

**An Examination of the Application
of Power Theory
in the Context of the Chinese Seaport Sector**

by

Wenrui MA

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Cardiff University*

Logistics and Operations Management Section of Cardiff Business School, Cardiff University

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Abstract

Power is an essential attribute of all social systems. Nonetheless, the study of this topic has been greatly overlooked in the context of the maritime component of international supply chain management. This study aims to contribute to addressing this shortfall by examining how the concept of power can be understood between two key maritime actors – the port/terminal operator and the liner shipping company.

Four specific research topics have been created based on the key dimensions of the concept of power: power source, power pattern, power strategy, and power exercise. These topics relate, respectively, to the origin of power, the balance/imbalance of power, strategies to improve power, and the use of power. Investigation into the vested power issues relies on the dependence discourse and power-bases discourse of the concept of power. These have been analysed through the lenses of Resource Dependence Theory (RDT) and Social Exchange Theory (SET).

Four Chinese hub seaports are used as the setting for this study (i.e. Xiamen Port, Shanghai Port, Qingdao Port and Ningbo Port). A qualitative case study strategy is deployed using data gathered mainly from 39 semi-structured interviews with leading players from both groups of maritime actors. The data were analysed using template analysis.

Research findings reveal that case port/terminal operators implement a number of tactics to improve power in relation to liners. The sources of these two maritime actors' power are identified at three levels: organisational, dyadic relationship, and supply chain network. Whereas case port/terminal operators and liner operators are found to be highly interdependent, the former party generally takes a more powerful position. Under this power pattern, the port terminal operators have used their reward power, legitimate power and coercive power to exercise control in the dyad.

This study is the first to systematically investigate power issues in the maritime industry. The research centres on the Chinese hub seaports incorporating port governance and guanxi contextual issues. It extends the understanding of the concept of power and contributes to the knowledge of port/terminal operators' business practices and relationships with liners. The overall outcome of this study is the creation of a theoretical framework to understand the basic functioning mechanisms of inter-organisational power. This study validates the RDT approach to examine power strategies in the inter-organisational dyads exploring the patterns and sources of power involved. It also contributes to SET by investigating the explanatory power of this theory for the patterns of power exercise.

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Table of Contents

DECLARATION	i
Abstract	ii
Acknowledgements	iii
Table of Contents	iv
List of Figures	xi
List of Tables	xii
List of Abbreviations	xiv
Chapter 1 Introduction	1
1.1 Chapter Overview	1
1.2 Background	1
1.2.1 Market Features of the Maritime Industry	1
1.2.2 Power Issues in the Maritime Industry	3
1.3 General Research Question and Research Context.....	4
1.4 Key Concepts and Sub-research Questions	6
1.4.1 Key Concepts and Terminologies	6
1.4.1.1 Maritime and Supply Chain Terms	6
1.4.1.2 Power-related Concepts	7
1.4.2 Sub-research Questions.....	9
1.5 Structure of this Thesis	10
1.6 Summary	12
Chapter 2 The Market Environment of the Maritime Industry	13
2.1 Chapter Overview	13
2.2 Seaports in Supply Chains	14
2.2.1 Distribution Networks and Ports.....	14
2.2.2 Ports as a Research Topic in Supply Chains	15
2.2.3 Inter-organisational Relations in Port Communities.....	17
2.3 Port Development and Its Changing Role	19
2.3.1 Spatial Development Approach	19
2.3.2 Functional Development Approach	20
2.3.3 Comprehensive Approach.....	21
2.3.4 Rising Status of Seaports in Supply Chains.....	22
2.4 Ports in a Competitive Environment.....	23
2.4.1 Globalisation, Containerisation and Intermodalism	24
2.4.2 Existence of Strong Buyers?	25

2.4.2.1 Use of Large Ships and Increasing Concentration of the Liner Market.....	26
2.4.2.2 Cooperation among Carriers	27
2.4.2.3 Vertical Integration of Liner Operators in the Logistics Chain ..	28
2.5 Port Cooperation and the Emergence of Global Terminal Operators	30
2.5.1 Port Cooperation	30
2.5.2 Development of Terminal Operators.....	31
2.6 Port Governance.....	32
2.6.1 The Wide Concept of Governance	33
2.6.2 Port Governance and Changing Seaports	36
2.6.3 Governance and Power	40
2.7 Summary.....	41
Chapter 3 The Theory of Power	43
3.1 Chapter Overview	43
3.2 The Concept of Power	43
3.2.1 Power as a Capacity	43
3.2.2 The Attributions of Power.....	47
3.2.3 The Contentedness of the Concept of Power	48
3.2.4 Implications for the Study of Power	51
3.3 A Review of the Early IOP Studies	53
3.3.1 Origin of IOP Studies.....	54
3.3.2 Key Streams of Early IOP Research	56
3.4 Summary.....	60
Chapter 4 Review of the Literature of Inter-organisational Power.....	62
4.1 Chapter Overview	62
4.2 Gaps in the IOP Literature	62
4.3 Review Methodology.....	63
4.3.1 Scope of the Review	63
4.3.2 Classification Framework	66
4.4 Findings.....	67
4.4.1 General Trend.....	67
4.4.2 Methodological Concerns	70
4.4.2.1 Research Scope	70
4.4.2.2 Approach to Theory-building.....	71
4.4.2.3 Source of Data.....	73
4.4.3 Theoretical Concerns	75
4.4.3.1 Definition	75
4.4.3.2 Application of Theory	76
4.5 Discussion	80
4.5.1 Descriptive Features.....	80
4.5.2 Methodological Issues	80
4.5.3 Theoretical Issues.....	82

4.5.3.1 Definition of Power.....	82
4.5.3.2 Theoretical Construction of Power	83
4.5.3.3 Resource Dependence Theory and Social Exchange Theory	85
4.5.3.4 Key Approaches to the Conceptualisation of Power.....	87
4.6 Implications of the Literature Review	88
4.7 Theoretical Framework and Research Questions.....	90
4.7.1 Resource Exchange and the Source of Power.....	90
4.7.2 Power Pattern	92
4.7.3 Power Exercise.....	93
4.7.4 Formation of the Theoretical Framework	95
4.8 Summary	96
Chapter 5 Research Context	97
5.1 Chapter Overview	97
5.2 Guanxi and Power.....	97
5.2.1. The Concept of Guanxi.....	98
5.2.2 Guanxi and Power in Chinese Society and in this Research	99
5.2.2.1 Guanxi as a Business and Political Resource	99
5.2.2.2 Guanxi as a Relational Governance Mechanism	100
5.3 Port Governance Issues.....	103
5.3.1 Port Reforms in China: A brief History	103
5.3.2 Governance Issues in the Current Chinese Seaport Industry.....	105
5.3.2.1 Port Administration.....	105
5.3.2.2 Ownership Structure	107
5.3.2.3 Financing Channels and Entry Barriers to FDI.....	108
5.3.2.4 Legal Aspect and Regulatory Environment	110
5.3.2.5 Port Cooperation and Network Development.....	111
5.4 Summary	113
Chapter 6 Research Methodology	115
6.1 Chapter Overview	115
6.2 General Procedures of Research Design.....	115
6.2.1 Philosophical Considerations.....	115
6.2.2 Research Approach	120
6.2.3 Other Layers of the ‘Onion’ Model.....	122
6.3 Design of this Research	124
6.3.1 Research Philosophy and Approach.....	124
6.3.2 Why use a Qualitative Research Strategy?	127
6.3.3 Research Design: Why Use a Case Study?.....	129
6.3.4 Methodological Considerations of the Research Context.....	130
6.3.5 Designing the Case Study	131
6.3.5.1 Single or Multiple Cases	131
6.3.5.2 Sampling Case	132
6.3.6 Data Collection and Analysis Methods.....	136

6.3.6.1 Selection of the Interview Method.....	137
6.3.6.2 Application of the Interview Method.....	137
6.3.6.3 Other Data Collection Methods	139
6.3.6.4 Ethical Issues	141
6.3.6.5 Data Analysis	142
6.4 Possible Criticism and Remedy	144
6.5 Summary.....	146
Chapter 7 Exploratory Study	148
7.1 Chapter Overview	148
7.2 Research Context of this Exploratory Study.....	149
7.2.1 Overview of Rizhao Port	149
7.2.2 Port Management Structure in Rizhao Port	150
7.3 Data Collection	152
7.4 Findings.....	154
7.4.1 Patterns of Power in Rizhao Port.....	154
7.4.2 Sources of the Port/terminal Operator’s Power	155
7.4.2.1 Power-related Resources.....	155
7.4.2.2 Environmental Factors Contributing to the Source of Power...	157
7.4.3 Exercise of the Port/terminal Operator’s Power	159
7.5 Discussion.....	160
7.5.1 Power Patterns	160
7.5.2 Power Sources.....	161
7.5.3 Power Exercise.....	163
7.6 Reflections and Implications.....	164
7.6.1 Conceptual Implications for the Main Study	164
7.6.1.1 Reconceptualisation of the Power Source.....	164
7.6.1.2 Addition of a New Power Topic—Power Strategies.....	165
7.6.2 Methodological Implications for the Main Study.....	167
7.6.2.1 Including Liner Shipping Companies in the Data Collection...	167
7.6.2.2 Change of Case Selection	168
7.7 Summary.....	169
Chapter 8 Port/terminal Operators’ Power Strategies.....	171
8.1 Chapter Overview	171
8.2 Theoretical Background.....	171
8.2.1 Power Asymmetry and Self-interest	171
8.2.2 Resource Dependence Theory and Power Strategy	172
8.3 Research Methods in the Main Study	177
8.4 Chinese Port/terminal Operators’ Power Strategies.....	181
8.4.1 Cost Reduction.....	182
8.4.2 Exclusive Control of Terminal Operations	185
8.4.2.1 Observed Challenges and Power Tactics	186
8.4.2.2 Cross-case Analysis	193

