that were obtained in the 1970s and 1980s.

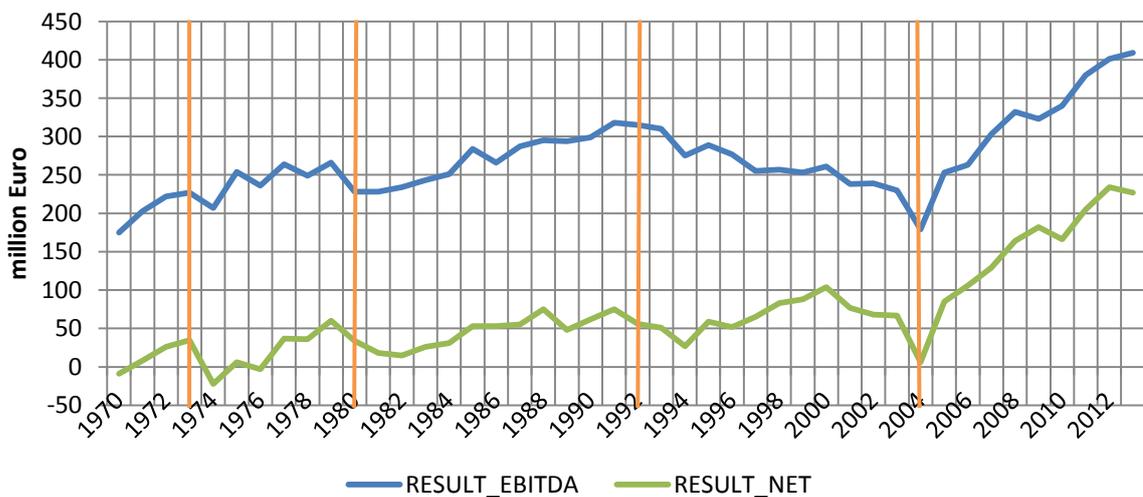
Figure 13 – Revenue-to-expenditure ratio Rotterdam Port Authority



Source: Annual Reports Rotterdam Port Authority

Figure 14 shows the evolution of profit, expressed in EBITDA (earnings before interest, taxes, depreciation and amortization) and net profit.

Figure 14 – Profit of Rotterdam Port Authority



Source: Annual Reports Rotterdam Port Authority

The evolution of the EBITDA figure again underlines the marked difference between the 1992-2004 and 2004-2013 management periods: decline in the former and strong growth in the latter. Net profit develops better in the 1990s than EBITDA, but also takes a disproportional boost after 2004. EBITDA and net profit show a general upward movement in the 1970s and 1980s, but not at the same pace and level as in the period 2004-2013.

We must be cautious in fully attributing the increased profitability of the post-reform period to governance changes, given that increased revenue, mainly from land lease, is one of the explanatory factors. As mentioned above, the port authority holds that this increase, notably due to the review of existing long-term contracts and expansions in better paying market segments, would largely have occurred regardless of governance changes.

The use of the port authority's profit has changed considerably over time. As long as the port authority did not have its own financial accounts, the entire profit landed in the coffers of the city. From the mid 1970s onwards, the level of the contribution that the port authority made to the city varied. For some years it was fixed, other years it was based on turnover and sometimes it was just negotiated. But the overall level went upward (Brolsma 2007). The 1999 'package deal' re-established a fixed annual contribution. Corporatisation led to a dividend policy, which was modified when the Dutch State became shareholder. Currently, shareholders of the port authority receive a percentage related to the capital contributed, which is indexed annually. The dividend is shared according to shareholders' importance: the municipality receives 70 5/6%, the State 29 1/6% (Ministerie van Financiën 2014).

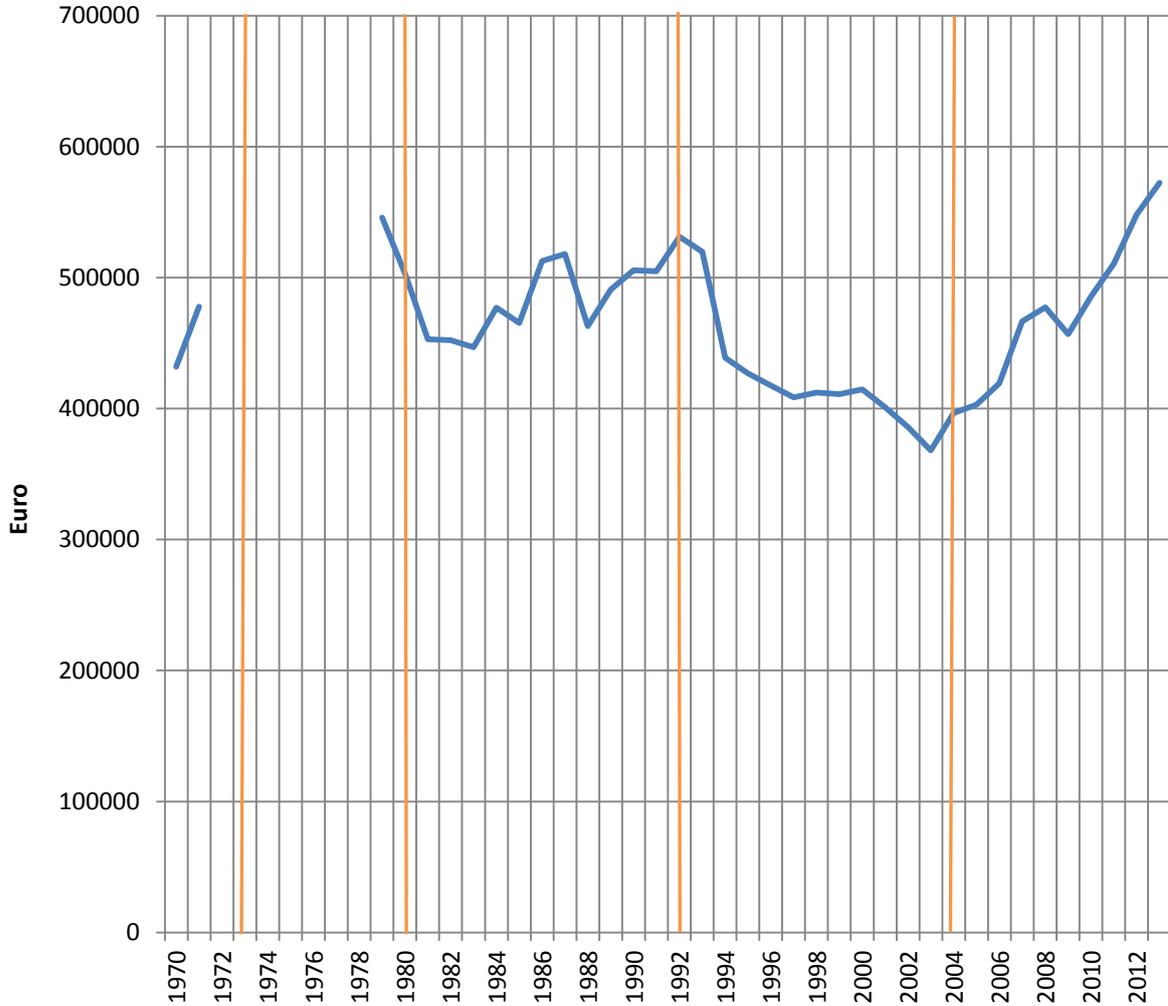
6.3.1.3. Productive efficiency

Productive efficiency has two components: technical efficiency, which compares output to input, and cost efficiency, which compares expenditure to output (Lypczynski *et al.* 2009). Bilodeau *et al.* (2006) expect that public agencies will improve both following reform. In the case of port authorities, we again encounter the problem that we do not have a proper output indicator. We use the revenue of Rotterdam Port Authority as a proxy, which, as we indicated earlier, is not a perfect solution. We will focus on technical efficiency, since cost efficiency, relating revenue to expenditure, was already analysed in Section 6.3.1.2. Port authorities usually have the three traditional input factors – labour, land and capital – at their disposal, in the form of their own employees, the port land they own or administer and rent out to third parties, and the investments they make. We limit ourselves here to comparing revenue to employees. The revenue to land ratio will be addressed in Section 6.3.2.2, as part of our analysis of cargo handling costs. Comparing revenue to investments would give a misleading picture, given the significant time-lags that occur between revenue generated and investments made.

Figure 15 relates the total revenue of Rotterdam Port Authority to the staff it employs, measured in total number of people employed at the end of the year. Comparable employment figures could not be found or reconstructed for the years 1972 to 1978. After demonstrating an erratic pattern in previous years, with a particular dip in 1988 due to the take-over of nautical employees of the State, the Scholten management era sees a rapid deterioration of the ratio, which is due to a combination of a rather flat revenue stream and increased staff numbers. The big dip in 1994 can be explained by the transfer of the port maintenance staff from the Municipal Works Department to the port authority (Brolsma 2007). The ratio shows its absolute depth in 2003, the reform year. Under the management of Smits, the ratio improves considerably and, after a brief decrease in the crisis year 2009, climbs further to levels that were not recorded before.

Again, we must be careful in attributing the effect fully to governance changes, given that the increase in revenue from land lease would largely have occurred anyway.

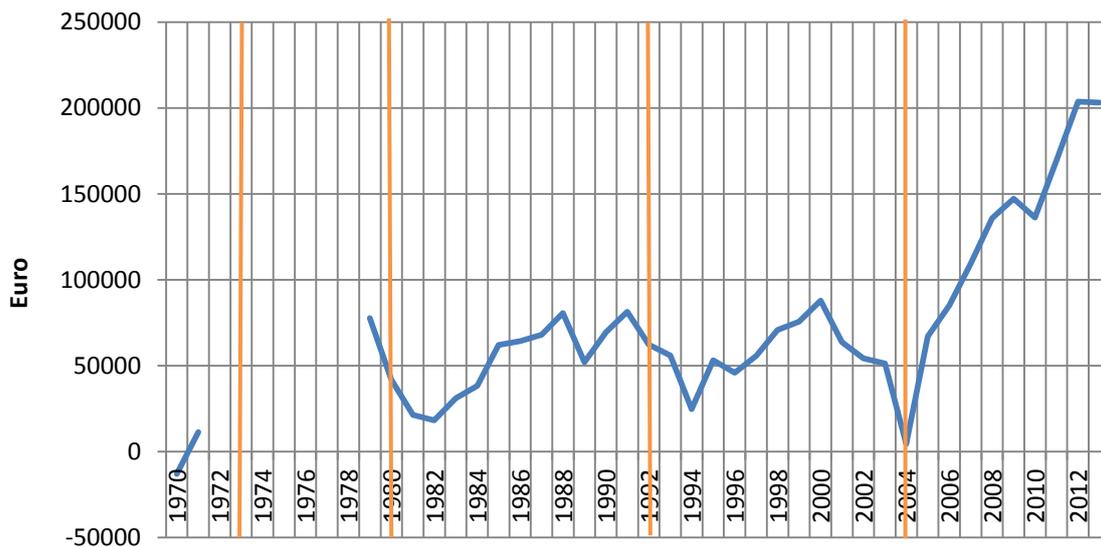
Figure 15 – Revenue to employee ratio Rotterdam Port Authority



Source: Annual Reports Rotterdam Port Authority

De Langen and Heij (2014) also compare (net) profit per employee, which produces spectacular results in the period following the 2003/2004 governance changes, as Figure 16 illustrates. Apart from the influence of decreasing staff numbers, they also suggest that the quality of staff may have improved, due to an inflow of senior managers with a commercial background, which may lead to a stronger market orientation after corporatisation, with potential effects on the performance of the port authority.

Figure 16 – Net profit per employee Rotterdam Port Authority



Source: Annual Reports Rotterdam Port Authority

6.3.2. Economic impact on the competitiveness of the port of Rotterdam

In this Section we attempt to identify the particular influence that governance changes had on the overall competitiveness of the port of Rotterdam. As discussed in Chapter 5, we start from the assumption that port management reform increases demand for the port product, by decreasing the generalised cost of moving cargo or passengers through the port, thereby taking into account that factors that are beyond control of a port authority influence the competitiveness of a port as well.

The concept of generalised cost involves monetary, out-of-pocket, costs and non-monetary costs. The main out-of-pocket costs associated with a port call can generally be divided in two categories: (1) port dues, i.e. the charges levied to the ship and/or cargo for the general use of port infrastructure, (2) port service charges, which essentially include charges for cargo and passenger handling and for so-called technical-nautical services (pilotage, towage and mooring). We do not consider other, mostly minor, charges that are usually included in a vessel's disbursement account, such as customs clearance, waste reception facilities, stores and provisions, crew expenses, repairs and agency costs. Non-monetary costs traditionally include costs of time, risk and reliability.

Limited data availability prevented us from fully quantifying the generalised costs. This is why we complement the analysis with an assessment of market share and customer satisfaction, other indicators that may tell us something about of the impact of governance changes on the competitiveness of the port.

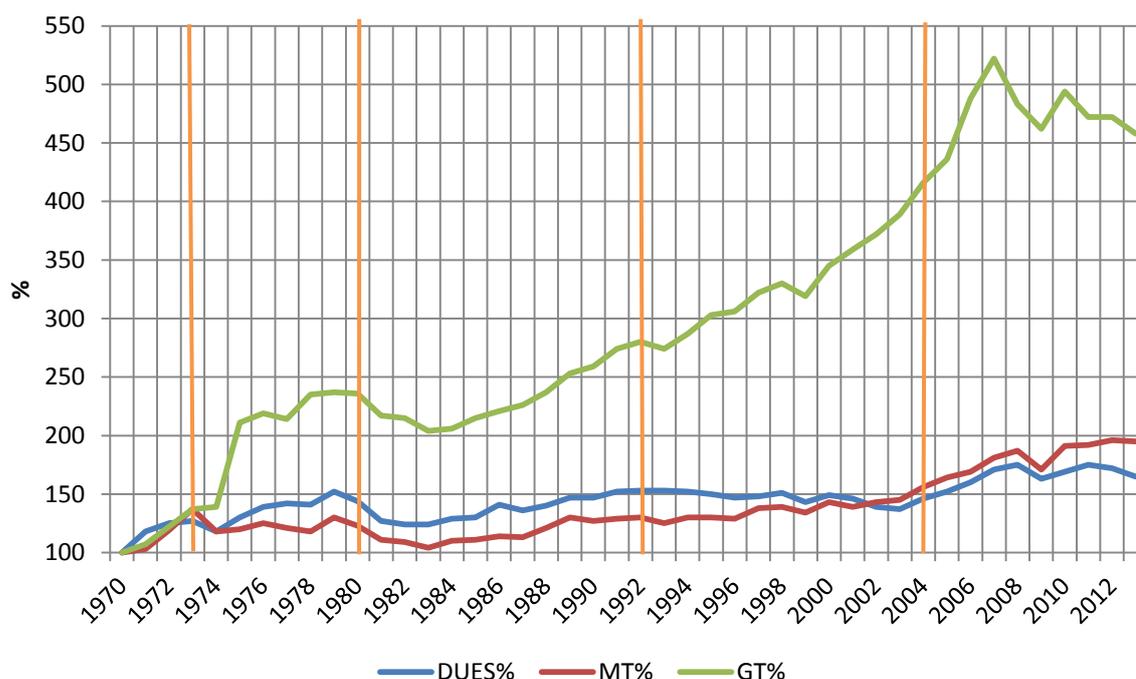
6.3.2.1. Port dues

The influence of Rotterdam Port Authority is obviously very high on port dues, as these are autonomously set, negotiated and charged by the port authority. We already mentioned that this autonomy largely existed prior to corporatisation. The mandate of the director-general of the port authority on tariff policy was extended in 1995, 1997 and 1999. In 1997, port dues furthermore stopped being qualified as fiscal retributions, which substantially added to

flexibility (Brolsma 2007). We further recall that self-regulatory measures were introduced in the post-corporatisation era to ensure port dues became more transparent and user-oriented.

Port dues in Rotterdam are calculated according to the type of vessel service (liner / tramp), the type of ship, the time spent in port, the gross tonnage of the ship and the tonnes of cargo discharged/loaded. Various forms of rebates exist (Havenbedrijf Rotterdam 2015). The combination of ship's tonnage and cargo volume has always been used as a calculation basis (e.g. Havenbedrijf der Gemeente Rotterdam 1971), but we were not able to trace how the calculation method exactly evolved over time. Comparing average dues over time is therefore difficult as we cannot establish to what extent ship's and cargo tonnage contribute to the revenue generated from port dues. That is why, in Figure 17, we have chosen to compare the growth in port dues' revenue with the growth in cargo volume and the growth in ship's tonnage, with 1970 as base year.

Figure 17 – Growth in revenue port dues, in cargo volume (MT) and ship's tonnage (GT)



Source: Annual Reports Rotterdam Port Authority

We notice that, in the early 1970s, the growth of revenue, cargo volume and ship's tonnage evolved in parallel. Ships' tonnage sharply rises in 1975 and, after a brief lull in the early 1980s, sees an exponential growth until the economic crisis of 2008 set in. This growth is nearly entirely due to scale increase, since the number of ships calling at the port of Rotterdam remained fairly stable over the entire period (revolving around 30,000 per year). The graph further shows that, from the 1970s, revenue growth follows a similar pattern to cargo growth. The pattern changes from the mid-1990s onwards, when revenue growth stabilises and even declines, whilst both ship's tonnage and cargo volume continue to grow. This concurs with the period in which port dues were de-fiscalised and the port authority management was given greater autonomy on tariffs. This would have led to a rather arbitrary policy of commercial reductions (Brolsma 2007). From 2003 onwards, revenue from port dues grows again in line with cargo volume, albeit at a slightly lower pace. We can conclude that governance changes appear to have had a particular impact from the mid-1990s, when greater flexibility in the setting of port dues was introduced. The structured users'

consultation procedures which were introduced after corporatisation furthermore seem to have succeeded in keeping port dues in tune with market developments³⁷.