8.4.3 Network Expansion.....	195
8.4.3.1 Landward Expansion	197
8.4.3.2 Seaward Expansion.....	199
8.4.4 Integrated and Harmonised Business Relationship Management.....	201
8.4.4.1 Formation of Joint-ventures.....	203
8.4.4.2 Business Communication.....	204
8.5 Summary and Outcomes of the Port/terminal Operators' Power Strategies.	204
8.5.1 Summary of the Port/terminal Operators' Power Strategies.....	206
8.5.2 Outcomes of the Power Strategies	206
8.5.2.1 Cost Reduction.....	207
8.5.2.2 Exclusive Control of Terminal Operations	209
8.5.2.3 Network Expansion.....	210
8.5.2.4 Integrated and Harmonised Business Relationship Management	
.....	211
8.6 Summary and implications	212
8.6.1 Chapter Summary	212
8.6.2 Theoretical Implications and Contributions.....	213
8.6.3 Practical Implications.....	214
Chapter 9 Power Patterns and Power Sources	215
9.1. Chapter Overview	215
9.2 Theoretical Background.....	215
9.2.1 Power Patterns	215
9.2.2 Organisational Power Sources	216
9.3 The Patterns of Power in Case Hub Seaports	222
9.3.1 Liner operator and Port/terminal Operator Interdependence	224
9.3.2. Port/terminal Operator Dominance and Liner Shipping Company	
Dominance	225
9.3.3 Mapping the Power Relationships in Chinese Hub Seaports.....	225
9.4 The Sources of Power in Chinese Hub Seaports	227
9.4.1 Organisational Level.....	227
9.4.1.1 Port/terminal Operators' Power-related Resources.....	227
9.4.1.2 Liner Shipping Companies' Power-related Resources.....	232
9.4.2 Dyadic Relationship Level.....	233
9.4.2.1 Alternative/Switching Difficulty.....	234
9.4.2.2 Sales and Profit	234
9.4.2.3 Role Performance.....	235
9.4.2.4 Specific Assets-offsetting Investment.....	236
9.4.3 Supply Chain Network Level.....	237
9.4.4 Cross-case Comparison.....	238
9.5 Summary and implications	239
9.5.1 Chapter Summary	239
9.5.2 Theoretical Implications and Contributions.....	240
9.5.2.1 Power Patterns	240

9.5.2.2 Power Sources.....	241
9.5.3 Practical Implications.....	243
Chapter 10 Port/terminal Operators' Power Use	245
10.1 Chapter Overview	245
10.2 Theoretical Background.....	245
10.2.1 Power Bases and the Exercise of Power.....	245
10.2.1 The Context of Power Use in this Study.....	248
10.2.1.1 Power Pattern and Power Use.....	248
10.2.1.2 Social Exchange Theory, Guanxi, and Power Use.....	249
10.3 The Port/terminal Operators' Power Use	252
10.3.1 Power Exercise through Port Pricing.....	252
10.3.1.1 Unified Price Setting and the Ability to Determine Port Charges	253
10.3.1.2 Differential Pricing Strategies.....	255
10.3.2 Power Exercise through Terminal Operations	256
10.3.2.1 The Allocation of Terminal and Operational Resources	256
10.3.2.2 Contingent Factors that Affect the Port/terminal Operators' Power Use in Terminal Operations	258
10.3.3 Power Exercise through Port Market Control.....	263
10.3.3.1 Control of the Liner Shipping Companies' Port and Shipping Agency Choice.....	263
10.3.3.2 Factors that Affect the Port/terminal Operators' Power Use in Port Market Control	264
10.4 A Summary and Implications of the Port/terminal Operators' Power Use ..	266
10.4.1 A Summary of the Port/terminal Operators' Power Use.....	266
10.4.2 Implications of Port/terminal Operators' Power Use.....	267
10.4.2.1 Reward Power	267
10.4.2.2 Legitimate Power and Coercive Power.....	268
10.5 Summary and Implications	270
10.5.1 Chapter Summary	270
10.5.2 Theoretical Implications and Contributions.....	270
10.5.2.1 Power Bases and their Dichotomies	271
10.5.2.2 Social Exchange Theory, Power Patterns and Power Use	273
10.5.3 Practical Implications.....	276
Chapter 11 Discussion and Conclusion	278
11.1 Chapter Overview	278
11.2 Discussion of the Contextual Issues.....	278
11.2.1 Guanxi.....	278
11.2.2 Governance Issues.....	280
11.2.2.1 Power and Governance Issues between the Port/terminal Operators and the Liner Operators.....	281

11.2.2.2 Power and Governance Issues for Case Seaports and their Operators.....	284
11.3 Summary and Synthesis of the Research Findings	288
11.3.1 Power Strategy	288
11.3.2 Power Source and Power Pattern	290
11.3.3 Power Exercise.....	292
11.3.4 A Synthesis of the Research Findings	294
11.4 Contributions and Implications	299
11.4.1 Theoretical Contributions.....	299
11.4.2 Practical Implications.....	302
11.5 Limitations and Suggestions for Future Research	305
References.....	307
Appendix 1 List of papers included in the power literature review	345
Appendix 2 Interview guide for the exploratory study	352
Appendix 3 Interview guide for the main study.....	353
Appendix 4 Ethical approval forms	357
Appendix 5 Consent form (English and Chinese versions).....	366
Appendix 6 Respondent profile (main study).....	368
Appendix 7 Case port/terminal operators' cost reduction actions in 2014.....	370

List of Figures

Figure 1.1 The five Chinese seaports covered in this study.....	5
Figure 1.2 Overview of the structure of this thesis.....	11
Figure 4.1 The distribution of IOP-related articles between 1980 and 2014.....	68
Figure 4.2 The distribution of IOP-related articles in 19 selected journals.....	69
Figure 4.3 Evolution of IOP research approaches.....	72
Figure 4.4 Power matrix.....	88
Figure 4.5 Original theoretical framework.....	96
Figure 5.1 Generic model of port administration.....	106
Figure 5.2 Shenzhen model of port administration.....	107
Figure 6.1 Research ‘onion’.....	116
Figure 6.2 Methodological model adopted in this research.....	125
Figure 6.3 An abductive methodological framework with inductive features.....	126
Figure 7.1 Organisational structure of Rizhao Port.....	151
Figure 7.2 Revised theoretical framework.....	166
Figure 8.1 Port/terminal operators’ actions to reduce cost and optimise resource usage based on interview and documentary data collected in 2014.....	184
Figure 8.2 Summary of case port/terminal operators’ power strategies.....	205
Figure 9.1 Port/terminal operator and liner operator’s power patterns in the context of Cox’s (2001b) power matrix.....	222
Figure 9.2 Power patterns in four Chinese hub seaports.....	226
Figure 11.1 Validated and expanded theoretical framework of the port/terminal operators’ power dynamics in relation to the liner operators.....	295

List of Tables

Table 2.1 Comparing market, hierarchies and network models of governance.....	34
Table 2.2 The significance of governance in ports.....	37
Table 3.1 Summary of major IOP studies in the 1970s.....	58
Table 4.1 Classification framework of the literature review.....	66
Table 4.2 Geographical features of IOP relationship in selected articles.....	70
Table 4.3 Approaches to theory building in IOP studies.....	71
Table 4.4 Evolution of IOP research approaches.....	73
Table 4.5 Data sources for IOP studies.....	74
Table 4.6 Evolution of data collection methods of IOP studies.....	74
Table 4.7 Definitional choices of IOP researchers.....	75
Table 4.8 Definitions of power used in IOP studies.....	77
Table 4.9 Application of theory in IOP studies.....	78
Table 4.10 Essential approaches to IOP studies.....	79
Table 4.11 Key theories adopted in IOP studies.....	84
Table 4.12 Implications of the literature review.....	89
Table 5.1 Models of port management.....	108
Table 5.2 Port function privatisation matrix.....	108
Table 6.1 Features of the three research approaches.....	121
Table 6.2 Features of the qualitative and quantitative research strategies.....	123
Table 6.3 Descriptions of the case Chinese hub container ports (figures from 2014)..	136
Table 6.4 Summary of data collection.....	140
Table 6.5 Case study tactics used in this study.....	146
Table 7.1 Throughput of China’s coastal ports over 1 million TEUs.....	149
Table 7.2 Container business in Rizhao port.....	150
Table 7.3 Profile of respondents in the exploratory study.....	153
Table 8.1 Summary of interviews for the main case study.....	177
Table 8.2 Categories of port/terminal operators’ power strategy.....	181
Table 8.3 Case port/terminal operators’ actions to reduce costs and optimise resource usage.....	183
Table 8.4 Container terminal development in Shanghai Port.....	190
Table 8.5 Summary of case port/terminal operators’ challenges and power tactics to maintain exclusive control over the terminal business.....	194
Table 8.6 Case port/terminal operators’ actions to expand their container collection/distribution networks.....	196
Table 8.7 Summary of case port/terminal operators invested ICDs.....	198
Table 8.8 Case port/terminal operators’ actions to establish integrated and harmonised business relationship with the liner shipping companies.....	202
Table 8.9 liner shipping companies’ involvement in the container terminal operating business of four case hub ports.....	203
Table 8.10 Function of case port/terminal operators’ power strategies.....	207
Table 9.1 Theoretical sources of power based on the RDT.....	221

Table 9.2 Dominant power patterns between case port/terminal operators and liner shipping companies.....	223
Table 9.3 Comparison of power patterns in four Chinese hub seaports.....	227
Table 9.4 Case port/terminal operators' power-related resources at the organisational level.....	228
Table 9.5 Liner shipping companies' power-related resources.....	233
Table 9.6 Comparison of sources of power in the case hub seaports.....	238
Table 10.1 Descriptions and examples of the five power bases.....	246
Table 10.2 Case port/terminal operators' power use in setting unified port price and determining port charges.....	254
Table 10.3 Contingent factors that affect case port/terminal operators' use of power in terminal operations.....	259
Table 10.4 Comparison of power use in case seaports.....	267