Table 23 compares growth for the period 2005-2013 in port dues' revenue, ships' tonnage and cargo volume of Rotterdam with that of its immediate competitors Antwerp and Hamburg. Both ports also use ship's tonnage and cargo volume to calculate port dues. We used revenue figures in nominal prices.

Table 23 – Growth 2005-2013 in revenue port dues, ship's tonnage and cargo volume – ports of Antwerp, Hamburg and Rotterdam (revenue figures in nominal prices)

	Antwerp	Hamburg	Rotterdam
Revenue port dues	+ 35%	+ 51%	+ 26%
Ship's tonnage	+ 33%	+ 29%	+ 5%
Cargo volume	+ 19%	+ 11%	+ 19%

Source: Annual Reports Port Authorities, own calculation

We notice that, from 2005 to 2013, the revenue generated from port dues grew relatively more in Hamburg and Antwerp than in Rotterdam, whereas growth in cargo volume was the same (Antwerp) or lower (Hamburg). Growth in ship's tonnage was considerably higher for Rotterdam's competitors though. As we cannot determine the exact influence of tonnage or cargo on port dues revenue, it is difficult to conclude exactly how Rotterdam scores against its immediate competitors. But it would appear that Rotterdam Port Authority has not excessively increased revenue from port dues, compared to the port authorities of Antwerp and, especially, Hamburg, where revenue from port dues has grown more than proportionally to growth in cargo volume and ship's tonnage.

This being said, we should also compare the actual level of port dues in Rotterdam with that of its neighbours. Analyses carried out shortly after corporatisation (Charles River Associations 2004, Nationale Havenraad 2006) concluded that, generally, Rotterdam is by far the most expensive port in the Hamburg-Le Havre range. Differences in port dues appeared to increase with the size of vessels. These reports confirmed a widely held perception that Rotterdam is an expensive port, which may be due to the willingness of port users to pay for quality differences, to the market power of the port authority, to State aid measures available to competing ports or a combination of these factors (Charles River Associates 2004, Nationale Havenraad 2006).

The findings of Table 23 would imply that, since 2005, the gap between the level of port dues in Rotterdam and its competitors Antwerp and Hamburg has not substantially widened, possibly even narrowed, e.g. with Hamburg. A full-scale analysis, which falls outside the possibilities of our research effort, would be needed to confirm this conclusion. We however did try to update a comparative exercise carried out in 2005 by the Dutch National Ports Council, using 2014 tariffs for a similar size container vessel, on the basis of the simulation model developed by the University of Antwerp (Van Hassel *et al.* 2014). Table 24 presents the results, in nominal prices.

³⁷ As a result of these consultations, the port authority has been giving 'crisis rebates' on port dues since 2008. To further encourage market recovery it decided in November 2014 to increase its tariffs with half of the inflation percentage, with a maximum of 1% per year and this for a period of three years (Havenbedrijf Rotterdam 2014).

Table 24 – Comparison of port dues container vessel Antwerp, Hamburg and Rotterdam (in nominal prices)

Year	Features ship	Antwerp (EUR)	Hamburg (EUR)	Rotterdam (EUR)
2005	53359 GT / 4250 TEU 750 TEU out / 750 TEU in	14256	9711	24515
2014	46814 GT / 4000 TEU 782 TEU out / 782 TEU in	13991	10349	18043

Sources: *Nationale Havenraad (2006); Van Hassel et al (2014)*

The comparison shows that Rotterdam port dues remain relatively higher, but the gap with Antwerp and Hamburg became smaller. This comparison cannot be generalised and should take into account the fact that average ship sizes have increased significantly since 2005. That makes the ship types selected in 2005 less representative in 2014. But the comparison does provide some support for the above-cited thesis that, in terms of port dues, Port of Rotterdam has not become substantially more expensive after reform.

6.3.2.2. Handling

As a landlord, Rotterdam Port Authority has a contractual relationship with cargo handling companies³⁸³⁹. These companies lease plots of land from the port authority, for which they pay rent in return. Cargo handling costs generally constitute the most important out-of-pocket cost of a port call. By charging rent to cargo handling companies, the port authority has a direct influence on their costs and, indirectly, on what they charge to shipping companies. We also refer to the observation made earlier that there is a strong relationship between port dues and land leases. A port authority which ‘owns’ both the land and port access rights can substitute between the two and, in theory, extract locational rents by setting high lease prices, high harbour dues or a combination of both. Moreover, for a given rent the port authority will always prefer a tenant that generates harbour dues to one that does not. The assessment made for the Dutch competition authority showed that Rotterdam Port Authority was well aware of the link between tenant pricing and harbour dues (Charles River Associates 2004).

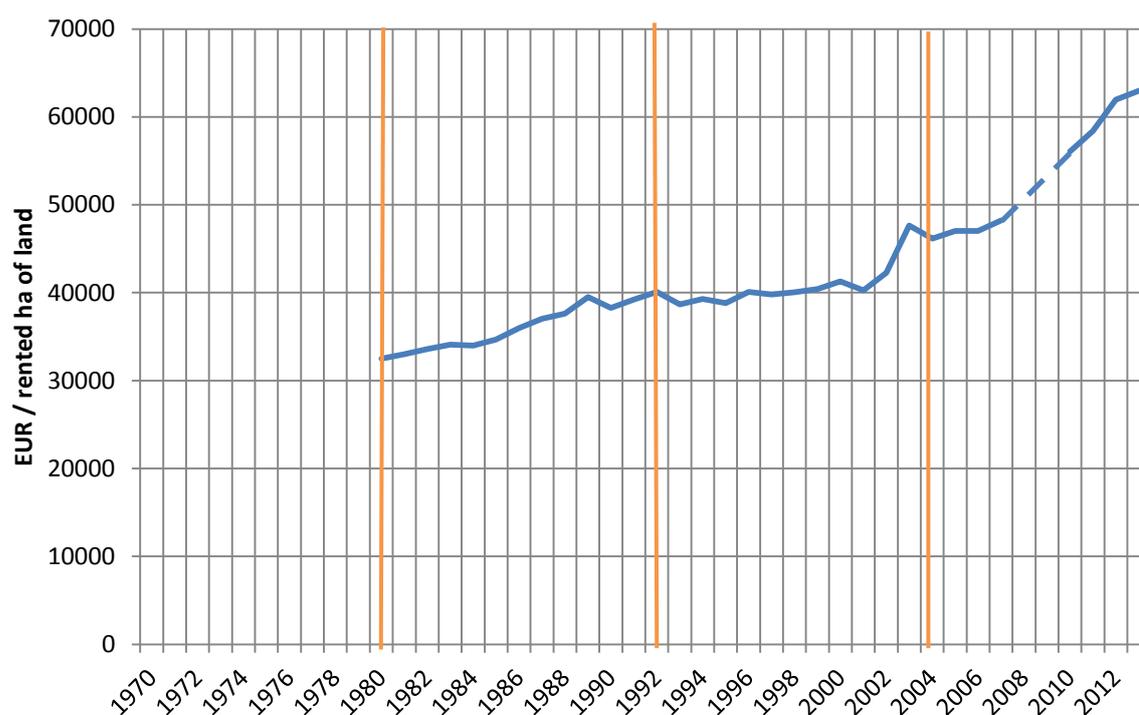
We recall from Section 6.2.3.2. that, following governance changes and in view of new contracts for Maasvlakte 2, Rotterdam Port Authority changed its land lease policy, by focusing more on the stimulation of internal competition between operators in the port and influencing efficiency through the use of performance indicators. We further recall from Section 6.3.1.1 that revenue from land lease especially increased in the last decade, and surpassed port dues as the main source of income of the port authority.

Figure 18 traces the average land lease revenue, per ha of rented surface. Whereas revenue figures were available for the entire observation period, data on rented surface could only be consistently found as of 1980. Exact figures for rented surface were again missing for 2008 and 2009. We assume the evolution was linear.

³⁸ As the port handles limited passenger traffic, we only consider cargo handling costs here.

³⁹ Rotterdam Port Authority itself does not own the port land, but holds it in perpetual leasehold (‘erfpacht’) from the municipality of Rotterdam.

Figure 18 – Average revenue from land leased in port of Rotterdam



Source: Annual Reports Rotterdam Port Authority

The graph shows that average revenue from land lease grew steadily during the 1980s and remained almost constant during the 1990s. The average figure increased significantly in 2002-2003 and, after a few years of quasi status quo, rose again steeply from 2007 to 2012. This means that, on average, rents became much more expensive.

We recall that the port authority does not attribute this to a new pricing policy that would result from corporatisation. The main explanation appears to lie in the fact that a substantial number of long-term lease contracts came up for review in the years after corporatisation, combined with the availability of scarce, new surface in better-paying market segments, such as containers and tank storage. This explanation matches with the assessment made in 2004 for the Dutch competition authority, which observed that the possibility for the port authority to exercise market power was limited by the long-term nature of existing lease agreements and the (lack of) availability of land for new tenants. The analysis concluded that, given these restrictions, there would not have been much scope for the port authority to exercise its potential market power before 2007 (Charles River Associates 2004). Figure 18 shows that average rent prices increased significantly as of that year. It would thus appear that the port authority indeed has market power when it comes to the leasing out of new surface, and that it effectively was able to exercise that power. It should be noted however that the port authority's market power for reviewing existing contracts is limited, because most contracts have renegotiation clauses that constrain reviewed prices for existing tenants by what has been agreed on with comparable new tenants (Charles River Associates 2004).

Table 25 compares the situation in Rotterdam with Antwerp and Hamburg, in 2005 and 2013. The comparison is restricted because comparable figures for the rented surface could only be obtained for 2013. We can observe that the growth in revenue from land lease between 2005 and 2013 was higher in Rotterdam than in Hamburg and, especially, Antwerp.

The comparison with Antwerp is moreover remarkable, because a major expansion project in a high-paying market segment (Deurganckdok) was put into phased use as of 2005. In 2013, Antwerp furthermore appears to be, on average, the least expensive of the three ports. The analysis made for the Dutch competition authority found that, already prior to corporatisation, Rotterdam Port Authority charged more than what was asked for comparable sites at other ports in the Hamburg-Le Havre range (Charles River Associates 2004). This would give further support to the claim that corporatisation may not have had much impact on land lease pricing policy.

Table 25 – Comparison land lease revenue Antwerp, Hamburg and Rotterdam (in nominal prices)

	Antwerp	Hamburg	Rotterdam
Growth total revenue land lease 2005-2013	+ 38%	+ 65%	+ 74%
Average revenue land lease 2013 (EUR/ha)	30,933	45,503	62,966

Source: Annual Reports Port Authorities, own calculations

The effect of rents on cargo handling out-of-pocket costs cannot be derived in a straightforward manner, as land lease revenue is not just obtained from cargo handling companies, but also from industrial and logistics sites. A more detailed analysis of land lease pricing policies and tariffs of the three ports would therefore be needed to get a fuller picture. It is also important to address the potential impact of public financing, which appears to be more systematically available in Antwerp and Hamburg (RHV Erasmus Universiteit / Ecorys 2014).

6.3.2.3. Technical-nautical services

Technical-nautical services include pilotage, towage and mooring. Rotterdam Port Authority used to provide pilotage services in the port area until 1988. Today, the port authority is not directly providing any of these services, nor does it have contractual relations with the service providers involved that could have a direct influence on their service charges.

Pilotage services in the Rotterdam port area are provided by the regional department Rotterdam-Rijnmond of the Dutch Pilots' Corporation 'Nederlands Loodswezen', a private corporation of self-employed pilots which holds a monopoly position in all Dutch ports since 1988. Until 2008, pilotage tariffs were established by the Ministry of Transport, which consulted the pilots' corporation, port authorities and port users. Since then, tariffs are annually established by the Dutch competition authority (now called Authority for Consumers & Markets - ACM), based on a proposal of the pilots' corporation. ACM thoroughly assesses this proposal, taking into account input from stakeholders, including port authorities. Until recently, pilotage tariffs were differentiated from port to port. In 2014 a uniform tariff structure was introduced for all Dutch seaports.

Towage services in Rotterdam have traditionally been provided by private service providers. Following a long-standing monopoly, the market gradually opened from the late 1980s onwards. Towage providers set their tariffs autonomously. Towage services are however scrutinised by the Authority for Consumers & Markets, who dawn-raided some of the Rotterdam towage companies in November 2014 for alleged price agreements (Het Financieele Dagblad 2014).

Mooring services are exclusively provided by the Koninklijke Roeiersvereniging Eendracht (KRVE). The Rotterdam port bye-laws include conditions to provide mooring services. These bye-laws were relaxed in 2001 to allow competition, which did not have much effect other than a short-lived entry of a competing company. From 2002 onwards the de facto monopoly of KRVE continued. The port bye-laws do not cover pricing.

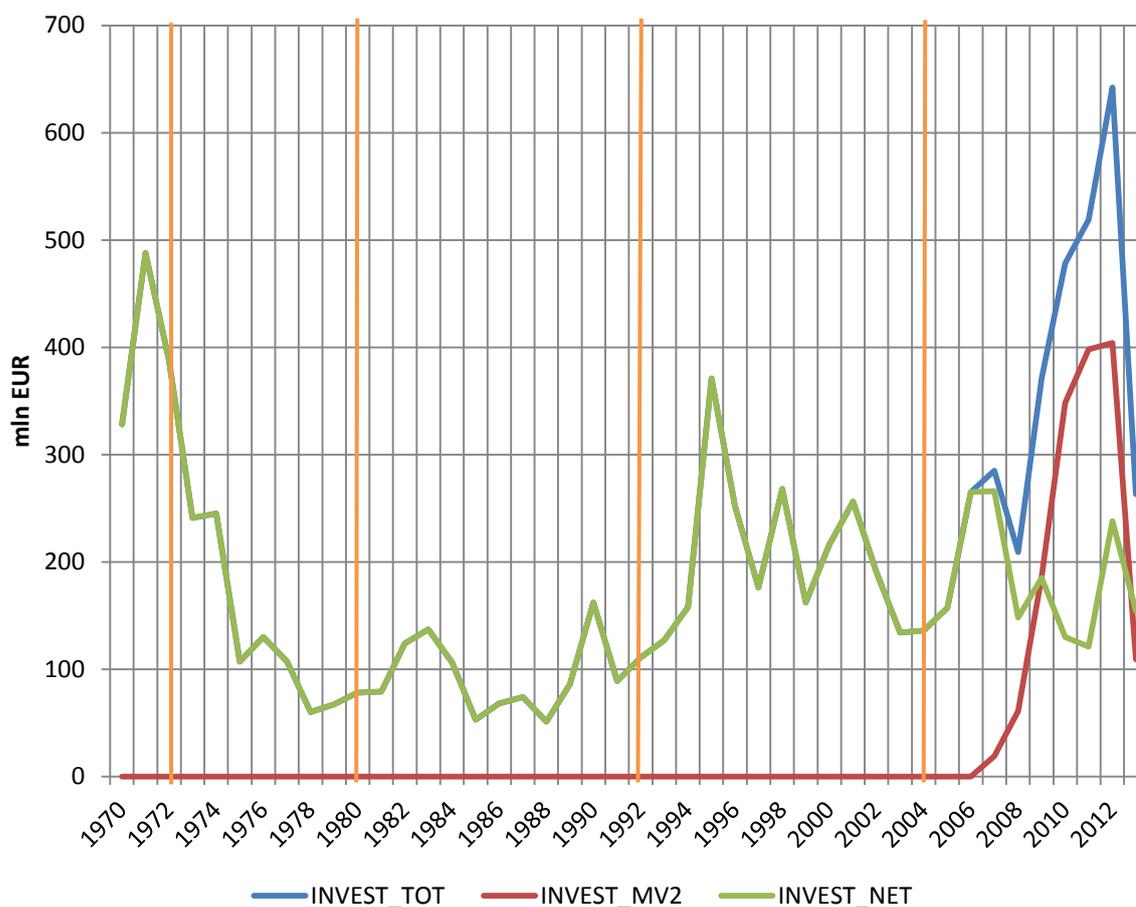
6.3.2.4. Time costs

Time-related costs are threefold: the time ocean carriers spend in port, the time inland carriers spend in port and the time-related costs incurred by shippers while their shipments are in port. Time-related costs do not fully depend on the port authority, but it has a high potential to reduce these costs, by investing in adequate infrastructure and hinterland connections, information systems and catalyst actions to reduce waiting times.

Corporatisation is a means to improve the investment capability of a port authority, providing better access to private capital markets and enabling capital increase from shareholders. In the case of Rotterdam, we recall that corporatisation was put forward as a condition to secure financial support for the Maasvlakte 2 expansion project from the Dutch State, who became shareholder of the port authority.

Figure 19 shows the evolution of the investments the port authority made since 1970. From 2006 onwards a distinction is made between investments in Maasvlakte 2 and other projects.

Figure 19 – Investments of Rotterdam Port Authority 1970-2013



Source: Annual Reports Rotterdam Port Authority

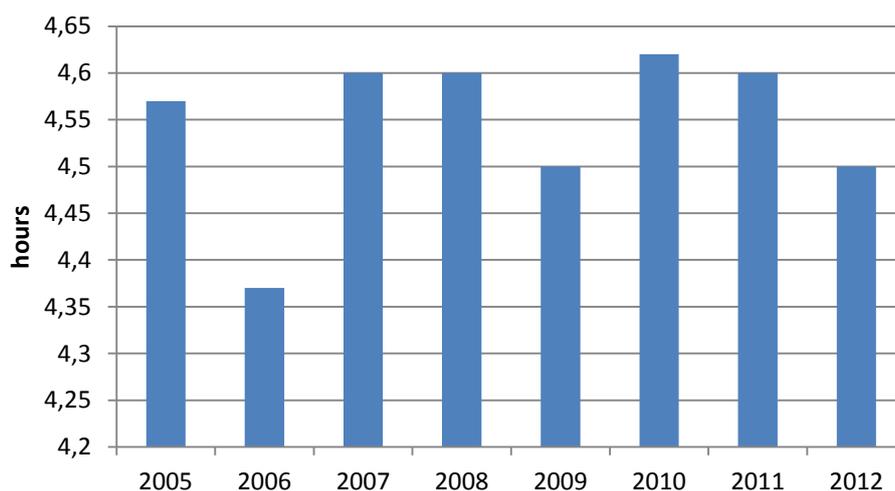
Whilst the investment in Maasvlakte 2 remains exceptionally high, the graph shows that high levels of investment occurred in the pre-corporatisation era as well, especially in the early 1970s and mid 1990s. The figure illustrates very well how the early 1970s mark the end of the expansionist era that was characteristic for the post-war period and the 1960s. Investments remained fairly modest during the subsequent two management periods, mainly influenced by oil crises, recession as well as a change in societal and political priorities (Brolsma 2007). Investments picked up again in the early 1990s. The spectacular rise after corporatisation is entirely due to Maasvlakte 2. The regular investments show a pattern which is similar to the years prior to corporatisation.

As the first phase of the new port area only became operational in 2013, we cannot measure the impact that the investments in Maasvlakte 2 have had on time-related costs⁴⁰.

Unfortunately, neither do we dispose of adequate data to fully measure the impact other hard- and software investments have had on time-related costs. During the last decade, the port authority did publish statistics for the time ocean carriers spend in port, but this only allows us to see the evolution in the post-reform period.

From 2005 to 2012, Rotterdam Port Authority published average vessel Turn Around Times (TAT) for ships of minimum 150 meters length. The average sailing time is measured in hours from sea to berth and vice-versa. The TAT thus indicates the average time vessels need to access their destination inside the port and return back to sea and excludes the actual time spent at berth. Figure 20 compares the average TAT for the period 2005-2012.

Figure 20 – Average Turn Around Time ocean-going vessels Port of Rotterdam 2005-2012



Source: Annual Reports Rotterdam Port Authority

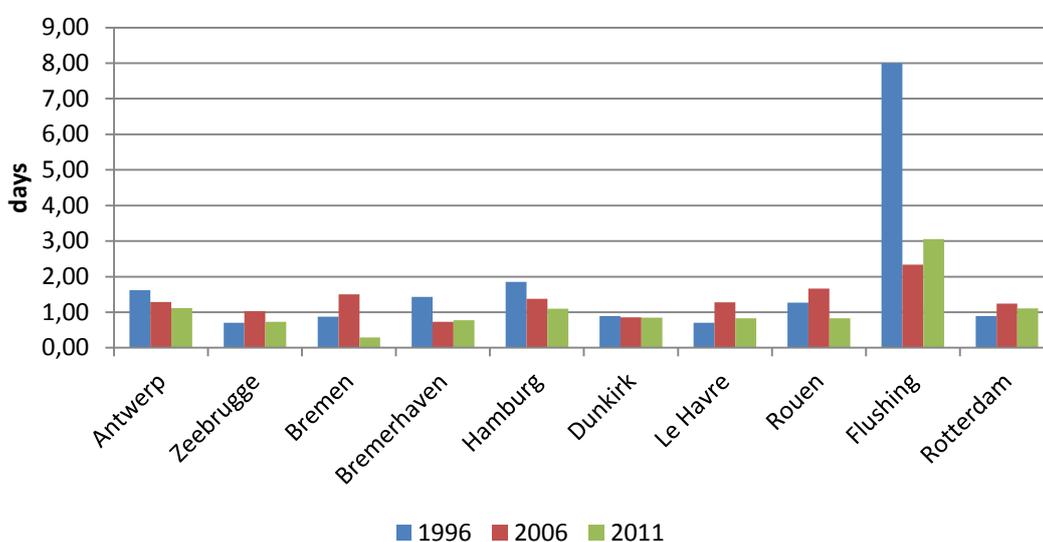
⁴⁰ The 2012 annual survey of the World Economic Forum (WEF) on the quality of national port infrastructure, puts The Netherlands on top of the global ranking. Several studies imply that improvement on the WEF port infrastructure quality index would have quantifiable effects on transport costs and trade volumes (see Merk 2014). Assuming that the leadership position of The Netherlands is largely due to infrastructure quality in the port of Rotterdam, we can more or less attribute the result to the investments in Maasvlakte 2. The Netherlands remained on top of the list in 2013 and 2014. We must however express caution about the WEF indicator. Apart from the fact that it gives an aggregated figure per country, it represents business executives' perceptions of their own country's port facilities, gathered through an opinion survey. This may involve bias.

In its 2006-2010 company plan, the port authority expressed the ambition to ‘stay at least as fast as now’ (Havenbedrijf Rotterdam 2005a). Taking 2005 as reference year, this objective seems to have been more or less achieved. The port authority stopped publishing the TAT in 2013, awaiting the fine-tuning of another indicator, the so-called Nautical Efficiency Indicator (NEI), which would value the extent to which the handling of shipping in the port occurred according to plan (Havenbedrijf Rotterdam 2014; 2015).

Ducruet *et al* (2014) compared average turnaround times for container vessels, measuring the average date of departure and date of arrival among all container vessels calling at a port within one month of navigation, expressed in number of days per call. Contrary to the TAT monitored by the port authority, these figures include the time spent at berth. The authors obtained data from a commercial source (Lloyd’s List Intelligence) and compared them at the level of countries and individual ports, for 1996, 2006 and 2011. Figure 21 shows the results for the principal ports in the Hamburg-Le Havre range.

The 2011 average turnaround time in Rotterdam is at more or less the same level than that of its most direct competitors, Antwerp and Hamburg. The graph also shows that the indicator deteriorated between 1996 and 2006 and improved again in 2011, although it did not reach the same level as in 1996.

Figure 21 – Average Turn Around Time container vessels Hamburg-Le Havre range ports



Source: Ducruet *et al.* (2014)

Within the scope of this analysis, we were not able to find consistent indicators to compare the time factor for inland carriers and cargo shipments. Media reports, going back to the 1990s, however point at recurring problems with waiting times for inland barges and, to a lesser extent, trucks and feeder vessels at the main Rotterdam container terminals (Cargosmart 2015).

6.3.2.5. Risk costs

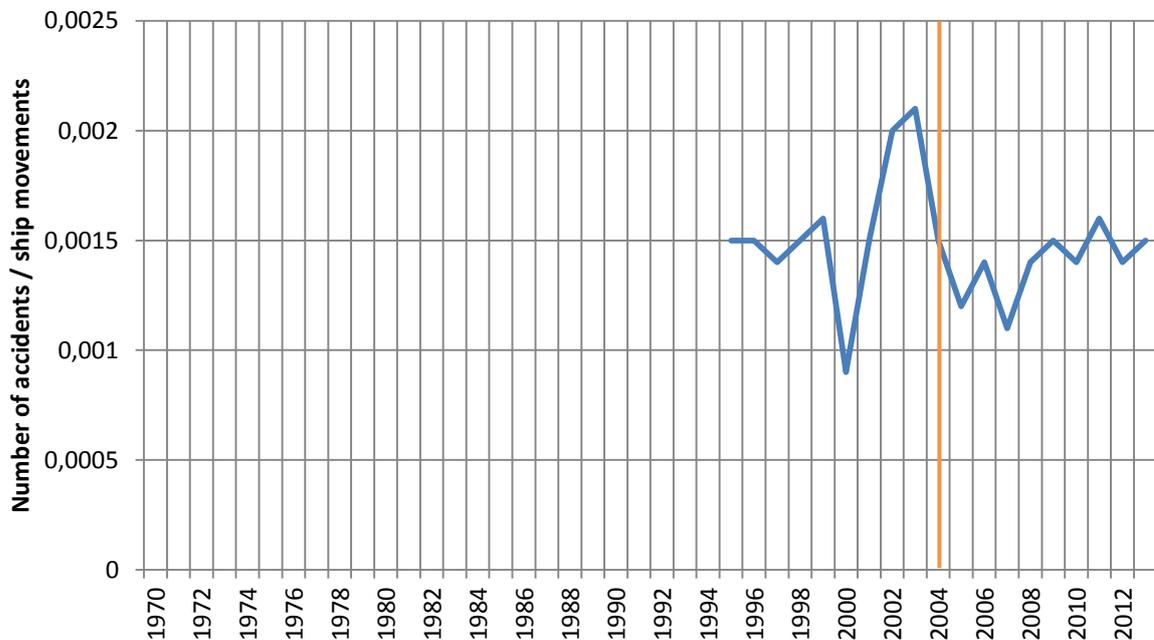
Risk costs are usually related to damage that users encounter in the port, which can be split into damage incurred by the ocean carrier, the inland carrier or cargo shipments. The port authority has no full control over the damage risk, but will be able to minimise it, for instance

by ensuring an effective harbour masters' service and enforcing an adequate safety and security policy for the port.

Similar to time-related costs, port authority data are restricted to indications of damage incurred by ocean carriers. Figure 22 shows the number of nautical accidents that occurred in the port between 1995 and 2013, related to the number of ship movements, so that the absolute figure is adjusted to the level of shipping activity in the port.

The graph shows a steep increase in the period 2001-2003. The annual reports of the port authority provide no explanation for these changes, mentioning only that it concerns collisions with very limited material damage (Havenbedrijf Rotterdam 2003). Around this period the obligation to carry a pilot in the port area was relaxed for smaller vessels and frequent callers, but the annual reports state that this had no effect on the number of incidents (Gemeentelijk Havenbedrijf Rotterdam 2001; 2002).

Figure 22 – Nautical accidents in the port of Rotterdam, related to ship movements



Source: Annual Reports Rotterdam Port Authority

Similar to the turnaround time, the port authority set itself the target following corporatisation to remain 'at least as safe as now' (Havenbedrijf Rotterdam 2005a). Taking 2005 as reference year, the relative occurrence of accidents has increased slightly although the fluctuation is minimal. But we do not have information on the type of accidents nor the actual damage they caused.

6.3.2.6. Reliability costs

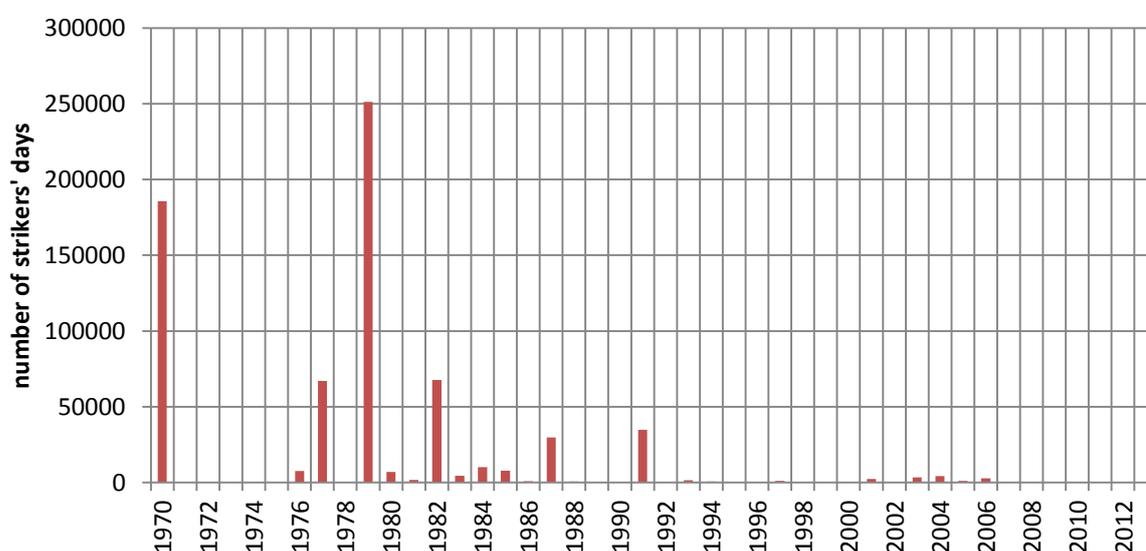
A stable social climate is one of the main elements contributing to the reliability of a port. The impact of social conflicts will vary according to the type of employees involved. In a landlord configuration, as in Rotterdam, the cost of a dock labour or pilotage strike will be

considerably be higher than a strike of port authority employees, as these have limited operational responsibilities and therefore fewer possibilities to shut down the port⁴¹.

Port authority staff were not engaged in any major strike actions during the period we observed. Although conflicts did occur in the 1970s, no major disruptions of work happened (Brolsma 2007). As mentioned earlier, the corporatisation process, which implied that staff would lose their civil service status, passed in a good social climate, unlike reforms in many other European ports. Employees of the port authority appear to be rather satisfied with their jobs, according to the regular employee satisfaction surveys that have been held since 2004. Port of Rotterdam Authority also increased its position in national surveys of ‘best employers’ (Havenbedrijf Rotterdam 2007; 2011).

The economic impact of dock labour strikes can be considerable. Detailed statistics on strikes of Rotterdam dock workers are available thanks to the extensive research of Smit (2013), who inventorised and analysed all dock strikes between 1889 and 2010. Figure 23 shows the number of strikers’ days, i.e. the number of people on strike multiplied by the duration of the strike in number of days, for the period 1970-2013.

Figure 23 – Number of dock strikers’ days in port of Rotterdam



Source: Smit (2013)

Intense strike moments occurred in the 1970s and, to a lesser extent, in the 1980s. The former were mainly strikes for higher wages, whereas the latter were a mixture of actions against forced redundancies in the general cargo sector and actions for salary demands in the bulk sector. These concurred with periods of major international political turbulence (Smit 2013). Whilst the period 1990-2009 still had a total of 109 minor strikes, with 5,5 actions per year on average in itself still a high frequency and a demonstration of ‘strike proneness’, the intensity was much less, with considerably reduced economic cost for employers and the

⁴¹ The exception being staff responsible for lock operations, which, given the configuration of the port, are far less relevant in Rotterdam than in ports with activities behind locks like Antwerp.

port. The increased industrial action that occurred in the period 2000-2006 was mainly directed against the plans of the European Commission to open up market access for port services (Smit 2013).

When comparing the strike pattern to neighbouring ports, Smit finds that Antwerp and Hamburg did not have the same peaks of social unrest that Rotterdam had in the 1970s and 1980s. This would be mainly due to the fact that dock labour and social dialogue are more regulated and institutionalised in these ports (Smit 2013). Hamburg and Antwerp were however marked by similar and, in the case of Antwerp, more intense moments of unrest during the time the European Commission introduced its 'port packages'.

Although there is no direct relation with the number of strikers' days, Smit observes that, in recent times, Rotterdam Port Authority became much less involved in negotiations of social partners. From a very active role since the major dock strike of 1979 to a more strategic monitoring and mediating role in the 1990s, the port authority nearly completely withdrew from the dock labour scene after 2004 (Smit 2013).

In the second half of 2014, social unrest re-emerged with the activation of new container terminals on Maasvlakte 2 and, in particular, the refusal of Rotterdam Gateway Terminal to conclude a collective labour agreement with trade union FNV Bondgenoten. Rotterdam Port Authority was targeted as well, being criticised for its land-use policy that would have led to overcapacity. Unions supported the claim of competing terminal operator ECT against the port authority that we described in Section 6.2.3.2.

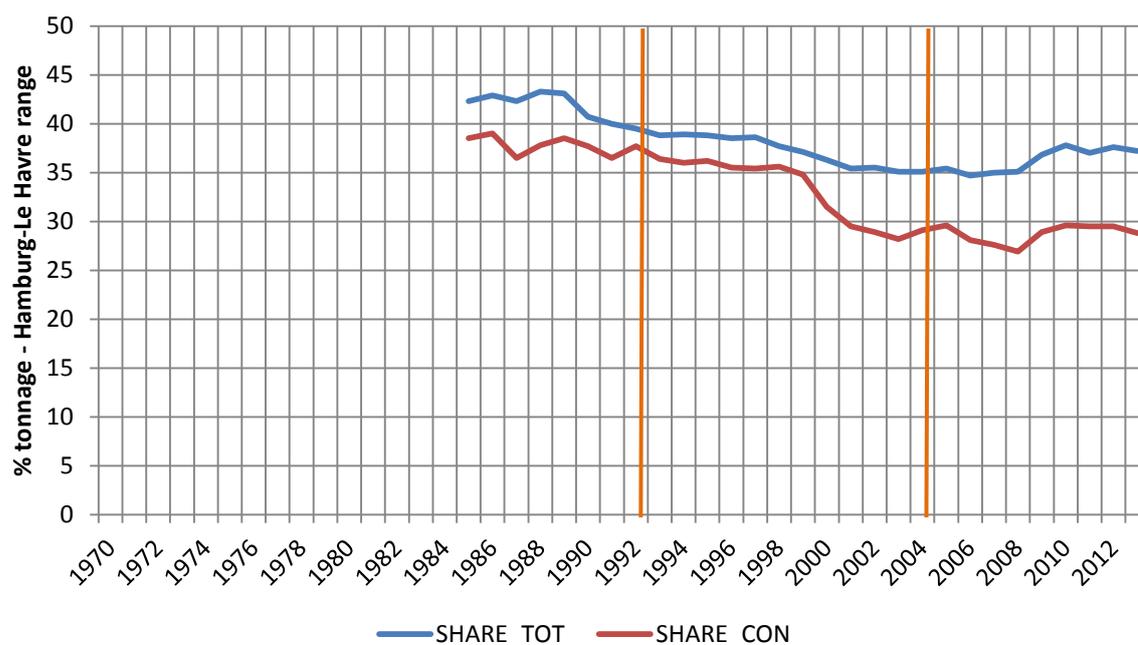
Very little information is available about strikes of other service providers. Towage companies like Smit have gone through repeated periods of social unrest, in which the port authority often mediated, but we have no data at hand to draw any meaningful conclusions. We already mentioned the considerable efforts made by Rotterdam Port Authority to ensure a smooth and safe nautical chain. Similar efforts are undertaken towards other authorities, like customs authorities, to improve the reliability of the port of Rotterdam. We however were not able to trace any significant change in policy after corporatisation.