List of Abbreviations

ABS -- Chartered Association of Business Schools
AMJ -- Academy of Management Journal
AMR -- Academy of Management Review
APL -- American President Lines
ASQ -- Administrative Science Quarterly
AT -- Agency theory
BJM -- British Journal of Management
CGFII -- Catalogue for the Guidance of Foreign Investment Industries
CMHI -- China Merchant Holdings International
COSCO -- China Ocean Shipping (Group) Company
EEIQB -- Entry-Exit Inspection and Quarantine Bureau
EJM -- European Journal of Marketing
FDI -- Foreign Direct Investment
GDP -- Gross Domestic Product
GRQ -- General Research Question
HMM -- Hyundai Merchant Marine
ICD -- Inland Container Depot
IOP -- Inter-organisational power
JBL -- Journal of Business Logistics
IJLRA -- International Journal of Logistics: Research and Applications
IJPDLM -- International Journal of Physical Distribution and Logistics Management
IJRM -- International Journal of Research in Marketing
JM -- Journal of Marketing
JMS -- Journal of Management Studies
JMT -- Journal of Marketing Research
JOM -- Journal of Operations Management
JPSM -- Journal of Purchasing and Supply Management
JR -- Journal of Retailing
JSCM -- Journal of Supply Chain Management
KXCTC -- Kexiang Container Terminal Company
LSC -- Liner shipping company
MOL -- Mitsui O.S.K. Lines
MSC -- Mediterranean Shipping Company
NB -- Ningbo
NYK Line -- Nippon Yusen Kabushiki Kaisha Line
OECD -- Organisation for Economic Cooperation and Development
OOCL--Orient Overseas Container Line Limited
PGDGI -- Provisions on Guiding Direction of Foreign Investment
PLC -- Port Law of the People's Republic of China
PRC -- People's Republic of China
P/TO -- Port/terminal operator

P/TO1 -- Port/terminal operator of Xiamen Port
P/TO2 -- Port/terminal operator of Shanghai Port
P/TO3 -- Port/terminal operator of Qingdao Port
P/TO4 -- Port/terminal operator of Ningbo Port
QD -- Qingdao
QQCT -- Qingdao Qianwan Container Terminal Company
RBV -- Resource-based View
ORQ -- Original Research Question
RDT -- Resource Dependence Theory
RQ -- Research Question
RQCTC -- Rizhao Qingdao Container Terminal Company
SASAC -- State-owned Assets Supervision and Administration Commission
SCM -- Supply Chain Management: An International Journal
SCT -- Shanghai Container Terminal Limited
SET -- Social exchange theory
SH -- Shanghai
TCT -- Transaction Cost Theory
TEU -- Twenty-foot Equivalent Unit
TJ -- Transportation Journal
TRPA -- Transportation Research Part A
TOX -- An anonymous container terminal operating company
UASC -- United Arab Shipping Company
UNCTAD -- United Nations Conference on Trade and Development
XCTG -- Xiamen Container Terminal Group
XM -- Xiamen
ZIM -- Zim Integrated Shipping Services Limited

Chapter 1 Introduction

1.1 Chapter Overview

This chapter provides a brief introduction to the whole thesis. This first section offers an overview of this chapter. The background information of this thesis and the rationale for conducting this research are then presented in Section 1.2. This is followed by the introduction of the research context in Section 1.3. Section 1.4 describes and clarifies the key concept and terminologies used in this study and it also introduces the research questions. After that, the structure of this whole thesis is explained in Section 1.5. The last section presents a brief summary of this chapter.

1.2 Background

1.2.1 Market Features of the Maritime Industry

Over the last few decades, maritime transportation has generally been a fast growing and rapidly changing market. In 2013, the total world containerised trade reached 160 million twenty-foot equivalent units (TEUs) (United Nations Conference on Trade and Development (UNCTAD) 2014). The development of seaborne trade has resulted in significant organisational and technological changes for the maritime industry. With the development of maritime transportation, both terminal operators and liner shipping companies have become increasingly powerful in supply chains.

The seaport sector is increasingly important in the supply chain. From the perspective of supply chain management, a range of logistics activities (e.g. value-adding services and cargo distributions) are to an increasing extent centred on seaports, which makes this sector of growing importance for the functioning of supply chains (Mangan et al. 2008). In addition to this trend of ‘port-centric logistics’, Rodrigue and Notteboom (2009) claimed that global supply chains are undergoing a terminalising process. In

this process, the port goes beyond its traditional transshipment role and it becomes instead an active supply chain distribution complex (Notteboom and Rodrigue 2005).

The increasingly important role of the port is further enhanced when the development of port regionalisation is taken into consideration. A multi-port gateway logistics complex has emerged following the establishment of a hub-and-spoke system and the strengthening of the links between seaports and the inland distribution network (Liu et al. 2013, Notteboom 2010).

The trend of supply chains increasingly centring on the seaport sector can be seen in the process of supply chain terminalisation, port-centric logistics, and port regionalisation. With the diversification of port functions and the rise of the status of ports, it seems that supply chains and their actors (including shipping lines) are becoming more dependent on the port sector and terminal operators to deliver value to the end customers.

In terms of the liner shipping sector, liner shipping companies are faced with the challenges of coping with overcapacity, widening their geographical span, improving services, and reducing the costs that result from the trend of globalisation and the development of supply chains (Notteboom and Winkelmanns 2001, Terada 2002, Zhuang et al. 2014). To deal with these challenges, major liners have started to act cooperatively to manage the competition and use mega vessels to acquire economies of scale. The conduct of the liners has resulted in an increasingly concentrated market, which means that many seaports are currently dealing with a smaller number of strong carriers. Thus, the market features of the maritime industry have revealed the complexity and uncertainty of the inter-organisational relationships between liner shipping companies and terminal operators in terms of which party is more powerful, both in relation to each other and in relation to the supply chains.

1.2.2 Power Issues in the Maritime Industry

In terms of the market features of the maritime industry that have been reviewed in this chapter, each has attracted a significant amount of attention and has been researched as an individual topic (e.g. containerisation and cooperation among shipping lines), either as one part of a comprehensive study or as background information that sets the context for various maritime studies. However, there is a lack of comprehensive research to investigate the inter-organisational relationships between liner shipping companies and terminal operators regarding their relative market position and to assess the impact of their behaviour on this subject while simultaneously capturing the contemporary development of the maritime industry.

Despite this gap, terms including ‘market power’, ‘buyer power’ and/or ‘monopoly power’ have been widely used in the port and shipping literature to describe the vested business relationships (see e.g. Heaver et al. 2001, Song and Panayides 2002, Van de Voorde and Vanelslander 2010, Woo et al. 2011). The popularity of the use of various terms of power implies the importance of this concept for advancing knowledge in maritime studies. From a broader perspective, power has long been recognised as an important attribute of social systems. As Hawley (1970, p. 10) claimed, ‘every social act is an exercise of power, every social relationship is a power equation and every social group or system is an organisation of power.’

In the field of business studies, the theory of power and its closely related concepts (e.g. control, influence, and dependence) have been widely used to understand inter-organisational relations (Oliver and Ebers 1998). From the perspective of supply chain management, Maloni and Benton (2000) argued that a firm’s supply chain strategy would be unrealistic, ineffective, and unfeasible if the influence of power were not considered.

The use of various power terms (e.g. market power, buyer power and monopoly power) in maritime literature has contributed to the uneven understanding of the

concept of power. However, the relevant studies often use the power terms broadly without a clear theoretical explanation, and the study of power issues in general has been greatly overlooked in the context of the maritime component of international supply chain management. This study is conducted in order to contribute to addressing this shortfall.

1.3 General Research Question and Research Context

The main aim of this thesis is to **understand the concept of power in terminal operators' and liner shipping companies' business relationships in the current era of maritime development**. Consequently, the general research question (GRQ) was formed based on the examination of the market environment of the maritime industry (see Chapter 2) and the theory of power (see Chapters 3 and 4). The overall enquiry that guides this thesis is given in the GRQ:

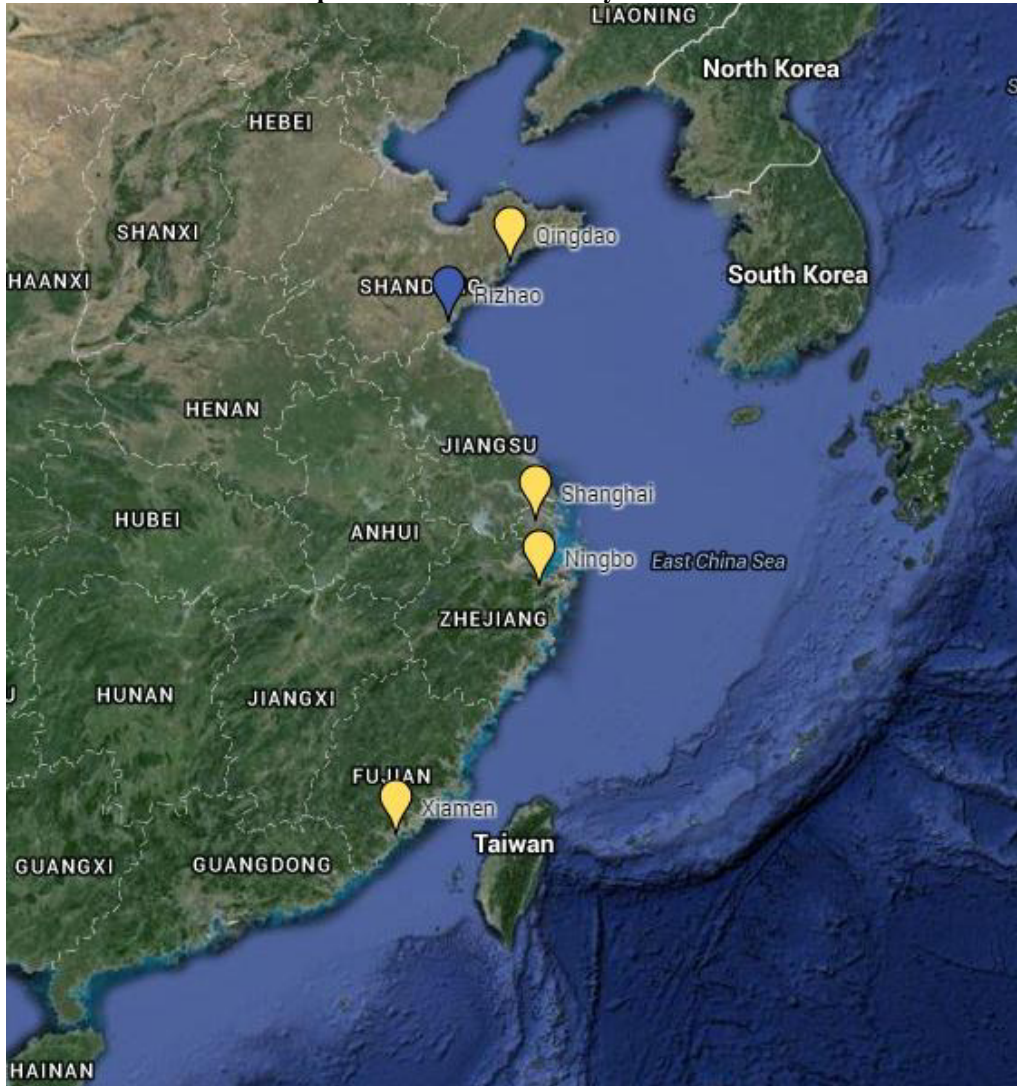
GRQ: How can the concept of power in the business relationships between port/terminal operators and liner shipping companies be understood in the context of the Chinese seaport sector?

A qualitative case study research design was adopted to fulfil the research aim and answer the GRQ. As can be seen in Figure 1.1, this research involves one Chinese feeder container seaport (Rizhao Port—blue pin) and four Chinese hub container seaports (Qingao Port, Shanghai Port, Ningbo Port and Xiamen Port—yellow pins). Research data were collected mainly through interviews with these five Chinese port groups and their intra-port terminal operators and the eight global liner shipping companies (i.e. Maersk, CMA-CGM, Evergreen, Hapag-Lloyd, APL, MOL, COSCO and Zim) that have established business relationships with these seaports.

The selection of the Chinese seaport sector as the research context is based firstly on the review of the power literature, which demonstrates that the study of this topic in developing countries has been greatly overlooked. Given that the concept of power is

highly contextual (Kasabov 2007, Kim 2000, Stannack 1996), the focus on an underdeveloped research setting can generate unexpected findings and contribute to the development of this theory.

Figure 1.1 The five Chinese seaports covered in this study



Second, this thesis looks at power issues in the maritime industry. The focus on the Chinese seaport sector is due to the increasingly important role of China in today's international seaborne trade. The remarkable economic growth over the last few decades has turned China into a major global economy. Accompanied by strong economic growth, international trade has boomed in China and this has significantly changed the maritime industry. China has developed from being a semi-closed state with poor port infrastructure into the most accessible nation in the world to global

liner shipping networks (UNCTAD 2014). In 2013, 7 out of the top 10 world container ports in terms of throughput were Chinese ports (including Hong Kong Port) (UNCTAD 2014). Consequently, the empirical findings from this emerging market are expected to provide an in-depth understanding of the concept of power in the business relationships between port/terminal operators' and liner shipping companies' in the current era of maritime development.

1.4 Key Concepts and Sub-research Questions

To achieve the research aim presented in Section 1.3, the GRQ was broken down into several sub-research questions (RQs). These questions, which were designed according to the selected research context, were initially formed based on the review of maritime and power literature in Chapters 2 to 4.

1.4.1 Key Concepts and Terminologies

Several of the terms that have been used to describe the research background, and to form the GRQ and RQs, need to be clarified to avoid conceptual confusion.

1.4.1.1 Maritime and Supply Chain Terms

It is noticeable that the term 'port/terminal operators' rather than 'terminal operators' is used in the GRQ. This is due to the features of port management in China. The models of seaport administration in China are in general characterised by the control of port operations by the local port group corporations (Qiu 2008). The corporation acts as the operator of the port and joint ventures and/or subsidiary companies are established as intra-port terminal operators. The terminal operators thus have a strong affiliation with their respective port group corporations, and the operator of a seaport and intra-port terminals in China may behave as one party in relation to liner shipping companies. Consequently, the term 'port/terminal operator' is used in this thesis to reflect this feature of port management in China.

This research in essence focuses on the maritime component of international supply chain management. Regardless of the definitional diversification, the terms ‘supply chain’ and ‘logistics chain’ are interchangeably used. They both refer to ‘a network of connected and interdependent organisations mutually and co-operatively working together to control, manage, and improve the flow of materials and information from the supplier to end users’ (Aitken 1998, cited in Christopher 2011, p. 4). In addition, the term ‘liner shipping companies’ is interchangeably used with ‘liner operating company’, ‘carrier’, and ‘liner operator’. ‘Liner shipping’ in this research is defined as ‘a form of ship operation over regular trade routes, between the same ports, following the same itinerary indicated in the published sailing list (schedule)’ (Chrzanowski 1986, p. 25).

1.4.1.2 Power-related Concepts

On the basis of the GRQ, three original research questions (ORQs) were initially developed and linked with the three key dimensions of the concept of power (i.e. power source, power pattern, and power exercise). Together, they established the initial conceptual framework of this thesis (see Chapter 4). This framework and the ORQs were then tested via an exploratory study. One outcome of the exploratory study is the creation of a new research topic (i.e. power strategy) in order to deepen the understanding of the power dynamics between the two maritime actors under study. In total, the four power topics investigated in this thesis are: **power strategy, power source, power pattern, and power exercise.**

First, the concept of power strategy is based on the idea of the ‘power balancing operations’ addressed in the seminal work of Emerson (1962). In this thesis, power strategy refers to the strategy used by port/terminal operators to manage their power sources and improve their power in relation to liner shipping companies (Borum 1995). Given that firms are primarily motivated by self-interest and strive for the acquisition of surplus value (Cox 1999, Williamson 1975), the pursuit for power and the strengthening of a favourable power position is a primary pattern of organisational

behaviour (Berthon et al. 2003, Cox et al. 2002). Thus, the study of the topic of power strategy explores the tactics used by port/terminal operators to acquire power and maintain their desired power positions in relation to liners.

Second, the concept of power source is related to the origin of power (Bacharach and Lawler 1980). The understanding of this concept in this thesis involves two stages. The initial conceptualisation was based on the influential works of French and Raven (1959), Emerson (1962) and Cox et al. (2002). Firms are considered to have power because they possess resources that are valued by other members in the supply chain. The valuable resources that generate power are termed ‘power-related resources’ or ‘power resources’, and they are regarded as the fundamental source of organisational power (Scheer and Stern 1992).

The concept of power source was re-examined as part of the exploratory study in Chapter 7. In addition to power-related resources, several factors (e.g. the availability of alternatives and the contribution to sales) were found to affect the amount of power held by the port/terminal operator of Rizhao Port in relation to the liner customers. These factors complement power-related resources and render the creation of power an integrated outcome (Finne et al. 2015). Accordingly, power source was reconceptualised as a series of factors that give rise to higher or lower power (Pazirandeh and Norrman 2014). The refined concept of power source was used to guide the main case study in Chapters 8 to 10.

Third, the terms ‘power pattern’ and ‘power configuration’ are interchangeably used in this study. The concept of power pattern is built on the understanding of the configuration of a power relationship in the sense that such a relationship can either be balanced when the power-involved parties have largely equal amounts of power in relation to each other or unbalanced when one party is more powerful than the other (Cox et al. 2002, Casciaro and Piskorski 2005). Therefore, a power pattern is formed once a power-affected relationship is established. In essence, the issue of power pattern focuses on the relative and total amount of power in a dyadic power

relationship (Cook and Yamagishi 1992). The examination of this topic thus presents the basic understanding of power relationships that goes beyond the unilateral scope of power (Brown et al. 1995).

Finally, power can be broadly defined as the ability to alter another's behaviours (Hunt and Nevin 1974, Taylor and Jackson 2000, Kahkonen 2014). The issue of power exercise focuses on the behavioural aspect of this definition. The exercise of power by a supply chain actor transforms its power sources into the ability to influence or control (Scheer and Stern 1992, Geyskens and Steenkamp 2000, Kim 2000). Thus, this issue deals with the actual conduct of power to alter another's behaviours (Gaski 1984). In this study, the term 'power exercise' is interchangeably used with the term 'power use'.

1.4.2 Sub-research Questions

The following four research questions were formed, refined, and answered with regard to each of the sub-topics of power that was described in Section 1.4.1.2:

RQ1: How do Chinese port/terminal operators improve their power in relation to global liner shipping companies?

This question was added to the enquiry into power in Chinese seaports based on the implications of the exploratory study. It examines the strategies adopted by Chinese port/terminal operators to manage power sources and improve their power positions in relation to global liner shipping companies.

RQ2: What are the sources of power for Chinese port/terminal operators and global liner shipping companies in relation to each other?

This question focuses on the origin of power in the vested business relationships. It aims to identify and examine the fundamental factors that create the two maritime actors' power.

RQ3: How do Chinese port/terminal operators and global liner shipping companies perceive their power patterns in relation to each other?

The configurations of power are investigated in detail in this question in order to identify which party is more powerful in the inter-organisational power relationships involving port/terminal operators and liner shipping companies.

RQ4: How do Chinese port/terminal operators use their power to exercise control in relation to global liner shipping companies?

This question aims to investigate the use of power by port/terminal operators to affect the decision making and/or behaviour of liner shipping companies. This is important because the behavioural feature is an indispensable aspect of the concept of power.