6.3.2.7. Market share

De Langen and Heij (2014) find that the port of Rotterdam's market share improved significantly in the period after corporatisation. They compared the port's market share in the Hamburg–Le Havre range of the period 1997-2003 with that of the period 2005-2011. General caution must be expressed about using market share as a 'performance' indicator, given the multiple influences that impact on it. We therefore include it here as an additional indicator only, to complement our earlier findings. Figure 24 shows the evolution of the market share of the port of Rotterdam for the period 1985-2013, both for the port's share in total cargo volume and in containerised cargo.

The market share in total cargo volume steadily declined until 2001 and remained stable until 2008. The share recovered in the crisis years 2009-2010, after which it appears to have stabilised again. The container market share has seen a steeper decline, with a particular dip from 1999 to 2001, after which it had some ups and downs, to recover and stabilise as from 2009, similar to the overall market share. Whilst the general market share again obtained the level of 1999, the container market share did not regain that level, a sign that competition in this market segment is much more intense.

Figure 24 – Market shares port of Rotterdam in the Hamburg-Le Havre range



Source: Annual Reports Port of Rotterdam Authority

In its 2006–2010 company plan, the port authority set itself the target to increase its market share compared to 2005 (Havenbedrijf Rotterdam 2005). That ambition has been achieved overall. The question is whether we can allocate it to governance changes. De Langen and Heij (2014) refer to Rotterdam’s large share of crude oil and dry bulk throughput, which are both mature markets with low growth rates. Competing ports like Antwerp and Hamburg have a higher share of container trade in their portfolios, the fastest growing market segment. This would, according to the authors, explain why Rotterdam’s overall market share remained relatively flat up to 2008, to improve only in a declining market since the economic crisis in 2009. Rather than governance changes, the crisis seems to have had a more significant impact, improving the relative share of Rotterdam. The crisis turned out to be more favourable, or, rather, ‘less bad’ for Rotterdam.

6.3.2.8. Customer satisfaction

Improving customer focus is often cited as an important driver for port management reform or reorganisation. This was also the case in Rotterdam. But it wasn’t until after the recent governance changes that the port authority systematically started measuring the satisfaction of its customers.

Four customer satisfaction surveys were carried out: in 2005, 2007, 2010 and 2012. We could only access the detailed findings of the three first ones. Because of commercial sensitivity, the latter version was kept confidential. A succinct report on the main findings was however published in the 2012 annual report of the port authority. The agency carrying out the surveys was changed after the first two versions, leading to some changes in the methodology. In all surveys, ‘customers’ were defined broadly, comprising shipowners/agents, industrial companies, logistics companies and stevedoring companies, thus reflecting the fact that the port authority has contractual relations with two types of customers: ‘location’ customers (cargo handling and industrial companies) and ‘transshipment’ customers (shipping companies and other companies transporting cargo).

Table 26 summarises the main results of the four customer satisfaction surveys. ‘Target rating’ is the rating the port authority set for itself in its own business plans. ‘Perceived overall progress’ gives the percentages of respondents that think the port authority is generally performing better (+), same (0) or worse (-) than in previous years, delivering a better service. The table further indicates which points were most appreciated by customers and those that need to be improved most.

Table 26 – Results customer satisfaction surveys Rotterdam Port Authority

	2005	2007	2010	2012 (partial)
Average rating	3.5/5	3.6/5	7/10	7.4/10
Target rating	N.A.	3.8/5	4/5	7.4/10
Perceived overall progress	29% + 59% 0 11% -	49% + 41% 0 10% -	31% + 63% 0 5% -	N.A.
Most appreciated	Nautical and regulatory role	Nautical accessibility	Harbour Master and nautical safety	Harbour Master
Improvement priorities	Landside accessibility; Cost; Transparency; Role as business partner	Role as business partner	Landside accessibility; Clearer policies; More market-related pricing; Complaint handling	Complaint handling

Sources: EURO RSCG Bikker 2005;2007, Integron 2010, Port of Rotterdam 2012

Overall, customers give the port authority a satisfactory evaluation. The port authority’s own target rating was only met in 2012. Although we do not have the figures for 2012, there may be a ‘wear-off’ effect of the progress the port authority is making in its overall service quality. In 2005, shortly after the introduction of corporatisation and the management change, fewer people saw the effect than in 2007, when the new governance structure was firmly in place and a proper business plan with clear targets was being implemented. But in 2010 this effect seems to have worn off. The regulatory role and, in particular, the performance of the Harbour Master department rank constantly high as the most appreciated services. Landside accessibility and customer-orientation reappear as areas that need improvement. This is somehow echoed in the 2014 Annual Report of the port authority, the first issued under the management of the new CEO, Allard Castelein, which refers to an ‘area of transition’ and the need to better serve existing and future customers (Havenbedrijf Rotterdam 2015). Given that the customer satisfaction surveys are to a large extent based on stated opinions, some caution is however needed in interpreting results.

6.3.3. Conclusions economic impact

In this Section we have tried to assess the economic impact of the governance changes that occurred at Rotterdam Port Authority in the period 2003-2006. We have looked at how these changes affected the port authority itself and influenced the overall competitiveness of the port of Rotterdam, framed in a long term perspective, covering the period 1970-2013. Data limitations have not allowed us to fully apply the analytical framework that we developed in Chapter 5. Our conclusions are therefore indicative and mainly serve as an illustration of what could be potentially achieved with the analytical framework.

Whilst the measurement of the economic impact on the performance of the port authority can be done relatively well on the basis of publicly available data, lack of such data make it particularly difficult to measure the economic impact on the competitiveness of the port. In the case of Rotterdam, several indicators were only published in the period after the governance changes, as part of the new corporate culture. Table 27 summarises the principal data needed to fully implement the quantitative part of the analytical framework, indicating which data or proxies we were able to access in our case.

Table 27 – Data to measure economic impact port governance changes

Data	Availability	Available period
Output port authority	Proxies: - Cargo volume, per year - Number of ships, per year - Total GT of ships, per year	1970-2013 1970-2013 1970-2013
Revenue port authority	Total revenue, operational revenue, revenue from port dues and land lease, per year	1970-2013 (substantial own re-calculations to make data comparable)
Expenditure port authority	Total expenditure, operational expenditure staff expenditure, per year	1970-2013 (substantial own re-calculations to make data comparable)
Profitability port authority	Annual EBITDA, EBIT and net profit, per year	1970-2013 (substantial own re-calculations to make data comparable)
Staff port authority	Total number, at end of year	1970-1971, 1980, 1986-1987, 1989-2013 1980-1988
Average port dues port authority	Port authority revenue from port dues, per year / Total GT of ships, per year / Total MT of goods handled, per year	1970-2013
Average service charges port authority	<i>Not relevant in case Rotterdam</i>	
Average service charges port service providers	Proxy for cargo handling : Port authority revenue from land lease, per year / Rented surface, per year	1986-2007, 2010-2013
Time ocean carrier spends in port	Vessel Turnaround Time Average Turnaround Time container vessels (external source)	2005-2012 1996, 2006, 2011
Time inland carrier spends in port	<i>Not available</i>	
Time cargo spends in port	<i>Not available</i>	
Time passengers spend in port	<i>Not relevant in case Rotterdam</i>	
Damage to ocean carrier in port	Number of nautical accidents, per year	1995-2013
Damage to inland carrier in port	<i>Not available</i>	
Damage to cargo in port	<i>Not available</i>	
Damage to passengers in port	<i>Not relevant</i>	
Strikes personnel port authority	Days of strike, per year	1970-2013
Strikes personnel service providers	Cargo handling: number of dock strikers' days, per year	1970-2009
Strikes personnel other authorities	<i>Not available</i>	

As said, available data did permit us to monitor the economic performance of the port authority itself. We found some evidence for the expectations of Bilodeau *et al* (2006) that corporatised public agencies would seek to increase revenue, profit and efficiency. The port authority did indeed demonstrate considerable improvement on these indicators after corporatisation, especially in terms of profitability. But we cannot solely attribute this improved performance to corporatisation and the changes that are usually related to it. First of all, other governance changes occurring in the same timeframe have had a substantial impact as well. Second, it would appear that the remarkable increase of revenue from land lease, which substantially influenced profitability, was largely the result of other circumstances. As from 2007, an important number of existing long-term leases came up for contractually stipulated review and new and scarce surface in high-paying market segments became available. Governance changes did no doubt have a positive effect on reduced expenditure, especially on staff, which also has had positive effects on productive efficiency. This was consistent with the objectives that the new port management set itself.

Rent from land lease and port dues form the two principal sources of income of Rotterdam Port Authority. Theoretically, the port authority has market power regarding the levels of these charges, especially given the interrelation that exists between them. This in turn potentially gives the port authority substantial influence over the out-of-pocket costs that port users incur when calling at the port of Rotterdam. The market power of the port authority is curbed as far as port dues are concerned, due to a self-regulatory measure that was introduced after corporatisation on instigation of the Dutch State, following an analysis by the Netherlands Competition Authority. Taking into account its limitations, our quantitative analysis confirms that, whilst Rotterdam remains a relatively expensive port in comparison to its main competitors, it does not appear to have become substantially more expensive in the post-reform era. The gap may even have become smaller. The situation is different for the income from rent. The average revenue obtained from land lease increased substantially in the post-corporatisation period and may have widened the gap with competing ports. This in turn may influence the level of cargo handling costs, the most important out-of-pocket cost associated with a port call. However, as mentioned above, this phenomenon appears to be largely unrelated to governance changes. The influence of the port authority on the costs of technical-nautical service providers is rather limited, due to the absence of contractual arrangements.

Rotterdam Port Authority has demonstrated a consistent, pro-active policy as regards the limitation of time and risk factors for port users, which is deeply rooted in the historical functions of the port authority. The port authority concretely contributes to the reduction of these factors by investing in infrastructure, IT systems, including vessel traffic management, and various catalyst actions to improve procedures and cooperation between commercial actors and authorities. The time factor is very much influenced by infrastructure investments. In Rotterdam, these were for a long time guided by the principle that the 'quay awaits the ship', a philosophy which moved to the background in the 1970s and 1980s but came back in the picture with the Maasvlakte 2 expansion project. Corporatisation and the State shareholding in the port authority were intrinsically linked with the funding of this project. Corporatisation was not just a matter of improving profitability and access to private equity, but also a condition for State support to the project and its eventual shareholdership. Unsurprisingly, the port authority's investments in the post-corporatisation era were largely devoted to Maasvlakte 2. These investments were exceptionally high, although it should be noted that the port authority has been able to make significant investments under previous governance configurations as well. The effect of the Maasvlakte 2 investments on the time factor can in any case not be measured yet, as the first terminals have only become

operational recently. Apart from the investments in Maasvlakte 2, the post-corporatisation investment pattern of the port authority is not so different from the period before. Lack of data does not allow an analysis of the effect governance changes have had on time and risk factors. We can only confirm that, as far as seagoing traffic is concerned, the port authority's own ambition expressed in 2005 to stay 'at least as fast and safe' has more or less been achieved. From the customer satisfaction surveys, we retain that the regulatory role of the port authority and, in particular, the performance of the Harbour Master department ranks constantly high as the most appreciated service. Landside accessibility and customer-orientation reappear as areas that need improvement. The surveys also point at a possible 'wear off' effect of governance changes.

6.4. Conclusions

This case-study has demonstrated that the impact of port management reform first of all needs to be assessed from a broad historical and institutional perspective. The Hanseatic context wherein Rotterdam Port Authority was established as a semi-autonomous municipal department back in 1932 was marked by a failed experiment with private port management in the late 19th century. Hanseatic principles, including municipal ownership of port land and unity of management and control over the port area, were among the structural political factors influencing the elite decision-making process between the municipality, port authority and Dutch State that led to the corporatisation of the port authority on 1 January 2004. Socio-economic factors, embodied in the Maasvlakte 2 expansion project, the political culture of The Netherlands and, not in the least, chance events were very significant as well.

The analysis we have presented in this Chapter furthermore shows that, in the case of Rotterdam, the formal act of corporatisation is only one part of the story. Other governance changes, occurring within the same timeframe, have been at least as influential. The change in management and corporate culture that largely came about as a reaction to a financial scandal, together with the shareholding of the Dutch State contributed significantly to the establishment of an autonomous company with clear and focused objectives, which has become more professional, transparent and accountable. Our conclusions not only support earlier findings that underline the importance of having clear post-reform governance frameworks (Everett 2002), but we also found that management style and culture are relevant factors (Notteboom and Winkelmanns 2001).

The effect of the State shareholding illustrates that persistent adherence to governance traditions may to some extent be counterproductive. During the reform process, municipal forces perpetuated a sub-optimal configuration which enabled the bank guarantee scandal. This could have been avoided if a clear choice for corporatisation and transparent corporate governance had been made earlier. Furthermore, if municipal resistance against corporatisation would have persisted, fundamental Hanseatic principles could, paradoxically enough, have been endangered.

We can partly attribute the improved economic performance of Rotterdam Port Authority in the period 2004-2013 to the combination of these governance changes. The remarkable increase of revenue from land lease, which substantially influenced the profitability of the port authority, however appears to have been largely due to contractual and other factors that would be independent from governance changes.

Whilst our conclusions are relatively straightforward for the economic performance of the port authority, data limitations and other constraints did not permit us to quantify the economic impact on the competitiveness of the port. Still, we were able to draw a number of meaningful conclusions about the role governance changes have had on the generalised costs of moving cargo through the port.

Port authorities have a potentially high influence on the out-of-pocket costs of port customers. This impact is framed within the configuration of the port authority, which, in the Rotterdam case, is a fairly classical example of the landlord model. The influence of Rotterdam Port Authority is direct on the level of port dues and indirect on the level of cargo handling charges, through the land lease contracts it has with terminal operators. The port authority does not have contractual relationships with technical-nautical service providers, which very much limits its influence therefore. Our analysis demonstrated that, in the post-reform era, the revenue the port authority generated from port dues, remained fairly in line with market developments and did not appear to widen the gap with competing ports. This results from a self-regulatory measure that was introduced shortly after corporatisation. The average revenue from land lease increased substantially, making port land in Rotterdam on average even more expensive than before. As mentioned above, there however would appear to be little connection to the governance changes that came about after 2003. We could not assess the exact impact on cargo handling costs, as the port authority has different kinds of tenants, some of which do not provide cargo handling services.

The impact of governance changes on revenue generation and profitability of the port authority is closely linked to the expectation that the new configuration will allow the port authority to increase investments in order to positively influence time and risk-related costs for port users. Next to increasing its own resources, corporatisation is generally expected to generate better access to private equity and enable capital increase from shareholders. In the case of Rotterdam, corporatisation was also an explicit condition to obtain access to State support for the financing of the Maasvlakte 2 project, which eventually led to the State becoming shareholder. The port authority's own investments in the post-corporatisation era were largely devoted to this project. Seen from a longer term historical perspective, investment levels were exceptionally high, although fairly high levels were achieved in the early 1970s as well. As the first phase of Maasvlakte 2 only became operational in 2013, we cannot measure its impact on non-monetary costs for port users. The effect of other investments could not be measured either, as relevant time and risk indicators were only reported in the post-corporatisation era, and then only for the nautical side. These indicators only allow us to conclude that the port authority's own ambition, set out in 2005, to remain 'at least as fast and safe' was largely met.

Customer satisfaction surveys carried out in the post-corporatisation period point at a consistently high satisfaction level about the nautical services provided by the port authority's harbour masters department. Customer service and hinterland connections get more mixed reviews. Combined with historical reports about recurring delays for barge traffic and – to a lesser extent – feeders and trucks, this could imply that governance changes have especially influenced the maritime element in the port's overall competitiveness. Data limitations however do not allow us to validate this assumption. The assessment of generic competitiveness indicators, such as market share, mainly demonstrates the influence of general economic factors and reveals very little about governance.

Summarising, and taking into account the data limitations we encountered, we would argue that the main effects of the corporatisation of Rotterdam Port Authority, in combination with the other governance changes that occurred in the same timeframe, are twofold. First and foremost, they enabled the port authority to obtain the necessary means to develop the Maasvlakte 2 project. The effect of Maasvlakte 2 on the competitiveness of the port will become clear in the years to come. Second, the governance changes ensured that the relatively high levels of functional and financial autonomy, which Rotterdam Port Authority already enjoyed before, were embedded in a professional and transparent corporate governance structure and culture, which improved the economic performance of the port authority itself.