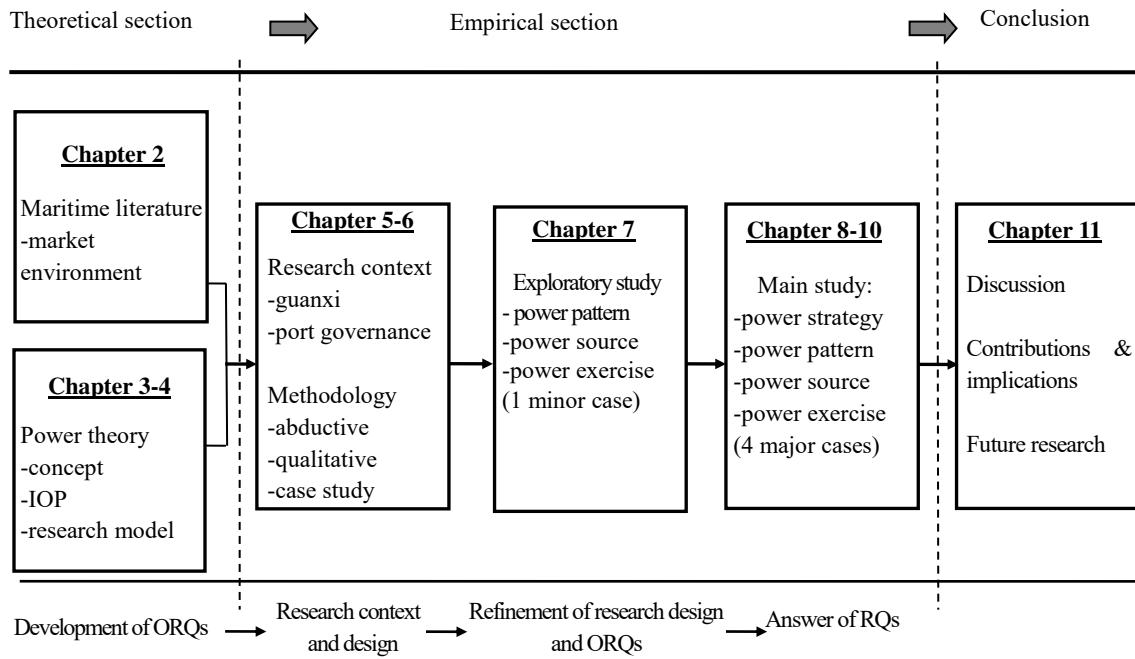
The four power topics (i.e. power strategy, power source, power pattern and power exercise) analysed in this thesis are closely related. First, the examination of power strategies offers insights about how port/terminal operators manage the sources of power and achieve their desired power patterns in relation to liner shipping companies. Second, since a supply chain actor's power stems from its power sources, this topic theoretically determines the configurations of power in the vested business relationships. Finally, the sources of power serve as the antecedent of power use and the patterns of power shape the environment where port/terminal operators' power is exercised. Based on the relationships among the four power topics in this thesis, the research framework that guides this research is established in Chapter 4 and is later revised in Chapter 7.

1.5 Structure of this Thesis

The remaining eight chapters of this thesis are structured into three sections, as can be seen in Figure 1.2. The first section forms the theoretical basis of this thesis. This section comprises Chapters 2 to 4. Chapter 2 examines the key features of the evolution of the maritime market with a focus on the seaport sector. This examination

aims to identify the research gaps and sets the broad context for this thesis. Then, Chapter 3 reviews the concept of power as philosophical concept and the theoretical and empirical origin of inter-organisational power (IOP) study. The ORQs and the theoretical framework that guide the enquiry into power in the maritime industry are then formed on the basis of a systematic review of the IOP literature in Chapter 4.

Figure 1.2 Overview of the structure of this thesis



The second section of this thesis focuses on the empirical investigation of the vested research questions. This section comprises Chapters 5 to 10. The first chapter of this section examines the issues of guanxi and port governance in China. The aim is to set the context for the case studies in this research. Chapter 6 deals with the methodological issues of this thesis. The main purpose is to describe and justify how this research has been designed and conducted. Since the study of power issues has been greatly overlooked by maritime researchers, an exploratory study was conducted in the Port of Rizhao prior to the main study. The aim of the exploratory study is to gain familiarity with the vested business relationships, it also aims to refine the research design and ORQs. These tasks are discussed in Chapter 7, which serves as the link between the theoretical discussion in the first section and the main case study.

Based on the implications of the exploratory study, the revised theoretical framework includes the four key sub-dimensions of the concept of power, as introduced in Section 1.4.1.2. Meanwhile, four Chinese hub seaports (i.e. Xiamen Port, Shanghai Port, Qingdao Port and Ningbo Port) will be used as the setting for the main study.

The main study is given in Chapters 8 to 10. The topic of power strategy is analysed in Chapter 8. Then, the investigation of the topics of power source and power pattern in the selected research setting is conducted in Chapter 9. This is followed by the exploration of the case port/terminal operators' power exercise in Chapter 10. The final chapter discusses the significance of contextual issues for the understanding of power in the selected empirical setting. The chapter also provides a summary of research findings, and a discussion of the research contributions and their implications. Then, it will describe the research limitations and it will make a number of suggestions for future research.

1.6 Summary

The study of power issues has been greatly overlooked in the context of the maritime component of international supply chain management. This study aims to contribute to addressing this shortfall by examining how the concept of power can be understood between two key maritime actors – the port/terminal operator and the liner shipping company. Four key sub-dimensions of the concept of power have been targeted and the Chinese seaport industry has been selected as the empirical setting. This thesis is structured into 11 chapters. An overview of their contents has been provided to aid the reader's understanding of the research process.

Chapter 2 The Market Environment of the Maritime Industry

2.1 Chapter Overview

As presented in Chapter 1, the maritime industry has undergone significant changes in the past few decades. This chapter examines the key features of this trend, with a specific focus on the seaport sector. The aim is to identify the research gaps and set the context for the study as a whole.

This thesis studies ports in the supply chain context and it focuses on the IOP relationships between port/terminal operators and liner shipping companies. In view of this research scope, this chapter first examines seaports as transportation nodes in supply chains to justify the selection of research setting and identify the research units in this study.

Then the chapter explores the market environment of the maritime industry in four sections. The first section establishes how the role of the seaport has evolved in supply chains by examining several key approaches to the discourse of port development. The second section examines the competitive environment of today's seaport/terminal operating market, focusing on the emerging challenges brought about by developments in the logistics chain and the liner shipping industry. The third section evaluates several key strategies adopted by seaports and terminal operators to cope with these challenges. The fourth section examines the issues of port governance to deepen the understanding of the fast changing maritime marketplace. The implications of these four sections for the formation of this study are then discussed in the summary.

2.2 Seaports in Supply Chains

2.2.1 Distribution Networks and Ports

According to Rodrigue et al. (2009), the physical transportation network is composed of two indispensable components: links and nodes. The nodal points are the place of origin and consumption or transshipment for cargoes, while the links within the cargo distribution channels refer to transport operations that connect different nodes through conveyance and the use of transport infrastructure, such as roads and rail (Cooper 1994). In terms of these two components, Roso et al. (2009) argued that the node is the most important part of a cargo transportation network. In practice, it is frequently referred to as a terminal, hub or dock. A range of essential logistics activities, such as consolidation, storage, and cargo handling can take place at this point.

In terms of maritime transport, seaports—which have existed for thousands of years—are critical nodes in the logistics system (Mangan et al. 2008, Talley 2009). A seaport can be defined as a geographical area where ships are brought alongside land to load and discharge cargo (Stopford 2009). As seaborne trade has developed, the role of the seaport has evolved from an isolated interface between land and sea transport, focusing solely on cargo handling, to an integrated logistics platform in the international distribution channel, which provides various value-adding transport activities (Beresford et al. 2004).

Moreover, the transportation network has become increasingly unified, largely because of the development of containerisation. Container shipping began in 1956 (Slack and Fremont 2009), and by 2013 the total world containerised trade had grown to 160 million TEUs (UNCTAD 2014). This trend has resulted in significant organisational and technological changes in seaports, which have adapted to cope with containerised cargoes.

2.2.2 Ports as a Research Topic in Supply Chains

Compared with the long history of the operation of seaports, port research is an emerging field in academia. As shown in a bibliometric study, publications focusing on the port sector increased by approximately 300% between 1997 and 2008 (Pallis et al. 2010). During this process, academic interest in the study of ports has gradually changed because of this sector's development and the changing role of ports in the supply chain.

Early scholars in the field of port research, such as Wanhill (1976) and Thomas (1981), often followed a stand-alone approach and focused on the study of port efficiency and performance without considering other parts of the logistics chain (Tongzon et al. 2009). More recently, although the stand-alone approach still has a wide application, the field of port research has been greatly influenced by the concept of supply chain management. This impact can be seen in Pallis et al.'s (2010) review of port studies, which reveals that the research of ports in the context of the transport network and the supply chain has been the most popular topic in recent years among seven port research subfields (e.g. terminal studies, port governance, port policy and port planning). The scholars that have contributed to this topic since the 2000s include Notteboom and Winkelmans (2001), Paixao and Marlow (2003), Bichou and Gray (2005), Panayides (2006), Wall (2007), Song and Panayides (2008), and Rodrigue and Notteboom (2009).

The research of ports in the supply chain context has mainly been justified by previous researchers from two perspectives: theory and practice. The former approach stems from the concept of supply chain management, which can be defined as:

‘The systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long term performance of the individual companies and the supply chain as a whole.’

(Mentzer et al. 2001, p. 18)

As shown in this definition, the coordination of different parties in the supply chain is the key feature of supply chain management. This feature requires inter-organisational integration, which invariably depends on a form of collaboration that aims to achieve the mutual benefit of all parties through the cooperation of separate organisations (Simatupang et al. 2002).

The literature that developed the theoretical basis for supply chain integration dates to Porter (1980), who devised a value chain model based on the proposition that supplier-customer integration can have a positive impact on the supply chain (Krajewski et al. 2010). In addition to Porter (1980), research that has emphasised the importance of supply chain integration for the improvement of supply chain performance includes Tan et al. (1998), Vickery et al. (2003), Fabbe-Costes and Jahre (2008), and Flynn et al. (2010). These studies provide the theoretical justification for locating port research in the context of the supply chain and for embedding the sector clearly within the logistics network that serves the supply chain (Robinson 2002).

Besides the theoretical basis, a number of scholars have also attempted to justify port research in the supply chain context from a practical aspect. Suykens and Van de Voorde (1998) discussed this issue from a technical perspective. Specifically, they claimed that technical changes in the maritime industry (e.g. containerisation and mechanisation) have given rise to the organisational evolution of the port sector, which made seaport operations increasingly capital intensive and market-oriented. Accordingly, port operators have been forced to reconsider their role from a supply chain point of view in order to deliver value to their customers.