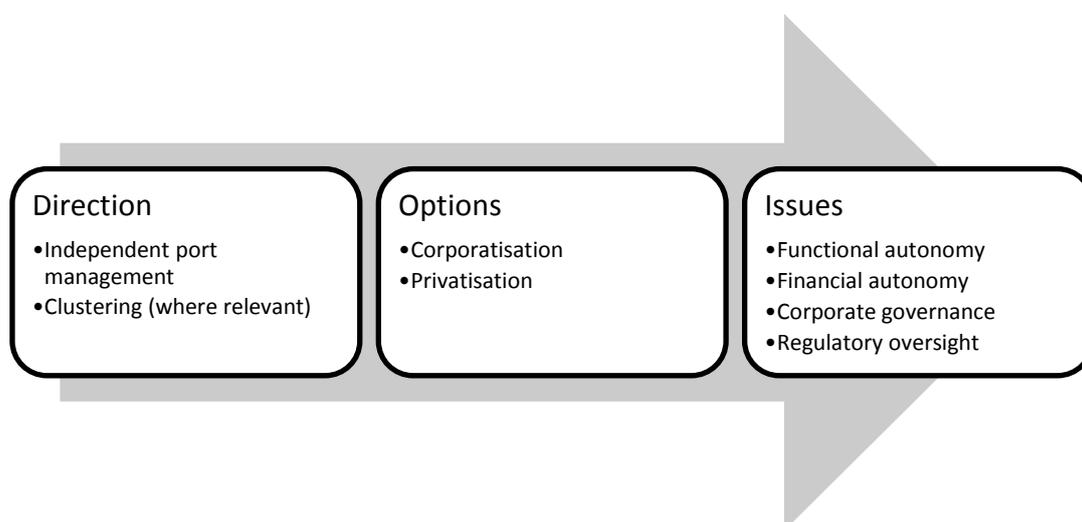
7. POLICY DISCUSSION: THE FUTURE SCOPE FOR PORT MANAGEMENT REFORM IN EUROPE

Throughout our research we have emphasised that the economic objective of port management reform should be but one: to contribute to the competitiveness of a port. We have established port management reform as a quality improvement of the port product. In economic terms, management reform should maximise the capability of the port authority to reduce the generalised cost of passing cargo or passengers through the port, in order to increase demand for the port product. We have also found that the reality of port management reform can differ substantially from what the economic objective requires and that the economic impact of reform is not easy to measure. Finally, we have ascertained that the influence of port management – and therefore of port management reform – over the competitiveness of a port has its limits. Various other, external, factors play a role over which port authorities on their own have very limited or no influence.

This does not mean that further efforts to reform port management should be neglected or abandoned altogether. The ability of a port authority to contribute to the competitiveness of a port is genuine and should be reinforced where possible. Reform efforts should realistically focus on those areas where port authorities can make a difference, by optimising their functional profile as facilitators and, where possible, entrepreneurs. They should also look at possibilities to extend the influence of port authorities in the logistics chain.

Seen from a European perspective, continued reform efforts will not only benefit individual ports, but will also have the potential to improve the European port system as a whole. In this final Chapter, we will synthesise our main research findings by providing a basis for discussion on the future of port management reform in Europe. We will concretely explore what scope for further reform exists for Europe's principal ports. We will first describe which direction reform could take, followed by an identification of the most plausible options at hand. We will then outline the key issues that have to be taken into account in reform processes. Figure 25 summarises these three steps. We complete this Chapter with a quick scan of the reform efforts that would be required and suggestions on how the European Union could support individual reform processes.

Figure 25 – Scope for port management reform in Europe



7.1. The direction: independent management of core ports and port clusters

In this first section, we go out on a limb by exploring whether there is scope for a common direction that port management in Europe could be taking. This indeed means entering perilous, but not completely uncharted waters. In Chapter 4 we referred to a study commissioned by the European Parliament in 1993, which advocated a process towards a common port management philosophy for those ports that formed a substantial part of the common market. This philosophy was based on the landlord configuration. The reasoning behind the study was very much in line with the predominant thinking in port governance literature at that time. Ideal port management concepts were furthermore promoted worldwide through institutes like the World Bank. The focus of these initiatives was however mostly focused on reforming the operational configuration of the port and the division of responsibilities between the public and the private sector (Brooks and Cullinane 2007).

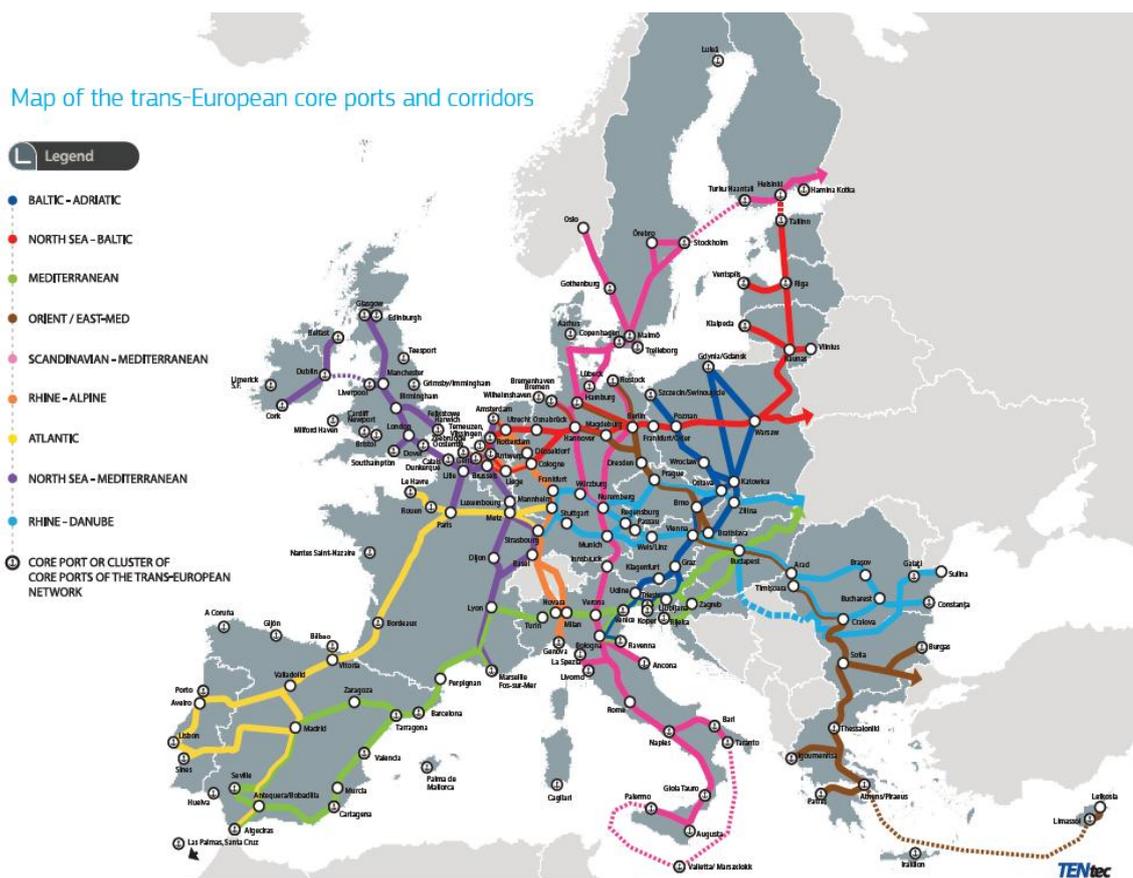
During the last decade or so, port governance literature moved away from prescriptive thinking on port reform and port management reform in particular. Illustrative and influential was the ‘fit’ concept developed by Baltazar and Brooks (2001; 2006), who brought in contingency theory to illustrate that there is no single best governance formula, but that port performance will eventually depend on the interaction between environment, structure and strategy. These insights have provided a very significant contribution to port governance literature, which we have incorporated in the process component of the analytical framework we developed in Chapter 5. We amply illustrated the value in the application to the Rotterdam case. But the flow of ‘relativist’ port governance literature that has emerged in recent years may have overshot its purpose. Literature in particular seems to have taken the variety of objectives that port authorities can have for granted. We may have lost track of what the economic objective of port management and port management reform should be: contributing to the competitiveness of ports. That objectives of port authorities widely differ in reality is nothing new (see Suykens 1988, Suykens and Van de Voorde 1998). But whether this justifies replacing criticism about a ‘one size fits all’ approach with a kind of ‘anything goes’ philosophy is another matter.

Taking into account the common market and common legal order of the European Union, we believe there is scope for a common direction in reforming the management of the so-called ‘core network ports’ of the EU⁴². These ports and port clusters, 94 in total, were identified in 2013 as the maritime nodal points of the Trans-European Transport Networks (TEN-T) (European Parliament and Council 2013a; 2013b). These are ports of European interest that have essentially outgrown their local and national importance⁴³. Figure 26 illustrates how most of them connect to the main transport corridors that form the arteries of the TEN-T. These ports and port clusters are in the premier league for EU funding.

⁴² This would obviously benefit other ports as well. But as management reform is a complex exercise, it makes sense to focus on those ports that have the greatest impact on the overall performance of the European port system.

⁴³ The original selection process identified only 83 ports and port clusters, based on volumes handled and geographical location. Lobbying and political interference eventually extended the list to 94. We would therefore not consider all current TEN-T core ports to be of genuine importance to the common market, at least not in a stand-alone position. It however goes beyond the scope of this research to make a further selection of true core network ports.

Figure 26 – Map of the trans-European core network seaports and corridors



Source: TENtec

We consider two directions management reform could take. The first, common, direction is the move towards independent management. Second, for those ports which are de facto part of a port cluster, it could make sense to consider merging or engaging in another far-reaching form of cooperation.

7.1.1. Independent port management

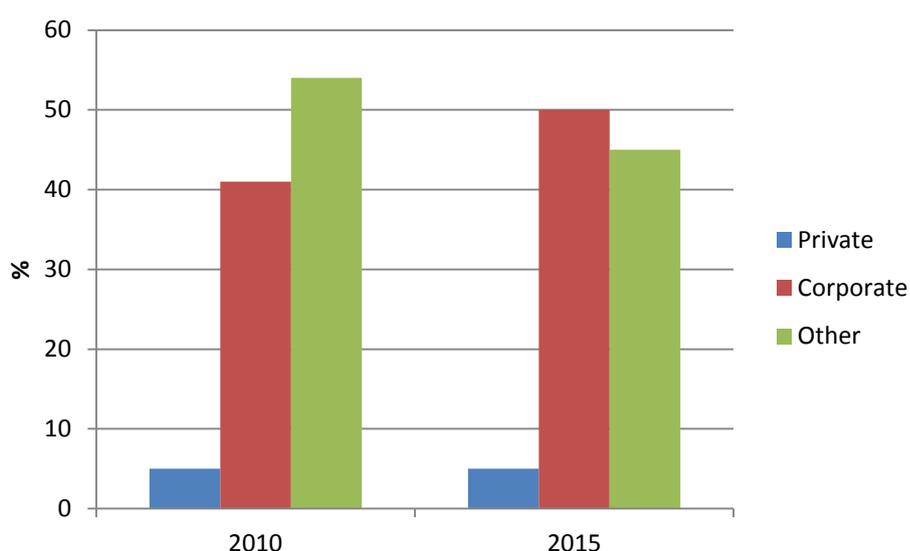
The direction towards independent port management is both viable and realistic, for those European ports that have outgrown their local or national importance. Several arguments support this.

We have found how, notably on the European continent⁴⁴, port governance traditions may no longer provide the adequate framework for larger ports. The analysis of the Rotterdam reform process illustrated very well how persistent adherence to municipal control would have perpetuated a sub-optimal configuration that would have seriously undermined the performance of the port authority. Although we were unable to fully assess the economic impact, it is clear that the transformation to an independent, corporate structure has had unmistakable advantages for the port of Rotterdam. We furthermore found how the development of ports adhering to the Latin tradition is hampered by limited functional and financial autonomy of their management. In addition, we noted that, whilst the European

⁴⁴ The essence of the Anglo-Saxon governance tradition is independent port management.

Union has no explicit strategy towards a common management model, EU law regards port authorities essentially as undertakings engaged in economic activities. Current EU policy thinking furthermore implicitly supports the autonomous role of port authorities. A move towards more independent management in Europe also picks up on an emerging trend. Our analysis of port governance diversity already noted that there is an apparent convergence of larger port authorities, which may point at a certain dynamic that is independent from the governance traditions in which these port authorities are embedded. Figure 27 illustrates that, in 2010, 46% of the 66 core network port authorities that participated in the ESPO Fact-Finding survey had what could be considered an independent status, either in private or corporate form. A quick review of reforms that occurred since would increase this share to at least 55% in 2015. This is of course only prima facie evidence, as we know there may be substantial difference between form and the actual governance configuration.

Figure 27 – Evolution formal status core network port authorities 2010-2015



Finally, the move towards independent port management would fit with the collective wish of European port authorities themselves. In a manifesto issued in May 2012, members of the European Sea Ports Organisation expressed in unmistakable terms their support for governance structures which allow port authorities to perform their functions in an independent way, without conflict of interest. This would require port authorities to have financial autonomy and full control over the quality performance of services provided by third parties. Proliferation of other agencies with port-related governance competencies would have to be avoided (ESPO 2012).

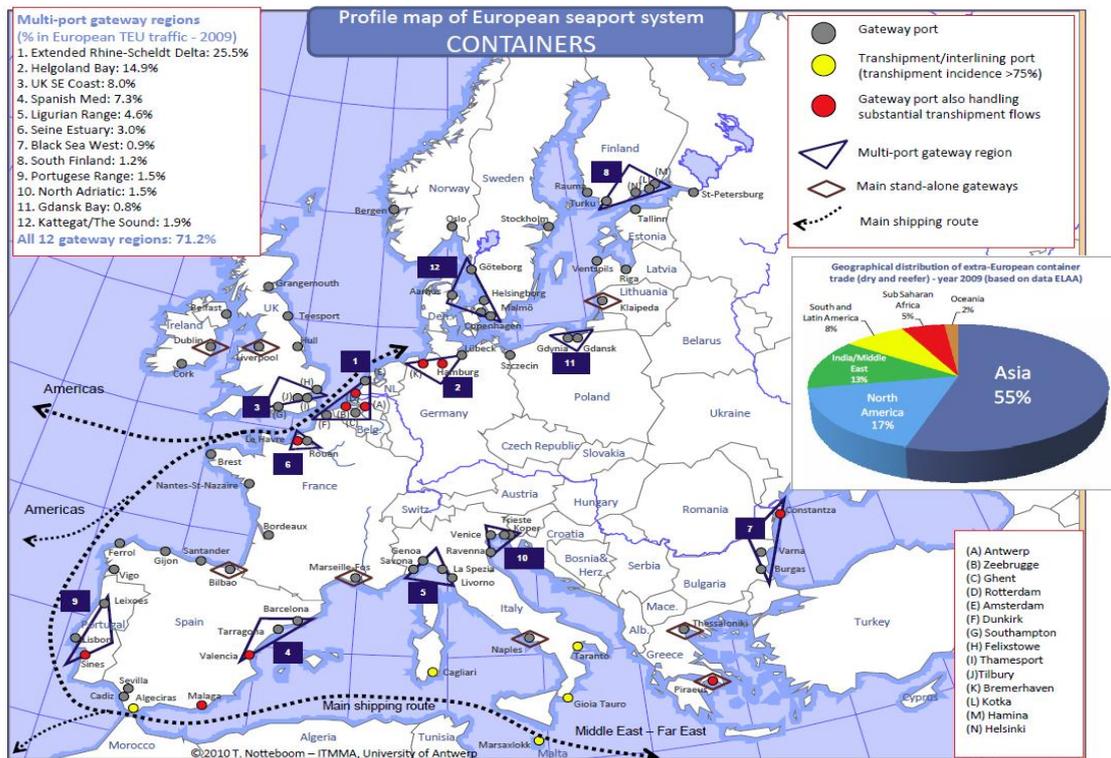
Together, these elements give us substantial ammunition to justify that, if further management reform is considered for European core network ports, it should move towards independent management. We concretely expect that independent management will especially increase a port authority's ability to invest, by having more autonomy over its own revenue sources, attracting new share capital and having better access to private financing. It will also increase the port authority's ability to engage more actively in participations that would extend its influence in the logistics chain, including through port clustering, as we will explain next. We must emphasise that independent form is not sufficient as such. The above-mentioned advantages will only materialise if reform also establishes professional and transparent corporate governance as well as proportionate regulatory oversight. We will discuss this further in Section 7.3.

A move towards independent management would not just benefit the competitiveness of the individual ports. It would also serve the European port system as a whole. More engaged cooperation between ports would optimise the use of scarce infrastructure. It would also improve the level playing field between ports. Finally, if all core network port authorities would adhere to corporate governance principles, this would greatly improve the transparency of the European port system and thus benefit shipping and trade interests.

7.1.2. Clustering

Independent port management will widen possibilities for port authorities to engage in far-reaching forms of cooperation with other parties in the logistics chain, notably with other port authorities, e.g. through mergers and acquisitions. The TEN-T core network already identifies some, mostly neighbouring, core ports as clusters, although in some cases the individual ports concerned are formally under separate management⁴⁵. Tapping into the concept of multi-port gateways that was developed by Notteboom (2010), the scope for clustering in Europe is potentially much larger, as Figure 28 illustrates for container traffic.

Figure 28 – European container multi-port gateways



Source : Notteboom (2010)

For some European core network ports, the opportunity of clustering could therefore be the second direction of port management reform. The principle advantage is that it will allow the port authorities concerned to extend their sphere of influence in the logistics chain. It will also improve their ability to meet the various challenges that scale increase and increased

⁴⁵ This is notably the case for the ports of Ostend and Zeebrugge (Belgium), the Greater Dublin Area (Ireland) and Gdansk and Gdynia (Poland). As Member States were influential on the final configuration of the TEN-T, the fact that these ports are included as clusters presumably means there are plans to bring them under one management.

bargaining power of market players pose, not in the least by optimising existing infrastructural capacities.

Also here we notice an emerging trend. Whereas far-reaching cooperation with other ports, including seaports, inland ports and dry ports, in the form of mergers or acquisitions, was not very common a few years ago, the 2010 ESPO Fact-Finding Survey did reveal how in most reform schemes that were pending at the time, cooperation between (neighbouring) ports was an issue, which was either driven bottom-up by port authorities themselves or stimulated by national or regional governments (Verhoeven and ESPO 2011). Several new initiatives have been taken since, although only few concern full-fledged integration⁴⁶. Whilst good reasons for far-reaching forms of cooperation exist, it are often institutional elements that hamper progress (Van der Lugt and De Jong 2013). Independent management may therefore be an important enabling factor⁴⁷.