In contrast to the technical development, Notteboom and Winkelmanns (2001) argued that the underlying driver for the repositioning of the port in the supply chain was the changing economic environment, which moved from Fordism to post-Fordism in this period. This evolution involves two aspects, namely: the shift of economic activity

from economies of scale to economies of scope, and the change of operational philosophy from individualism to collaborationism. Consequently, the outsourcing of value-added logistics (e.g. warehousing and distribution) is increasingly common in the market place and the port, as an essential component in these activities, needs to be researched from a supply chain perspective.

Several scholars have taken a more comprehensive approach to justify port research in the supply chain (e.g. Seidenfus 1987, Notteboom 2004, Bichou and Gray 2004). These scholars have pointed out that factors such as globalisation, deregulation, logistics integration, and containerisation have greatly reshaped the port sector. Consequently, the stand-alone approach was no longer appropriate in helping ports to cope with these challenges and to survive in the new business era. Instead, cooperation with other parties and the redefinition of the port's role in the supply chain context is critical for the future development of this sector.

2.2.3 Inter-organisational Relations in Port Communities

The positioning of seaport research in the context of supply chains has strong theoretical and practical justifications. This provides support for the application of an inter-organisational scope towards seaport studies, given the involvement of various market players in a port community.

Since the 1980s, the study of inter-organisational relations has attracted broad interest in the field of business research (Oliver and Ebers 1998). Inter-organisational relations affect the extent to which firms can coordinate production, combine and utilise resources, promote innovation, and achieve business success within the firm and across the supply chain (Martino and Morvillo 2008). Since supply chain management is characterised by interactive and integrated activities (Cooper and Ellram 1993, Mentzer et al. 2001), the study of inter-organisational relations has been a key theme for supply chain researchers who aim to understand the behaviours of supply chain members.

Seaports are home to complex interfaces that occur between seaborne and land transport, involving various actors from a number of supply chains. The inter-organisational relationships between different parties determine a seaport's competitiveness and its ability to fulfil its role in the supply chain (Martino and Morvillo 2008). Previous researchers have proposed a number of terms to conceptualise the supply chain with a focus on the port sector. Lopez and Poole (1998) used the term 'port logistics chain' to describe complex transport activities confined to the sea-land interface. These activities include pilots, towage, stevedoring and distribution. Lee et al. (2003) introduced the term 'port supply chain', whose primary concern is to coordinate the operations and resources of different actors so as to reduce port time and ship turnaround time and improve resource utilisation. Business entities in the chain system include ship companies, terminal operators, and distributors.

Robinson (2006) proposed the concept of a 'port landside logistics chain' to emphasise the multifunction and centrality of the port terminal as a throughput and pause point in an integrated landside chain structure formed to deliver value to shippers. The key entities in the system include shipping lines, terminals, trucking and rail companies, and inland depots. The development of these terms (i.e. port logistics chain, port supply chain and port landside logistics chain) is a reflection of the wide adoption of the philosophy of supply chain management in the seaport sector. These terms also emphasise the complexity of the port functions that are carried out by various actors involved in the interface. This means that the study of inter-organisational relations is particularly relevant to the seaport sector.

Martin and Thomas (2001) proposed a model for the container port community from the perspective of inter-organisational interaction. Whereas carriers are the through transport providers and major customers of the seaport, terminal operators are regarded as the central players in terms of the physical interaction that occurs at the sea-land interface. In addition to supplying a stevedoring service, terminal operators

sometimes also incorporate the function of wharfinger and port authority. Thus, terminal operators are regarded as the focal companies in this study and their relationships with the major port customer (carriers) represent the primary inter-organisational relationship in the maritime industry.

2.3 Port Development and Its Changing Role

In order to further examine the inter-organisational relations between terminal operators and carriers/liner shipping companies, this section focuses on the seaport sector and reviews how ports have developed. This issue has mainly been investigated from three approaches (i.e. spatial development, functional development, and comprehensive), which will be discussed in the following sections.

2.3.1 Spatial Development Approach

Three essential phases have been proposed for the spatial development of seaports: centralisation (Taaffe et al. 1963), decentralisation (Hayuth 1988), and regionalisation (Notteboom and Rodrigue 2005). Taaffe et al. (1963) claimed that the development of a logistics system was characterised by the increasing interaction of different nodes and the emergence of ‘main streets’ was the final stage of the transport expansion. In this process, port activities are increasingly concentrated in several centralised sites, and the seaports act as the key nodes in the ‘main streets’.

Based on the case study of American container seaports, Hayuth (1988) argued that, by this time, the port sector was undergoing a decentralising process. The reason for this was that the advanced intermodal technology made the peripheral ports more competitive than in the past, while port users had more options in terms of the most appropriate load centre for their supply chains. Accordingly, the role of the port in a decentralised framework seemed to be increasingly specialised and important for a specific supply chain.

On the basis of Taaffe et al.'s (1963) and Hayuth's (1988) works, Notteboom and Rodrigue (2005) introduced the concept of 'port regionalisation' by adding two new features of the logistics network development: the hub-and-spoke system and the increasingly active role of inland distribution centres. In essence, port regionalisation refers to the formation of a regional load centre network. This network views seaports and inland distribution platforms as a joint 'logistics pole'. Seaports are the critical nodes that make the operation of the logistics pole possible. The continuous integration of the seaport with other parties in this network is the future of port development (Nam and Song 2011, Rodrigue and Notteboom 2009).

2.3.2 Functional Development Approach

In addition to the spatial development approach, the changing role of a seaport in the supply chain has also been analysed from the functional aspect. From a longitudinal perspective, activities carried out in the port area are increasingly complex and diverse. Before the 1970s, port operators mostly provided similar services to all customers (United Nations Economic and Social Commission for Asia and the Pacific 2002). The focus on port function at that time mainly included consolidation and deconsolidation, storage, and cargo handling.

The development of handling technology made it more difficult for seaports to compete at an operational level. Therefore, in the 1980s the ports were required by market demand to provide a greater variety of services (e.g. inventory, inspection, labelling, packing, bar coding, and customising). The trend of providing increasingly diverse value adding services continued in the 2000s and gradually became more prevalent. Today, the provision of these services is widely viewed by port operators to be as important as the traditional handling services (United Nations Economic and Social Commission for Asia and the Pacific 2002).

Consequently, there is a tendency for some supply chain functions that used to be conducted by other parties at different sites to be integrated into the port sector. They

et al. (2008) lists a wide range of logistics activities that could be moved to the port area in order to achieve a better supply chain performance. These logistics activities include those that:

- Lead to a significant reduction in the transported volume,
- Involve large volumes of bulk cargoes,
- Allow firms to be more directly linked to the port region, and
- Involve freight requiring flexible inventory strategies to buffer against fluctuating demand.

This trend towards seaports increasingly accommodating diverse logistics functions was also recognised by Rodrigue et al. (2009), who claimed that the port functions were connected with various landward supply chain activities. Together with its seaward activities, the seaport has become an industrial and logistics complex in the supply chain.

2.3.3 Comprehensive Approach

Besides the spatial and functional development approaches, the changing role of seaports also can be seen from several comprehensive port development models, such as the UNCTAD and WORKPORT models.

The UNCTAD port development model divides port development into three generations (i.e. pre-1960s, 1960s–1980s, and post-1980s) based on the evolution of port development strategy and policy, port function, port expansion level, and the integration level of port activities (UNCTAD 1992).

The WORKPORT model was based on the UNCTAD port development model. However, unlike the UNCTAD model, which examines seaport development from a revolutionary perspective, the WORKPORT model follows an evolutionary approach. According to the WORKPORT model, the development of seaports from the 1960s to the 2000s covered the following eight features: increasing private sector involvement,

greater cargo unitisation, automation and mechanisation of cargo handling, use of information and communication technologies, declining number of workers, increasingly diverse functions, safer working environment, and increasing environmental awareness (Beresford et al. 2004).

Although the WORKPORT model examines an evolving seaport sector from different angles, in the context of supply chains the model does not provide a clear examination of the port's changing role. This weakness was recognised by Pettit and Beresford (2009). Inspired by the UNCTAD model, they proposed that the WORKPORT model should add a ninth feature to the process of port development, namely: the increasing integration of ports into the supply chain.

2.3.4 Rising Status of Seaports in Supply Chains

Despite the different standpoints of the three approaches towards port development (see Section 2.3.3), they all reveal an increasingly integrated port sector. This trend has been widely acknowledged by scholars such as Lai et al. (2004), Theys et al. (2008), and Tongzon et al. (2009), and it accords with the principle of supply chain integration as well as the need for seaports to gain a competitive advantage in the current business environment.

From the perspective of supply chain management, port researchers have used a number of terms to capture the trend of supply chains to centre increasingly on the seaport sector. As already mentioned in the previous chapter, these terms include port-centric logistics (Mangan et al. 2008), supply chain terminalisation (Rodrigue and Notteboom 2009), and port regionalisation (Liu et al. 2013, Notteboom 2010). In accordance with this trend, supply chains and their actors, including liner shipping companies, are increasingly dependent on the port sector which serves as a critical supply chain component in delivering value to the end customers. The changing role of the seaport and its rising status implies an increasingly stronger port sector in relation to their business partners in supply chains.

2.4 Ports in a Competitive Environment

So far, this chapter has described how maritime transportation has been a fast growing and rapidly changing market over the last few decades, with seaports playing increasingly important roles in supply chains. However, the seaport has often been regarded as being 'reactive' to developments in the shipping industry (Paixao and Marlow 2003, Bichou and Gray 2004). Woo et al. (2011) explained this notion with reference to the sequence of change in the maritime industry. This begins with the development of the logistics chain, which has generated pressure on the shipping industry and requires liner operators to extend their geographical span, improve services, and reduce costs. Liner shipping companies have introduced a number of measures to deal with these challenges, including horizontal integration, vertical integration, and network design initiatives. These measures have made liner operators more powerful in their own right. In turn, this has driven the evolution of the port industry.

The implications of the sequence of change in the maritime industry are twofold. First, it adds support to the study of seaports from a supply chain perspective because port development is triggered by the evolution of the logistics chain. Second, it reveals that seaports are reactive to the conduct of their key customers (i.e. liner shipping companies). This seems to contradict the finding in Section 2.3.4, which indicated that supply chains were increasingly dependent on the seaport sector.