7.2. The options: corporatisation and privatisation

We identified independent port management as a viable and realistic common direction for the ports and port clusters of the European TEN-T core network. Independent port management will also be an important enabling factor for port authorities to seize the opportunity to engage in far-reaching forms of cooperation and clustering to extend their sphere of influence in the logistics chain and improve the competitiveness of their ports.

To make current management of European core network ports more independent, there are essentially two major reform options: corporatisation and privatisation. With corporatisation, ownership of the port authority essentially stays in the hands of government, who becomes a shareholder, whereas privatisation cedes the factual ownership to a private undertaking, either in full ownership of the port estate or through a long-term master concession. We do not consider commercialisation, which is the third common way to reform port authorities, as a viable option for core network ports. We refer to the Rotterdam reform process as a perfect illustration of how such an intermediate solution leads to sub-optimal configurations which can even be counterproductive. Above all, the commercialised form will be a limiting factor to attract capital and engage in partnerships. The corporate form, either in public or private ownership, is the most commonly recognised form for international legal transactions. Sui generis models based on regional or national legislation offer much more limited possibilities in this respect.

The choice between corporatisation and privatisation will depend on the profile the port authority wants to adopt, which in turn very much depends on the operational configuration and the type of port.

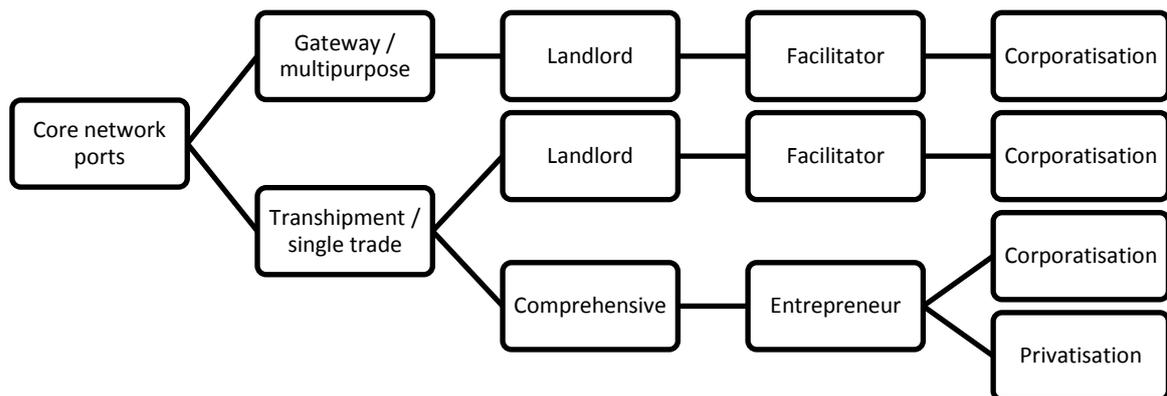
⁴⁶ Mergers and acquisitions notably took place between neighbouring ports in the same country, e.g. in Finland (Kotka and Hamina, Turku and Naantali) and The Netherlands (Rotterdam and Dordrecht). The former was intrinsically linked to the corporatisation of Finnish ports. We would also mention the strategic alliance formed between the French Seine ports Le Havre, Rouen and Paris (HAROPA) and the cross-border cooperation between the North Adriatic ports Venice, Trieste, Koper and Rijeka (NAPA). Both are promising bottom-up developments that are meant to increase the competitiveness of the port clusters concerned.

⁴⁷ A good illustration is the recent corporatisation of the port of Ghent in Belgium, which was mainly done to enable the port authority to prepare a future merger with neighbouring ports in Zeeland and to increase the port authority's own capital to finance a new sea lock.

From Chapter 2 we retain that the facilitator and entrepreneur profiles offer the best opportunities for port authorities to influence the competitiveness of their ports. We also mentioned that, for ports in a landlord configuration, the entrepreneurial model may have its limits, as port authorities risk becoming competitors of their own tenants and service providers, ending up in a ‘judge and party’ situation. The facilitator profile, although it is more limited in its possibility to directly influence all generalised cost elements, would therefore be more appropriate for ports in landlord configuration, whereas comprehensive port authorities, i.e. those offering a full service range of operations, may more willingly go for the full entrepreneurial profile. Landlord port authorities should essentially remain focused on the facilitator profile, although some aspects could be pushed to more entrepreneurial dimensions, as long as this does not compromise the integrity of the port authority towards its contractual partners. The choice between a landlord and comprehensive configuration would in the first place depend on the type of port, more in particular the function the port has towards the European market and the range of trades it is serving. As a rule of thumb, and bearing in mind that we are considering larger ports of European interest here, we would argue that the comprehensive model is probably better suited for single-trade ports or transshipment hubs, which are in essence large terminals. The landlord configuration fits better for multi-purpose gateway ports.

Figure 29 summarises the relationship between port profile, port configuration and port authority profile, and indicates what the reform options could be.

Figure 29 – Indicative reform options for European core network ports



Given that most of the European core network ports are predominantly multipurpose gateway ports that operate in a landlord configuration, we will focus the rest of this Chapter on the corporatisation route, which of course remains a viable option for transshipment and single trade ports as well, even if they adopt an entrepreneurial profile. Most of our recommendations will apply across the board anyway, given that even privately-owned entrepreneurial port authorities remain hybrid organisations.

7.3. The reform issues: autonomy, corporate governance and regulatory oversight

We repeated several times that port management reform is not just a matter of changing the legal form of a port authority. Corporatising a port authority will have very little positive effect if a number of fundamental questions regarding functional and financial autonomy, corporate governance and regulatory oversight are not properly addressed. Table 28 lists the main reform issues at stake.

Table 28 – Reform issues of corporatisation

Functional autonomy	Financial autonomy	Corporate governance	Regulatory oversight
Full and unified control over port estate	Defiscalisation of main revenue sources	Profile structure : -Supervisory body -Management	Proportional to potential market power port authority and countervailing bargaining power of tenants and customers
Ability to contract land out to third parties	Autonomy over tariff setting and collecting	Clear division of responsibilities	
Ability to engage in participations	Access to (share) capital	Transparency and predictable procedures	
Status of the harbour master	Ability to decide about investments	Accounting and reporting	
In house provision of port services	Ability to decide about remuneration	Human resources management	
Contractual relations with third party service providers	Allocation of financial result / dividend policy Taxation	Corporate social responsibility	

The degree of functional autonomy will determine to what extent the port authority can fulfill its key functions in a facilitating and/or entrepreneurial way. For the landlord function, it is essential that a port authority has full and unified control over the entire port estate, either in full ownership or through a long-term master concession. Whilst the port authority may not have the right to sell port land, it should have the full ability to contract land out to third parties. Given the importance of extending the sphere of influence of the port authority within the logistics chain, it goes without saying that the port authority should have the full ability to engage in all sorts of cooperation with other ports or relevant undertakings. The regulator function and, notably, the position of the harbour master deserve specific attention. This is one of the main areas where the hybrid nature of a port authority comes to the forefront. From a managerial point of view, it makes sense to ensure that the harbour

master's department is integrated in the port authority structure. But given that this department is essentially entrusted with public tasks, it must have a sufficient degree of independence, to avoid that commercial considerations would jeopardise its integrity. The fulfillment of the operator function will depend on the operational configuration of the port as such. But also in a landlord configuration, a port authority should be able to provide certain services in house, e.g. when third party service providers are unable to provide them in an efficient or effective manner. Where services are provided by third parties, the port authority should ensure it has contractual relations with all service providers, in order to have maximum influence over the level and quality of the services that are being provided. It will furthermore be important to promote a competitive environment among service providers, by stimulating inter-port competition where relevant.

Functional autonomy is intrinsically linked to financial autonomy. With public funding in ports being curbed considerably through reduced government budgets and State aid rules, port authorities increasingly have to become independent from subsidies and other forms of public financing. This implies first of all that port authorities should have full control over their own revenue sources. In several ports, port dues are for instance still considered to be fiscal retributions or taxes. This substantially curbs the pricing policy of port authorities. We stated earlier that corporate form, regardless of the actual ownership, is expected to facilitate access to private capital markets and enable capital increase from shareholders. Financial autonomy also concerns the ability of the port authority to decide autonomously about new investments and remuneration of its own staff, within the limits determined by general legal frameworks (including social, environmental and planning laws). Finally, a corporate structure will require a policy on shareholder dividend and may have fiscal consequences, notably in terms of corporate taxation.

Adhering to a true corporate culture first of all means that the structure of the port authority will probably need substantial revision. Corporate culture implies that the supervisory body, i.e. the board of directors, and the management will have to act in the sole interest of the corporation. This is fundamentally different from structures one often encounters in semi-autonomous, commercialised port authorities, where the supervisory body rather represents the interests of its members, be they local politicians, government administrators, stakeholders, or even customers and tenants. The profile of the board members will therefore require careful attention, in terms of professional expertise and independence, but also in terms of remuneration and training. The same applies to the management committee, notably the positions of CEO, COO and CFO. Clear responsibilities will furthermore have to be established between the general assembly of shareholders, the board of directors and the management, notably regarding strategic decisions, financial supervision, senior staff appointments etc. We saw that, after reform, Rotterdam Port Authority voluntarily chose to apply the corporate governance code that applies to Dutch listed companies. This practice, which we have also noticed in other port authorities, is generally recommended by the OECD for commercially-oriented corporations in public ownership (OECD 2004). Corporatisation will especially reinforce the economic role of the port authority and will therefore put its hybrid nature even more on the spot than before. Therefore, the post-reform governance criteria we derived from Stern and Holder (1999) in Chapter 5 are very pertinent: clarity of roles and objectives, autonomy from political intervention, accountability, participation, transparency and predictability. It will often require a careful balancing act, especially in commercial relations with customers and tenants. The litigation that was recently brought against Rotterdam Port Authority by its main tenant illustrates this very well. Publication of annual financial accounts will frequently be a legal requirement anyway, but various other reporting issues, e.g. on economic and environmental performance, are

considered to be part of good corporate governance. Establishing a formal corporate social responsibility (CSR) policy will generally benefit port authorities and especially those located close to urban communities. Municipal owners of port authorities are usually most concerned that corporatisation will disconnect the port from their city. But even in the interest of its own license to operate and grow, a port authority cannot afford to neglect its societal role and responsibility. Corporate social responsibility also concerns the port authority's own staff. Human resources management in a corporate environment is very different from a government environment. In several cases, port management reform will involve a change from civil service status to contractual employment, which usually is not an easy process.

Whereas port authorities, regardless of who owns them, should be free from political intervention, this does not mean that they should be free from regulatory oversight. Port authorities can potentially exert considerable market power, not just in terms of pricing, but also in allocation of contracts to terminal operators and other service providers. An assessment of this market power and, in particular, the potential for abuse, should be part of the reform process, so that an appropriate form of regulatory oversight can be installed. The level of regulation should take into account potential countervailing powers. A balance indeed needs to be found between, on the one hand, having a strong port authority that is an equal match for tenants and customers and, on the other hand, avoiding abuse of market power. A standard recipe does not exist and will depend on the relevant geographical and product markets in which the port authority operates. Still, complete absence of regulatory oversight might mean the best of both worlds for port authorities, but it is doubtful whether it is in the interest of port competitiveness. Assessments should be repeated at regular intervals following reform, as circumstances may change considerably over time.

7.4. The reform effort: the intensity of reform processes

One main conclusion from the Rotterdam reform case is that the effort of a port management reform process is not to be underestimated. Seen from a European perspective, the reform effort required should have been fairly modest, given that Rotterdam Port Authority already enjoyed substantial functional and financial autonomy. Still, we noticed how several factors made the process very intense and protracted.

Each process towards independent management reform will have its own particular challenges. The socio-economic, political, cultural and administrative contexts in which reform processes take place will determine the complexity of the process. Governance traditions, and the resistance against change they bring along, can be particularly persistent. But awareness of the complex environment in which reform takes place does not mean that valid reform options have to be discarded, if they have the potential to contribute to the principal goal of achieving a better port product.

The starting position of European port authorities is very different, even if a considerable amount of core network port authorities have already taken on independent form. As a broad indication of the reform efforts that may be needed, regardless of the challenges that will in any case be imposed by the context in which they take place, we have revisited the port governance variables we used in Chapter 3 to measure port governance diversity in Europe. We have focused on the functional autonomy, financial autonomy and corporate governance indicators and have compared these for the 66 core network port authorities that

participated in the ESPO Fact-Finding Survey. Time constraints did not allow us to make an update, so the picture will not be entirely accurate, as a result of reforms that occurred since 2010.

We have selected four binary variables (yes/no) in each category, which are most pertinent and where we obtained a good answer rate. These variables therefore do not present the full picture, but give a first indication of how intense reform processes towards independent port management may be. Table 29 presents the selected variables.

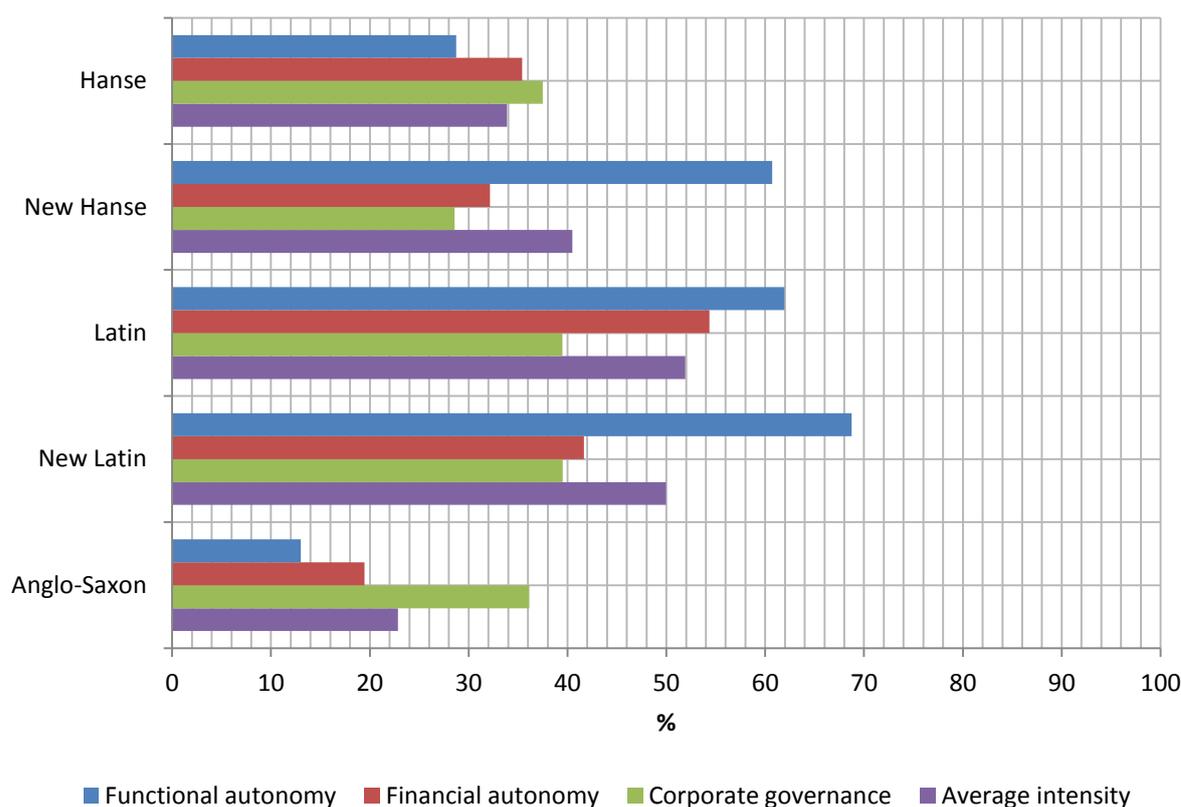
Table 29 – Selection of functional autonomy, financial autonomy and corporate governance variables

Functional autonomy	Financial autonomy	Corporate governance
FA_ENTIT: Port authority is the only entity with statutory responsibilities for the port(s) it manages	FI-PROMO: Port authority can give commercial promotions on general port dues	CG_CEOAP: Supervisory board port authority has end responsibility to appoint CEO
FA_HMAST: Harbour master is fully integrated in the port authority	FI_CROSS: Port authority can cross-subsidise between different sources of income	CG_SELEC: Port authority uses public selection procedure to contract land
FA_LANDO: Port authority is the main owner of port land	FI_INVES: Port authority decides autonomously on port investments	CG_CSRPO: Port authority has a Corporate Social Responsibility (CSR) Policy
FA_LANDD: Port authority is free to set durations of land use contracts	FI_WAGES: Port authority sets wages, terms and conditions of service of its own personnel	CG_ACPUB: Port authority publishes its financial accounts

As we have to respect the anonymity of the respondents to the survey, we cannot present the individual scores of each port authority. Neither can we present the scores per country, as this would in some cases reveal the identity of port authorities. We have therefore aggregated the results per governance region: Hanse (Belgium, Denmark, Finland, Germany, Sweden, The Netherlands), New Hanse (Estonia, Latvia, Lithuania, Poland), Latin (Cyprus, France, Greece, Italy, Malta, Portugal, Spain), New Latin (Bulgaria, Croatia, Romania, Slovenia) and Anglo-Saxon (Ireland, United Kingdom). Figure 30 presents the results in terms of the reform intensity needed, per category and on average.