In the current maritime industry, there is a wide consensus about the fierce competition in the seaport market (see e.g. Notteboom and Winkelmanns 2001, Terada 2002, Zhuang et al. 2014). Seaports and terminal operators need to deal with the challenges arising from the evolution of the supply chain and the liner shipping industry. These challenges shape the environment of the seaport market and the inter-organisational relationships (between terminal operators and liner shipping companies) that are being studied in this thesis. Consequently, the next section will

examine the key factors that have contributed to the restructuring of the seaport market.

2.4.1 Globalisation, Containerisation and Intermodalism

Globalisation has always been closely related to the development of the maritime industry (Reynaud 2009). The rapidly globalising marketplace has reshaped the geography of seaborne trade and posed challenges to both seaports and liner shipping companies. Driven by the trend of globalisation, the site of production has become more widely dispersed (Organisation for Economic Cooperation and Development (OECD) 2008). This trend has shifted the economic growth pole from the west to the east. Although the growth of emerging markets such as China has greatly facilitated the development of regional seaports, the wider dispersion of sources of production has made it more difficult for seaports to gather cargoes and attract ship calls. Moreover, there is concern that seaports in brisk markets are facing intensified competition due to overcapacity (Notteboom and Winkelmanns 2001, Terada 2002, Zhuang et al. 2014).

Containerisation is another influential factor that has shaped the inter-organisational relationships between seaport operators and liner shipping companies (OECD 2008). Containerisation has standardised port operations and port services. Accordingly, ports have become highly similar in terms of their core services. Although the development of port hierarchy and hub-and-spoke systems has largely assigned the position of a port in a regional port group, ports in proximity are highly substitutive (OECD 2008).

While containerisation has increased port competition, the challenge to attract port calls is further intensified by the footloose nature of liner shipping companies and today's supply chains (Heaver et al. 2001, Robinson and Malhotra 2005). Liner shipping companies can be mobile, acting as footloose players in finding a better deal in terms of port services and charges. Moreover, the mobility of liner shipping

companies and the global search for economic production sites have also made supply chains footloose (Robinson and Malhotra 2005). These two factors have further intensified port competition and given seaports a disadvantageous position when dealing with liner shipping companies.

Another industrial development that has led to a competitive environment for seaports is intermodalism. In addition to globalisation and containerisation, the development of intermodal corridors and inland container depots (ICDs) has allowed a deeper penetration of containers and expanded the reach of ports (Notteboom and Rodrigue 2005, Roso et al. 2009). Whereas key seaports have become extended gates for the movement of seaborne cargoes, the expanded coverage means that the seaports' hinterlands are increasingly overlapping (Veenstra et al. 2012). Due to the restructuring of hinterlands, seaports are exposed to strong competition. In the overlapping hinterland, intermodality offers seaports the incentive and capability to compete for cargoes, which further intensifies port competition (Notteboom 2008).

Globalisation, containerisation, and intermodalism have exerted a profound influence on the evolution of the maritime logistics chain and brought significant challenges to seaports. Overall, they have created a more competitive environment in the seaport sector. This implies a disadvantageous position for seaport/terminal operators when dealing with liner shipping companies.

2.4.2 Existence of Strong Buyers?

The development of the maritime logistics channel has also posed challenges to the liner shipping sector. Shippers are increasingly demanding and liner shipping companies bear the pressure of offering abundant shipping services with global coverage at lower costs (Brooks 2000). These pressures have significantly affected the conduct of liner shipping companies and their inter-organisational business relationships with port/terminal operators.

2.4.2.1 Use of Large Ships and Increasing Concentration of the Liner Market

One notable characteristic of modern liner shipping companies is their tendency to deploy larger and larger ships. The average size of a container ship has continuously increased since the 1980s (UNCTAD 2008). Taking the past decade as an example, in 2004 the average vessel size was 2,259 TEUs and this figure had almost doubled by 2014, reaching 4,449 TEUs (UNCTAD 2014). The move to larger ships is mainly motivated by the liner operators' pursuit of economies of scale (Fusillo 2006). As ships become larger, the total cost per TEU transported tends to diminish (Cullinane and Khanna 2000, Stopford 2009). Driven by this benefit, the largest container ship on order has now surpassed the 20,000 TEUs mark. Furthermore, since there are no immediate technical barriers for larger ships, the vessel size is expected to increase further to around 24,000 TEUs before the port facility constraints finally put a limit on ship size (Brett et al. 2014).

The increase in ship size has exerted a major impact upon the maritime industry. Large ships call at fewer ports. This has contributed to the establishment of hub-and-spoke port systems and the repositioning of ports in the port cluster. The reasons for these changes are twofold. First, the use of very big ships has imposed physical requirements on port facilities and infrastructure, which has reduced the number of ports that can accommodate mega-ships (Stopford 2009). Second, the decrease in the number of port calls has shortened the total turnaround time in ports and improved the turnover of trunk route liners. This has enabled carriers to pursue economies of scale and has offered them ample time to sail at more economic speeds, a technique known as slow steaming.

Due to the utilisation of mega vessels, the number of port calls has been reduced for the transportation of the same amount of cargo. The reduction of port calls has decreased the dependence of liners on a particular port and intensified the competition among seaports, especially between those that are able to accommodate large vessels (OECD 2008). In addition to the reduction of port calls, the move to larger ships has

contributed to the formation of strong buyers (i.e. liners) for seaports/terminal operators. Larger carriers with adequate capital reserves have become more dominant in the liner sector and they are more capable to employ mega vessels (OECD 2008). This has resulted in the growing concentration of world total TEU capacity in the hands of several leading liner shipping companies and the increase of these liners' market power (Van De Voorde and Vanelslander 2010).

Industrial concentration is a key feature of the development of the liner shipping industry (Sys 2009). In 1999, the top four liners accounted for 36% of the total slot capacity out of the top 20 market players. Ten years later, this figure had increased to 48%, showing that the liner industry had become significantly more concentrated (Sys 2009). In spite of the trend of market concentration, the fierce competition among global liner shipping companies has been widely recognised by scholars such as Feng and Chang (2008), Song and Panayides (2002) and Robinson (1998). This implies that the advantageous market position of liner shipping companies in relation to their buyers and suppliers may not be as strong as indicated by the increasing concentration of the liner market.

2.4.2.2 Cooperation among Carriers

Liner operators have operated cooperatively to cope with market challenges. Two forms of cooperation (i.e. strategic alliances and mergers) have greatly affected the development of the current liner shipping industry (Evangelista and Morvillo 1999, Nair 2009, Slack et al. 2002). This section examines their impact on the inter-organisational power relationships between liner shipping companies and terminal operators.

Merger and acquisition activity is mainly driven by the firms' interest to save cost and increase market power (Lipczynski et al. 2005). This idea also applies to the liner shipping industry. In addition to the direct increase in the mergers' market power, this form of cooperation also contributes greatly to the concentration of the container

shipping industry. According to Sys (2009), the increase in the degree of market concentration was generally found in the years marked by mergers and acquisitions.

In comparison to mergers, strategic alliances are a more flexible and popular form of cooperation adopted by liner shipping companies. A strategic alliance usually covers a wide scope of cooperation agreements, including operating joint services, chartering vessels, arranging slot and information sharing, coordinating feeder and inland services, sharing terminals, and pooling containers (Stopford 2009). These agreements enable liner operators to expand the scope of their services both vertically and horizontally at a very low cost (Stopford 2009). In the current marketplace, almost all of the top liner operators have embraced this form of cooperation and the current major global strategic alliances are 2M (Maersk and MSC), Ocean Three (CMA-CGM, UASC and China Shipping), G6 (APL, MOL, HMM, OOCL, NYK Line and Hapag-Lloyd), and CKYHE (COSCO, K-Line, Yang Ming, Hanjin and Evergreen).

The conduct of merger activities and the formation of strategic alliances imply the control of maritime cargo by a group of liner shipping companies. It has led to concerns being raised about the dominant position of liner shipping companies over other supply chain members (Nair 2009). Since liner operators have a greater business volume on the negotiating table, the ports also appear to have become more dependent on liner operators (Heaver et al. 2000). However, strategic alliances may intensify the competition among liner shipping companies. The operation of the strategic alliance enables an individual liner operator to expand its service globally, which implies that the level of competition is increased in individual trade lanes. This may weaken the advantageous market position that the liners hold in relation to terminal operators.

2.4.2.3 Vertical Integration of Liner Operators in the Logistics Chain

In addition to the cooperation at the intra-industrial level, liner operators are keen to engage in vertical integration and cooperate with parties across the logistics chain. As

the ‘through-service provider’, liners have a desire to participate in the terminal operations and in the inland transportation service in order to maintain the smooth operation of their logistics chain (Notteboom and Rodrigue 2005).

The strategy of vertical cooperation is commonly adopted by liner operators to seize control of the terminals (Van de Voorde and Vanelslander 2010). For example, Maersk and its subsidiary terminal operator (i.e. APM terminals) are involved in the terminal business in the ports of Rotterdam, Bremerhaven, Felixstowe and Qingdaon. Besides, it is striking to see that by 2012, six out of the top ten terminal operators were also liner operators or their subsidiaries (based on the data from Drewry 2013).

It is interesting to see that through involving in the terminal operating business, liner shipping companies have bonded themselves to seaports. Terminal operators are eager to reduce the liners’ capability to do ‘hub-hopping’. Due to the financial investment and long-term agreement in dedicated or semi-dedicated terminals, liners are inclined to call at the ports that they invest in (Heaver et al. 2001, Hwang and Chiang 2010). This means that the liner operators have an increasing dependence on the seaport; thus, they seem to adopt a strategy that undermines their footloose advantage.

The vertical integration of liner shipping companies in the supply chain not only involves the seaport sector. In practice, they have strengthened their control over supply chains through the ownership and/or management of freight forwarders, inland logistics providers, and even e-commerce companies (Notteboom 2008).