The graph indicates that the intensity of management reform is likely to be highest for port authorities from the Latin and New Latin regions, i.e. from southern Europe. Establishing functional autonomy will also require great effort for the New Hanse port authorities. Reform intensity would be the least for port authorities in the Anglo-Saxon region, which are in essence independent already. The relatively high intensity on corporate governance is somewhat misleading, as it is influenced by the fact that most UK ports have a comprehensive configuration and, therefore, do not use public selection procedures to contract land out. This also influences the profile in some of the New Latin countries.

Figure 30 – Management reform intensity selected TEN-T core network ports



7.5. The reform supporter: the role of the European Union

The drive for further port management reform in Europe should be a bottom-up process. It should start from a shared belief between port authorities and governments that reform will contribute to the competitiveness of the ports concerned. If this common objective is not shared at the outset, reform processes risk being very cumbersome with sub-optimal and potentially counterproductive configurations as a result. The Rotterdam reform process demonstrated this very well. But it also illustrated how the involvement of a more independent government level could help in keeping reform on course.

The European Union could play a similar role, not to become a port authority shareholder as the Dutch government eventually did, but to be an objective ally that helps keeping port management reform processes on track. We have amply demonstrated in Chapter 4 that it is neither the task, nor the competence of the EU to establish a common governance model for Europe's seaports. But we equally concluded that, de facto, EU law and policy set limits to what the options are and how they have to be applied. The first important task of the EU therefore remains the clarification of what the applicable framework is. This concerns several of the key issues we listed in Table 28: in-house provision of port services, allocation and contractual terms of concessions, leases and service agreements, transparency obligations, the use of public funding and corporate taxation. All these issues have been left unanswered for far too long. We noted earlier how the current Regulation proposal on market access to port services and transparency risks becoming an empty shell, and could even turn out to be counterproductive.

Port authorities and governments need to explore more enthusiastically the potential that supra-national policies can offer. Rather than seeing European ports policy as an intrusion of local or national competencies, those seeking port management reform should embrace it as an independent factor that can help to maintain the focus on the competitiveness objective and in establishing port authorities that have clear economic goals, operate autonomously, are accountable to customers and stakeholders and behave in a transparent manner. The policy of the European Commission has become much more balanced since the port services' Directive, recognising the value-added of port authorities, and proposing a measured form of regulatory oversight, leaving concrete options to be adapted to individual market circumstances. The continued stalling of a clear regulatory framework regarding the application of competition and internal market rules casts a long shadow of uncertainty over the role of port authorities and the validity of port management reforms that are currently undertaken or planned. Perpetuating the current uncertainty for reasons of political opportunity and lack of European ambition is in no-one's interest.

We could also consider an alternative way for the EU to play a supportive role, which is again inspired by the Rotterdam reform case. The Dutch government insisted on corporatisation as a quid pro quo for its financial support to Maasvlakte 2. We could envisage an incentive scheme at EU level, through the TEN-T framework, whereby EU funding for port infrastructure projects would be made conditional to application of basic principles regarding market access and transparency. The European Commission actually hinted at this option in its 2013 ports policy communication (European Commission 2013), but has not pursued it further so far.

7.6. Conclusion

We can conclude that there is viable scope for a common direction in further reforming port management in Europe, notably for the core network ports of the Trans-European Transport Networks (TEN-T). The overall direction consists in making port management independent through corporatisation or privatisation. The former will generally be more suitable for multi-purpose gateway ports that operate in a landlord configuration, which applies to the majority of the TEN-T core network ports. Independent management will also enable port authorities to merge or engage in other far-reaching forms of cooperation, which may be a viable additional reform direction for certain core ports that are de facto part of a cluster. The drive for further port management reform in Europe and the options to be chosen should be bottom-up processes, based on shared beliefs between port authorities and governments that the objective of port management reform is to improve the competitiveness of ports. Reform efforts towards independent management are expected to differ considerably and would appear to be most intense for ports in southern Europe. Making ports more competitive through management reform will not just serve the ports concerned, but the European port system as a whole. The European Union should therefore be an objective ally and provide support, by clarifying the applicable legal framework without further delay. This can be done by continuing the present legislative initiative and through case-by-case decisions. A more efficient alternative could however consist in providing incentives through the TEN-T framework, whereby EU funding for port infrastructure projects would be made conditional to application of basic principles regarding market access and transparency.

8. RESEARCH CONCLUSIONS AND AGENDA

In this study, we revisited the role of port authorities, identified trends in port management and governance, assessed the economic impact of port management reform and explored the future scope for management reform in Europe. This was done through a review of literature, empirical evidence drawn from European seaports and an assessment of EU policy initiatives. The main contribution of our work consists of a comprehensive analytical framework to measure the economic impact of port management reform and identify influential process factors. The analytical framework was further developed and tested out on the reform of Rotterdam Port Authority.

This concluding Chapter first of all synthesises the answers to our research questions. This is followed by a series of suggestions for further research.

8.1. Research conclusions

Table 30 recapitulates the principal and additional research questions. We summarise the answers found to each question in the following Sections.

Table 30 – Recapitulation of research questions

Principal research questions	Additional research questions
1. How can port authorities contribute to the competitiveness of their ports?	1.a. Which governance factors enable port authorities to contribute to competitiveness?
2. What determines governance diversity in Europe?	2.a. Do governance traditions foster competitiveness of ports? 2.b. What is the influence of EU ports policy?
3. Does port management reform lead to a better port product?	3.a. Which factors are essential to ensure that port management reform improves the port product?
4. What is the future scope for port management reform in Europe?	

8.1.1. How can port authorities contribute to the competitiveness of their ports?

Conceptually, port authorities have the potential to undergo a ‘renaissance’ in order to face multiple pressures from stakeholders, deal with the socio-economic changes in the port landscape and improve the competitiveness of their ports. In Chapter 2, we presented a hypothetical typology according to which port authorities can be conservators, facilitators or entrepreneurs. A conservator port authority concentrates on being a good housekeeper and essentially sticks to a passive and mechanistic implementation of landlord, regulator and operator functions at local level. Because of this low-profile attitude and limited value-added, conservator port authorities may run the highest risk of being marginalised and even becoming extinct in the future. A facilitator port authority profiles itself as a mediator and matchmaker between economic and societal interests and invests considerably in its community manager function. Facilitator port authorities also look beyond the port perimeter and try to engage in strategic regional partnerships. It is the type of port authority, which for its fine-balanced profile, seems to find most support in literature. The entrepreneur port authority would be the fullest renaissance port authority by combining the

main features of the facilitator with a more outspoken commercial attitude as investor, service provider and consultant on all three geographical levels. Because of this ambitious profile, it is also the one which runs the highest risk of running into problems caused by conflicts between the various functional levels, especially for ports operating in a landlord configuration.

Building on the early insights of Goss (1990a) and Suykens and Van de Voorde (1998), we expressed the ability of a port authority to contribute to the competitiveness of a port in economic terms. Port management can essentially improve the quality of the port product – and thus generate more demand for it – by decreasing the generalised cost of moving cargo or passengers through the port. We have to be aware that the quality of the port product itself will not fully explain the competitiveness of the port. As ports are usually part of wider logistics chains, there are other elements which determine that competitiveness, on which the port authority on its own has no or only very limited influence, such as geographical location, proximity and connectivity to cargo-generating hinterlands, structural changes in markets etc. The influence of port authorities in the logistics chain can be extended through cooperation with other port authorities and other relevant actors in the chain.

8.1.2. Which governance factors enable port authorities to contribute to competitiveness?

We identified four essential governance factors that may make the difference between a mere conservator role for port authorities and facilitator and entrepreneurial roles: the balance of power with government, the legal and statutory framework, the financial capability of the port authority and a pro-active corporate culture. These four factors are strongly interrelated. The power balance with government stands out as the most important factor, which will influence the three others.

The balance of power between government and port authority may translate itself in conflicting objectives which will typically rise to the surface during port management reform processes. Whereas port authorities may have valid bottom-up reasons for reform, this is not always the objective desired by governments that own and/or control them. The model of public management reform developed by Pollit and Bouckaert (2011) puts the process of elite-decision making centre-stage.

The application to the Rotterdam reform case illustrates very well how the interaction and powerplay between the port authority, the Rotterdam municipality and the Dutch State have determined the outcome of the reform process and influenced the legal and statutory framework, the financial capability and the corporate culture. The Rotterdam case further illustrates that it is not necessarily the ‘closest’ level of government, i.e. the level of government that owns or directly controls the port authority that will strive for the competitiveness of the port. The case study finally underlines that formal aspects, such as the legal and statutory framework, form but one element that contributes to the performance of the port authority and, eventually, the port as such. Corporate governance, management culture and leadership appear to be very influential factors as well.

8.1.3. What determines governance diversity in Europe?

The quantitative analysis of the ESPO Fact-Finding Survey shows that port governance in Europe still largely converges around regionally-based traditions. Traditional Hanse, Latin and Anglo-Saxon frameworks explain a considerable part of the governance diversity in Europe. Port authorities in new Member States from East Europe situate themselves

somewhere in between the main traditions, although a strong central government influence would make many of them more affiliated with the Latin tradition. Taking into account that, proportionally, most port authorities in Europe belong to either the Hanse or Latin tradition, the difference between both translates itself in a north-south duality which not only involves simple ownership differences, but covers many other governance elements, especially functional and financial autonomy.

The future relevance of these governance traditions depends on further reforms and, possibly, the influence of the European Union. The analysis of European port governance however already indicates that regional differences may no longer explain everything. The size of the port appears to be a factor that overrules regional traditions. We could indeed detect differences in terms of governance practices between small and large ports. Port authorities of the latter generally follow a more pro-active approach and score higher on transparency-related indicators. Port authorities managing ports that have outgrown their local and national importance may therefore be converging to a different governance model, pointing at a certain dynamic that is independent from the geographical traditions in which these port authorities are embedded

8.1.4. Do governance traditions foster competitiveness of ports?

The functional and financial autonomy of port authorities is typically more limited in the south of Europe, where port authorities are embedded in the Latin governance tradition with a strong influence of central government. Whilst the limited autonomy would prevent Latin port authorities more from achieving their objectives and investment responsibilities, the survey analysis shows that it somehow paradoxically does not always appear to be a constraint for functional pro-activeness.

Findings from the Rotterdam case-study question the value of staying firmly embedded in governance traditions, certainly for ports that have outgrown their local and national importance. The governance changes that came about in Rotterdam since 2003 changed the Hanseatic, municipal character of the port authority, especially through the shareholding of the Dutch State. But that shareholding indirectly improved the port authority's performance, by insisting on clearer objectives and roles. During the reform process, municipal forces perpetuated a sub-optimal configuration which enabled a financial scandal that could have been avoided if a clear choice for corporatisation and transparent corporate governance had been made earlier. If municipal resistance against corporatisation would have persisted, fundamental Hanseatic principles of municipal land ownership and unity of management could paradoxically have been jeopardised.

8.1.5. What is the influence of EU ports policy?

The achievement of a common European ports policy has been a slow and difficult process so far. The trauma of the two failed attempts to issue legislation on market access to port services has had a lasting impact and largely explains the continued resistance against the latest regulatory proposal of the European Commission.

Still, the potential impact of European policy and law on the governance of seaports is fairly high. Whereas the EU cannot impose harmonisation of port governance models, individual cases demonstrate the effect that application of EU competition and internal market rules can have on the position of port authorities, inciting reforms towards landlord configurations (Italy, 1994) and corporatisation of port authorities (Finland, 2014). Ports working in a

landlord configuration align easier with the principle of separating infrastructure management from operations that is commonly applied in other transport and network services. Furthermore, EU law regards port authorities as undertakings. Port management is considered to be an economic activity, even if it partially entails public tasks and services of general economic interest.

It is expected that the political discussion on the latest regulatory proposal will yield only partial and limited results. Case-law, notably on land lease contracts and State aid, may bring further incremental steps forward in the ports policy procession. Furthermore, the investigation of the Commission into corporate taxation of port authorities may not only have immediate financial consequences, it may also have a harmonising impact on the very nature of port authorities. Other aspects of State aid may bring about consequences for the way in which service providers are selected and, above all, for the investment capacity of port authorities.

8.1.6. Does port management reform lead to a better port product?

Port management reform should have an outspoken economic objective, which is to contribute to the competitiveness of a port. The realities of reform processes however often differ substantially from what the economic objective requires. Measuring the economic impact of port management reform on the port product is a challenging task, given that several other internal and external factors influence the competitiveness of a port. Port authority reform is furthermore often part of a wider reform package, which makes its particular impact even more difficult to isolate. The analytical framework developed in Chapter 5 starts from the assumption that a reduction of generalised costs will improve the quality of the port product and create more demand for it. Port management reform should thus aim at improving the ability of the port authority to reduce these costs.

A distinction must be made between the economic impact of port management reform on the port authority itself and on the competitiveness of the port as such. The Rotterdam case-study illustrated that the first will be more straightforward and easier to measure, although it also made clear that *prima facie* evidence of improved post-reform performance needs to be carefully scrutinised. In the case of Rotterdam, other governance changes occurring in the same timeframe, as well as other factors unrelated to governance changes, influenced results.

Taking into account the data limitations we encountered, we found that the main effects of the reform of Rotterdam Port Authority, in combination with the other governance changes that occurred in the same timeframe, were twofold. First and foremost, they enabled the port authority to obtain the necessary means to develop the Maasvlakte 2 expansion project. The effect of Maasvlakte 2 on the competitiveness of the port will become clear in the years to come. Second, the combined governance changes ensured that the relatively high levels of functional and financial autonomy, which Rotterdam Port Authority already enjoyed prior to reform, were embedded in a professional and transparent corporate governance structure and culture, which improved the economic performance of the port authority itself.

In general terms, port management reform has the potential to increase a port authority's ability to invest, by having more autonomy over its own revenue sources, attracting new share capital and having better access to private financing. It will also increase the port authority's ability to engage more actively in participations that would extend its influence in the logistics chain, e.g. through more intensive cooperation with other ports.

8.1.7. Which factors are essential to ensure that port management reform improves the port product?

To be successful, parties participating in the reform processes, including government and port authority management, should share the economic objective of reform from the outset. If that is not the case, which in practice it often isn't, the reform process may not only take a long time, it also risks producing imperfect and even counterproductive configurations. All elements, including socio-economic and political factors that could potentially distract the reform process from its economic objective should therefore be identified and assessed in the very early stages of the process and scenarios should be established to deal with them. Still, parties pursuing reform should be aware that the process is often anything but rational and influenced by path-dependency and cultural factors. Breaking these will require substantial effort. The Rotterdam case illustrated that the involvement of a government level which is less directly involved in the governance of the port authority may help staying on course.

Ensuring an adequate post-reform governance framework is just as important as the reform process itself. Adopting a new legal form is in itself by no means a guarantee for better performance. Functional and financial autonomy, a professional corporate governance culture as well as adequate and proportional regulatory oversight are equally essential. Post-reform governance also means that the effects of the reform package on the performance of the port authority and the competitiveness of the port must be regularly monitored, taking into account that positive effects of reform may wear off after a certain time. This requires the systematic collection of data and indicators, at a very early stage of the process.

8.1.8. What is the future scope for port management reform in Europe?

There is viable scope for a common direction in further reforming port management in Europe, notably for the core network ports of the Trans-European Transport Networks (TEN-T). The overall direction consists in making port management independent through corporatisation or privatisation. The former will generally be more suitable for multi-purpose gateway ports that operate in a landlord configuration, which applies to the majority of the TEN-T core network ports. Independent management will also enable port authorities to merge or engage in other far-reaching forms of cooperation, which may be a viable additional reform direction for certain core ports that are de facto part of a cluster. The drive for further port management reform in Europe and the options to be chosen should be bottom-up processes, based on shared beliefs between port authorities and governments that the objective of port management reform is to improve the competitiveness of ports. Reform efforts towards independent management are expected to differ considerably and would appear to be most intense for ports in southern Europe. Making ports more competitive through management reform will not just serve the ports concerned, but the European port system as a whole. The European Union should therefore be an objective ally and provide support, by clarifying the applicable legal framework without further delay. This can be done by continuing the present legislative initiative and through case-by-case decisions. A more efficient alternative could however consist in providing incentives through the TEN-T framework, whereby EU funding for port infrastructure projects would be made conditional to application of basic principles regarding market access and transparency.

8.2. Research agenda

The results of our research contribute to scholarly work on the role of port authorities and the impact of port management reform. We have framed existing literature on the role and value-added of port authorities in a hypothetical typology, whereby we identified influential governance factors. We have added a quantitative dimension to research into governance diversity in Europe, which has up to now been mainly subject of qualitative studies. We have furthermore spelled out the potential influence of European policy. Most importantly, we have discussed methodologies to measure the impact of port management reform on the economic performance of port authorities themselves and the broader impact on port competitiveness. We consider this to be the main scholarly contribution of our research. Using insights of welfare economics, we conceptually defined port management reform as a quality improvement of the port product which will increase demand for that product. We have devised a methodology which estimates the effects of reform on the generalised costs associated with a port call. In combination with price elasticities, this allows to estimate the impact of port management reform on demand for the port product. Combining the quantitative aspects of the framework with a qualitative process dimension permits a full ex-post evaluation. Testing the analytical framework out on port management reform of Europe's largest seaport has provided us with valuable insights in the potential and challenges that the practical application of this framework brings.

Our work has validated and extended a number of earlier research insights. First, we found that, in Europe, the influence of regional governance traditions identified by Suykens (1988) still exists, but may become less relevant, certainly for larger ports that have outgrown their local and national importance. We have confirmed the conclusion of Goss (1990b) that options are limited for port authorities of a certain dimension and that independent port management may be the ultimate paradigm, regardless of the operational configuration of the port authority and its final ownership. Using the early findings of Goss (1990a) and Suykens and Van de Voorde (1998), we have developed an operational basis to measure the economic impact of port management reform on the quality of the port product, through the notion of generalised costs. Finally, we also validated the findings of Everett (2003) regarding the importance of having an adequate post-reform framework in place and the conclusion of Winkelmanns and Notteboom (2001) that corporate management culture and leadership may be as important as formal governance characteristics.

We have a number of suggestions for further research. The quantitative analysis of governance diversity in Europe presented in Chapter 3 was based on a survey from 2010. An update would therefore be timely and, to complement the factor analysis findings, data could also be reduced with cluster analysis, to group port authorities with similar characteristics. As regards the application of the analytical framework, we found there is scope to develop a particular output indicator for port authorities, which is needed to measure the impact of reform on productive efficiency. It should be possible to devise such an indicator, based on the core activities of port authorities, which can be adapted to the particular configuration of each port authority. For the application of the generalised cost method, further research will be necessary on the monetisation of the yet non-monetary cost elements and price elasticities to estimate the impact on demand for the port product. The welfare economics approach which underpins the framework may potentially conflict with individual choices based on generalised cost. The assessment of distribution effects, including the identification of those parties that stand to gain and lose from port management reform therefore requires additional research. Further thought should also be given to the internalisation of those

external costs that were not included in our generalised cost function, such as transaction costs, i.e. costs related to information exchange, and environmental costs. Apart from these methodological aspects and even allowing for data constraints and other limitations, it would already be useful to apply the framework to a wider range of port management reform cases, including both port authorities with similar and diverse configurations and governance traditions. This would allow us to validate our provisional findings and refine our policy recommendations for further port management reform in Europe. In addition, the framework should also be tested out on port management reform outside Europe. Finally, with a number of modifications, the framework could also be applied for ex-ante evaluation of planned reform schemes, similar to traditional cost-benefit analysis. This however requires solid forecasting methods to anticipate the results expected from reform

Venturing into broader fields of port management and governance, further empirical research should address the impact of public funding and other elements that may distort competition between port authorities. The Rotterdam case-study pointed at the potential influence subsidies and other forms of public support in neighbouring ports may have on the level of port dues and land lease prices as well on the profitability and investment capability of port authorities. The Dutch government has frequently raised such allegations through a number of studies (e.g. Nationale Havenraad 2006, Ministerie van Verkeer en Waterstaat 2014). These findings were consistently refuted in studies commissioned by competing port authorities and governments. We already referred to an ongoing analysis by the European Commission which may shed more independent light on this matter. The management and governance of port clusters forms an emerging field of research, but the specific relation with port management reform has only barely been touched upon. Given that we consider this an important future direction for reform in Europe, it deserves particular attention. Finally, the analysis of the Rotterdam case pointed at the important role management culture and leadership may have on the performance of port authorities, which is another research stream that needs further development.

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APPENDIX 1: EUROPEAN PORT GOVERNANCE

Report of an Enquiry into the Current Governance of European Seaports

Summary of the 2010 edition of 'The ESPO Fact-Finding Report'
(Verhoeven and ESPO 2011)

INTRODUCTION

1. The 2010 edition of the ESPO 'Fact-Finding Report' on port governance builds on the tradition of the original reports, which find their origin in the 1970s. This edition is based on a new conceptual background which takes into account the evolution of the port concept and new perspectives on the role of port authorities. It puts the port authority much more centre-stage than before and enquires to what extent its possible 'renaissance' is effectively happening today. The conceptual background identifies existential options in a hypothetical typology of port authorities. This typology consists of three basic types: the 'conservator', the 'facilitator' and the 'entrepreneur'. The conceptual basis also identifies four governance factors which will influence the renaissance of port authorities: the power balance with government, the legal and statutory framework, financial capability and management culture

2. Contrary to previous reports, this edition is the first to be based on a web-based survey that was addressed directly to individual port authorities. 116 port authorities from the 26 countries represented in ESPO responded. Together, these port authorities reported to manage a total of 216 different ports. In 2008, these ports handled in total 66,2% of the overall volume of cargo handled by the total population of ports represented in ESPO, covering the 22 maritime Member States of the EU and 4 neighbouring countries.

3. The survey results are presented both generally and differentiated, according to region and size. The regional differentiation is based on a geo-governance typology that classifies port authorities in five groups: 'Hanse' (Iceland, Norway, Finland, Sweden, Denmark, Germany, Netherlands and Belgium), 'New Hanse' (Estonia, Latvia, Lithuania and Poland), 'Anglo-Saxon' (UK and Ireland), 'Latin' (France, Portugal, Spain, Malta, Italy, Greece, Cyprus and Israel) and 'New Latin' (Slovenia, Croatia, Romania and Bulgaria). The size differentiation is based on the total annual volume of goods handled by the ports represented through the port authorities participating in the survey. When interpreting the size differentiation, it should be noted that the regional differentiation influences especially the small and medium-sized category.

4. The results of the survey are grouped in three main sections: (1) objectives and functions of the port authority, (2) institutional framework of the port authority and (3) financial capability of the port authority.

OBJECTIVES AND FUNCTIONS OF THE PORT AUTHORITY

5. Most port authorities have formalised objectives, but these show a great diversity of economic and non-economic ones, which are often even mixed. The pure economic objectives are varied as well. Maximisation of handled tonnage, maximisation of added value and maximisation of the profit of the port authority stand out as the most important ones. The first is more common for port authorities from the New Hanse and New Latin regions, whereas added value occurs more often in the Hanse and Latin regions. Profit maximisation is more common for port authorities from the Anglo-Saxon region.

6. The objectives of the port authority influence the functional profile. Looking at the three traditional functions, i.e. the landlord, regulator and operator functions, it can be concluded that, as operators, port authorities gradually moved away from providing cargo-handling services. These have in most cases been privatised and/or liberalised. Operational activities of port authorities focus mainly on the provision of those ancillary services which are to the benefit of the entire port community, such as provision of public utilities and dredging. Some important regional differences however exist, with notably Anglo-Saxon port authorities being more involved in the provision of cargo-handling and technical-nautical services. Also smaller port authorities are more frequently providing these types of services.

7. The landlord function can be considered as the principal function of contemporary port authorities. It is subject to different forms of pressure, i.e. competitive pressure to invest in infrastructure, financial pressure to make these investments possible and competition for land-use. Land is indeed a crucial element in this respect, but only about half of the responding port authorities actually own the port land they manage. Port authorities are generally not able to sell port land, unless with restrictions. The landlord function therefore translates itself essentially in the ability to contract land to third parties, which most port authorities are able to do and which forms the most important governance tool they have at their disposal. Most port authorities use public selection procedures to select service providers although this is often conditional, e.g. only for plots of land that are of strategic interest. Public selection procedures usually take the form of public tenders whereby all relevant contractual details are specified in advance. In this way port authorities are able to give shape to their objectives. Throughput guarantees and environmental performance clauses rank as the two most frequently occurring contract clauses. Port authorities are generally free to set durations and determine contract clauses, although restrictions do exist more in some regions than others. Generally speaking, Hanseatic and Anglo-Saxon port authorities enjoy relatively more autonomy when it comes to land ownership and the contracting out of port land than their colleagues in other regions. Apart from the regular commercial exploitation and administration of port land, almost half of the responding port authorities also engage in urban real estate management and environmental land management. The former is especially typical for port authorities in the Latin region.

8. The increased focus on negative externalities of port operations has reinforced the regulator role of port authorities in the fields of environment, safety and security. The harbour master's office plays an important role in this although, especially in Latin and New Latin regions, it does not always form part of the port authority's organisational structure. Many port authorities do have their own safety, security and environmental departments. Most port authorities also issue their own regulations in these three fields, but there are not many that go beyond mere transposition of legal requirements. This somehow contrasts with the finding that half of the responding port authorities do claim to go beyond legal requirements in implementing and developing actions to enhance sustainability.

9. The traditional functions of port authorities have gone through substantial change. The operator function has made way to landlord and regulatory functions which have gained a strong community focus and complement the actual community manager function, which is essentially pro-active in nature. The latter appears to be well-rooted in the functional profile of port authorities. Both the economic dimension, which focuses on facilitation of the port community and the solving of various kinds of bottlenecks, and the societal dimension, which focuses on external stakeholders, is very much present and many port authorities assume a leadership role in both. Latin port authorities are most pro-active in this field. It is significant that most port authorities that participated in the survey confirm that, regardless

of their ownership or dominant level of control, they maintain the most intense contacts with local government.

10. Few port authorities transpose their functions beyond their own borders, whether this concerns investment in hinterland networks, direct investment in other ports, providing certain services in other ports, export of regulatory and other expertise etc. So far, mainly larger port authorities seem to be developing initiatives beyond their own perimeter. Some are even setting up specific development companies for this purpose.

11. Looking at the port authority typology presented in the introduction, it can be concluded that most port authorities participating in the survey converge towards the 'facilitator' type, with only few venturing into 'entrepreneurial' activities.

INSTITUTIONAL FRAMEWORK OF THE PORT AUTHORITY

12. The number of port authorities managing more than one port is significant but covers quite different arrangements, ranging from national port authorities that manage all ports in a given country to regional authorities managing a cluster of smaller, neighbouring ports and private or public holdings managing several ports in a country. The sample includes only one example of a port authority that manages ports in different countries. Looking at on-going port reforms and reorganisations, one notices however that intensified co-operation between (neighbouring) ports is an issue in several countries. This is either driven bottom-up by port authorities themselves or stimulated by national or regional government. The latter seems more characteristic for the Hanse region where some governments are also discussing the selection of 'ports of national interest'.

13. In approximately two thirds of the cases the port authority is the principal entity with statutory responsibilities for the port(s) it administers. In the other cases, statutory responsibilities are mostly split with the harbour master's office or a similar entity responsible for nautical safety and security. This phenomenon is especially visible in Latin and New Latin countries.

14. The vast majority of port authorities participating in the survey are publicly owned. The ownership pattern confirms the Hanseatic and Latin traditions of respectively strong municipal and central government influence. Port authorities in Anglo-Saxon countries are either owned by the State (Ireland), municipalities, private equity or independent trusts (UK). State ownership dominates for port authorities in the new regions. Looking at ongoing reforms, the ownership situation of port authorities looks fairly stable with minor changes to be expected in some countries. In the Anglo-Saxon region, full privatisation of port authorities is still at stake however. Privatisation or liberalisation of operational services is mainly on-going (or has just been completed) in ports in the Latin, New Latin and New Hanse regions.

15. Most port authorities participating in the survey have their own legal personality which generally takes what is called a 'commercialised' or 'corporatised' form. Corporatised port authorities have share capital that is owned in part or in full by government. Regional comparison highlights that corporatised port authorities occur least frequent in the Latin and Hanse regions. Corporatisation has been a trend for a few years however and it looks as if more port authorities may take this form in the near future. The European Union could have an indirect influence in this process.

16. An important distinction needs to be made between being corporatised in form and actually following principles of corporate governance that are customary in private undertakings. The analysis of the organisational structure of port authorities shows that political influence varies between the regions, but is substantial everywhere, except in the Anglo-Saxon region (mainly UK). Political influence is especially visible through the appointment of top management executives and the composition of supervisory bodies. Although the role of the supervisory body seems mostly to correspond with the usual role of a board of directors, a more in-depth comparison with general principles of corporate governance would be useful. The question remains whether, given the strong degree of public ownership of European port authorities, political influence can or should be absent at all. Complete absence of political control may even be counterproductive

17. The analysis of staff composition of port authorities shows that, on average, port authority staff are in first place administrative employees, followed by nautical and engineering staff. Operational staff, such as crane and other equipment drivers and dockworkers form only a limited category, which confirms that many port authorities in the sample are essentially landlord ports. This picture however differs regionally. Anglo-Saxon port authorities are more involved in operational services, but also a significant share of Latin port authorities employ operational staff. The analysis further demonstrates that in some port authorities administrative staff dominates, whereas in others nautical staff or engineering staff form the main category. Although going beyond the scope of this report, it would be interesting to link this to the management culture of port authorities.

FINANCIAL CAPABILITY OF THE PORT AUTHORITY

18. The financial capability of a port authority is one of the key governance factors that determine the extent to which the port authority can achieve its objectives and optimally perform its functions.

19. The results of the survey show that, in most cases, the port authority bears a very important, if not the most important, financial responsibility for the capital investment, administration, operation and maintenance of the capital assets that constitute a port. To confirm this picture in full the monetary value of the different types of capital assets would need to be assessed. Taking into account regional and size-related differences, most port authorities bear financial responsibility for maritime access (at least partly), terminal-related infrastructure and transport infrastructure within the port area. The private sector mainly assumes financial responsibility for superstructure, which is again an indicator that most European ports converge towards the landlord model. Government bears in most cases the principal financial responsibility for transport infrastructure outside the port area. Port authorities from Anglo-Saxon and, to a lesser extent, New Latin regions bear relatively more financial responsibility than their colleagues in other regions.

20. The average operating cost profile of port authorities shows that personnel costs rank highest, followed by purchase of services and goods and depreciation of investments. The cost profile of port authorities from the new regions is different, with a stronger proportion of services and other goods and, in the case of New Hanse, a higher percentage of depreciation. Anglo-Saxon port authorities have a considerably higher percentage of personnel costs and significantly lower percentage of depreciation.

21. General port dues form the most important source of operating income for port authorities, next to income from land lease and income from services. If present at all, public

funding forms only a very limited part of the operating income. The revenue from land lease is relatively lowest in the Anglo-Saxon and New Latin region. The income charges that port authorities apply often have a public nature, either in the form of taxes or retributions, and these are mostly based on public tariffs. This is especially the case for general port dues.

22. The autonomy of port authorities with regard to port charges, especially where it concerns setting the level of charges, differs according to regions and is especially low for port authorities from the Latin region. Port authorities from the Anglo-Saxon region have relatively the highest autonomy with regard to port charges. The same picture emerges for the overall financial autonomy of port authorities. Small port authorities often seem to have relatively more financial autonomy than large ones.

23. Finally, as indicators of corporate behaviour, it can be concluded that most port authorities apply generally used accounting principles and make their financial accounts public. The taxation picture is more different. Whilst most of the responding port authorities are subject to VAT, only about half of them are subject to income tax or local taxes. Port authorities from the Anglo-Saxon region are most frequently subject to income tax, whereas port authorities from the Hanse region are least.

24. To draw full conclusions, the financial profile of individual port authorities would require a much more in-depth analysis. The response rate to the survey was also lowest on the financial questions, which is partly due to confidentiality reasons. Nevertheless, the overall picture points at a fundamental weakness. Whilst most port authorities apparently have to bear heavy financial responsibilities regarding investment and personnel, many do not seem to be full master over their income. This is especially the case for Latin port authorities and, to a lesser extent, port authorities in the new regions, which are marked by a rigid public nature of port charges and lack of financial autonomy.

APPENDIX 2: FACTOR ANALYSIS
Estimated residual variances of variables

	Model without region dummy variables	Model with region dummy variables
<i>Variable</i>	<i>Estimated residual variance</i>	<i>Estimated residual variance</i>
SZ_CARGO	0.63	0.70
SZ_PASSG	0.97	0.98
SZ_STAFF	0.51	0.50
IR_CAPAS	0.87	0.84
IR_INCOM	0.19	0.25
CG_BORSZ	0.46	0.40
RG_HANSE	.	0.14
RG_NWHAN	.	0.89
RG_ANGLO	.	0.07
RG_LATIN	.	0.01
RG_NWLAT	.	0.46
DV_PRIVA	-0.20	0.09
DV_DECEN	0.44	0.22
DV_CORPT	0.57	0.52
DV_REFYR	0.59	0.55
CG_OBJEC	0.58	0.60
CG_PROFI	0.53	0.48
CG_VALUE	0.77	0.69
CG_MISSI	0.65	0.78
CG_CEOAP	0.54	0.57
CG_BORPO	0.36	0.16
CG_SELEC	0.46	0.39
CG_CSRPO	0.50	0.53
CG_ACSEP	0.28	0.25
CG_ACAUD	0.04	-0.02
CG_ACPUB	0.40	0.34
CG_ACANL	0.59	0.69
OP_TECNA	0.35	0.37
OP_ANCIL	0.33	0.35
OP_CARHA	0.38	0.43
OP_PAXHA	0.75	0.80
OP_TRANS	0.61	0.66
FA_ENTIT	0.62	0.68
FA_HMAST	0.39	0.30
FA_POLIC	0.69	0.62
FA_LANDO	0.68	0.68
FA_LANDS	0.75	0.70
FA_LANDP	0.62	0.61
FA_LANDD	0.84	0.80
PO_CLAUS	0.68	0.72
PO_URBAN	0.55	0.57
PO_ENVIR	0.87	0.86
PO_RULES	0.79	0.77
PO_SUSTA	0.65	0.60
PO_BOTTL	0.57	0.53
PO_IMPL	0.80	0.85
PO_ITSYS	0.57	0.62
PO_PROMO	0.85	0.93

	Model without region dummy variables	Model with region dummy variables
<i>Variable</i>	<i>Estimated residual variance</i>	<i>Estimated residual variance</i>
PO_TRAIN	0.76	0.73
PO_SOCIE	0.54	0.49
PB_STRAP	0.35	0.36
PB_DINVE	0.71	0.73
PB_REGEX	0.39	0.39
PB_SERVI	0.76	0.88
PB_HINTE	0.47	0.51
PB_TRAIN	0.50	0.49
IR_PDUES	0.75	0.84
IR_LEASE	0.69	0.64
IR_SERVI	0.34	0.61
IR_PUBFU	0.65	0.64
FI_PRICE	0.43	0.35
FI_PROMO	0.79	0.85
FI_CROSS	0.73	0.76
FI_LEVEL	0.29	0.32
FI_COLLE	0.22	0.34
FI_BENEF	0.65	0.82
FI_INVES	0.66	0.59
FI_WAGES	0.62	0.60
FI_RESUL	0.88	0.84
FI_TARGT	0.76	0.76



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