Overall, the evolution of the seaborne trade and logistics chain has significantly affected the liner operators’ conduct. Mega vessels are used in the liner trade, and vertical and horizontal integration strategies are widely adopted by liner shipping companies. The industrial structure of the liner market is increasingly concentrated and seaports are facing intensified competition. These issues imply an increasingly powerful role of liner operators in their inter-organisational business relationships with seaports/terminal operators (Notteboom 2008, Woo et al. 2011).

However, the liner shipping industry itself is facing fierce competition. Expanded service coverage and the offer of door-to-door service packages indicate that liners are increasingly depending on seaports to ease the pressure of satisfying demanding shippers. This erodes the advantageous market position of liner shipping companies in relation to terminal operators.

2.5 Port Cooperation and the Emergence of Global Terminal Operators

This section examines the conduct of port/terminal operators that shapes the inter-organisational buyer-supplier relationships between the two maritime actors under study.

2.5.1 Port Cooperation

Faced with the challenges brought about by the development of global trade and the logistics chain, liner shipping companies have used various forms of cooperation to survive in the market. In the seaport sector, a wave of port cooperation has also been widely witnessed in the current century (Ng 2012). In light of the trend towards port regionalisation and the development of the hub-and-spoke system, port cooperation is not only an emerging trend but also a necessary behaviour for port operators (Notteboom and Rodrigue 2005, Yap and Lam 2006).

According to Brooks et al. (2010), port cooperation refers to the joint actions carried out by seaports at the inter-port level. These actions involve marketing and business development (e.g. joint advertising and seeking joint clients), operations (e.g. common training agreement and exchange of experts), administration (e.g. port representative participation and technical assistance in management), and regulation (e.g. joint environmental protection policy and programmes).

In view of the wide range of cooperative activities, the rationale and benefits of port

cooperation are also diverse. Hwang and Chiang (2010) pointed out that ports form partnerships to save costs, pool resources, share risks and investment, and reduce uncertainty. Meanwhile, Brooks et al. (2010) contended that strategic cooperation is the way seaports can succeed in the competitive environment, since it helps seaports develop gateway functions, expands hinterland coverage, and increases centrality in the transportation network.

The strategy of port cooperation can be adopted by port/terminal operators to counterbalance liners' increasing market power (Notteboom 1997). One reason for this is that cooperative activities can block competition among ports and strengthen both parties against outsiders (Song 2003). Besides, port cooperation can limit the flexibility of liners to switch ports and, therefore, can avoid destructive competition among port operators (Ng 2012). In addition, cooperation offers port operators the opportunity to improve efficiency and attract more port calls (Donselaar and Kolkman 2010). This may increase the dependence of liner shipping companies on the seaport and improve the port operator's position when negotiating with liners.

2.5.2 Development of Terminal Operators

In addition to port cooperation, Heaver et al. (2001) have identified the following three patterns regarding terminal operations' development under the pressure of the restructuring of the logistics chain: pursuing consolidations, developing regional coverage, and increasing global expansion.

In terms of the pattern (i.e. pursuing consolidations), terminal operators have extensively conducted merger and acquisition activities over the past two decades (see Van de Voorde and Vanelslander 2010). Recent examples of mergers/acquisitions include the acquisition of Terminal Link's 49% equity stake by China Merchants Holdings International (CMHI), the sale of HPH Trust's share in Hong Kong's Terminal 8 to COSCO Pacific and China Shipping Terminal Development, and the purchase of China Shipping Terminal Development's share in Lianyungang port by

PSA International (Lloyd's List 2014).

In addition to these consolidation activities, the trend of privatisation and commercialisation in the seaport sector has created a sound environment for the expansion of terminal operators' business on a global scale. In Europe, for example, terminal handling capacity has been increasingly controlled by fewer and larger companies (De Souza Jr et al. 2003). In China, the wide involvement of global terminal operators in the seaport sector has also been reported (see Wang et al. 2004).

Consolidation and the expansion of service coverage have contributed to the concentration of the terminal operating market and given birth to a number of global terminal operators, such as PSA International, Hutchison Port, APT terminals and DP World. According to Soppe et al. (2009), in 2005, 27 international terminal operators contributed about 77% of global throughput. Admittedly, about one third of these came from shipping lines' terminals or their subsidiaries—the pure terminal operators still held a large portion of the global terminal handling business. In 2012, the top ten terminal operators accounted for 36% of global throughput, 21.9% of which came from pure terminal operators (Drewry 2013).

Consolidation and the expansion of global coverage can help terminal operators exploit economies of scale, develop network economies, and optimise a terminal's functions within logistics networks (Midoro et al. 2005, Notteboom 2007). With regard to the business relationships under study, consolidation has contributed to the terminal operators' stronger negotiating position, and global expansion has limited the availability of liners' alternative port choices (Heaver et al. 2001). Therefore, the power of terminal operators seems to have increased over the past few decades.

2.6 Port Governance

So far, this chapter has reviewed the broad market environment of the maritime industry with a focus on the seaport sector. Globally, the maritime industry is going

through substantial changes in the postmodern era, which is characterised by disorganisations and mutation (Roe 2013). Seaports have emerged into the globalised supply chain and their role is evolving from an isolated interface between land and sea transport, focusing solely on cargo handling, to an integrated logistics platform that involves a wide range of supply chain activities (e.g. inventory, inspection, labelling, packing, bar coding, and customising) and stakeholders (e.g. shippers, carriers, terminal operators, forwarders) (Beresford et al. 2004). In this context, the concept of governance is significant for deepening the understanding of the industrial changes facing the seaport sector and the wider maritime marketplace (Bennett. 2000, Wang et al. 2004, Debrie et al. 2013, Roe 2007, 2009, 2013, 2016).

2.6.1 The Wide Concept of Governance

‘Governance is vague term that has been widely re- and mis-interpreted over many years’ (Roe 2013, p. 41). In the last few decades, the concept of governance has risen from obscurity and it has now become a buzzword (Dixit 2009). During this time, the understanding of this term has been approached by scholars from various academic fields, such as environmental study (Backstrand 2003, Newig and Fritsch 2009), economic study (Shleifer and Vishny 1997, Harford et al. 2008, Dixit 2009) and general business study (Larson 1992, Jones et al. 1997).

The increase of research interests into governance has been accompanied by the expansion of the range of this concept’s meanings and definitions (Roe 2013). Traditionally, the term ‘governance’ was narrowly defined as a synonym for government or just related to political activities (Stoker 1998). In this vein, governance has been seen as the ‘empirical manifestations of state adaption to its external environment’ (Pierre 2000, p.3), or as the ‘government's ability to make and enforce rules, and to deliver services’ (Fukuyama 2013, p.3). The related research interest in this state-centric approach thus focuses on the political and institutional capacity of the state to ‘steer’ and the role of the state in relation to the interests of

other influential actors (Pierre 2000).

While the state-centric interpretation of governance undoubtedly forms one component of this concept, the issue of governance is not constricted to the political domain. Governance also looks at the coordination, problem-solving and self-organising of various forms of social interactions manifested in different types of partnerships and networks (Rhodes 1996, 1997, Schneider 2012). It incorporates all of the ways that ‘individuals and institutions, public and private, manage their common affairs’ (Commission on Global Governance 1995, cite in Roe 2013, p. 42). Therefore, governance relates broadly to the administration of collective issues, the processes used and the stakeholders involved (Stoker 1998, Van de Meene et al. 2011, Roe 2013). It represents ‘a complex and ever changing concept both reflects and is reflected by societal change’ (Roe 2013, p. 55).

A simplified understanding of governance can be achieved by examining some of the key governance models (Heide 1994). From this perspective, three important models have been widely recognised, which are: hierarchies, markets and networks (Kjaer 2004, Torfing 2012, Roe 2013). Their functioning mechanisms are compared in Table 2.1.

Table 2.1 Comparing market, hierarchies and network models of governance

	Markets	Hierarchies	Networks
Basis of relationship	Contract and property rights	Employment relationship	Resource exchange
Degree of dependence	Interdependent	Dependent	Interdependent
Medium of exchange	Prices	Authority	Trust
Means of conflict resolution and coordination	Haggling and the courts	Rules and commands	Diplomacy
Culture	Competition	Subordination	Reciprocity

Source: Rhodes (1999, p. xviii, cited in Kjær 2004, p. 42)

As shown in Table 2.1, the governance model of hierarchies uses authority and power as the medium of exchange and it relies on the chains of command. This model was viewed as being inefficient and unresponsive since it lacks the structure of incentives

and encourages the bureaucracies to act on their own good rather than the collective good (Bevir 2009). In comparison, markets function through competition and use price as the medium. Properly functioning markets can distribute resources efficiently and respond quickly to individual demands (Torfing 2012). However, they may fail in providing public goods due to the absence of competition or information (Bevir 2009).

Networks are a response to the failures of markets and hierarchical coordination, and to the development of society and technology (Provan and Kenis 2008). They build on long-term recurrent exchange, mutual interest, trust and reciprocity (Jones et al. 1997, Kjær 2004). This governance mode recognises the importance of the participation, cooperation and self-coordination of social actors for policy making and implementation (Carlsson and Sandström 2008, Klijn and Koppenjan 2000, cited in Van de Meene et al. 2011). In general, it was regarded as being able to produce positive outcomes (e.g. coordinated and customised exchanges) that would not be possible in the other two modes of governance (Jones et al. 1997, Roe 2013).

In practice, the three models of governance may coexist or even overlap (Kjær 2004, Frances et al. 1991). This feature and these models' different functioning mechanisms also reveal the complexity of governance issues. In spite of this complexity, Rhodes (1997, cited in Roe 2013, p.43) argued that the concept of governance has some shared characteristics, regardless of the context. These characteristics include: 1) interdependence between organisations, from not only the public sector but also private and voluntary sectors; 2) continuing interactions between network participants motivated by the need to exchange resources; 3) game-like interactions regulated by the rules of game agreed by network members; and, 4) self-organising network with a significant degree of autonomy from the state.

2.6.2 Port Governance and Changing Seaports

There are various interpretations of the concept of governance in the maritime literature. Researchers have either developed their own definitions (see, for example, De Langen 2004 and Van Tatenhove 2011) or selectively used previous definitions (see e.g. Wang and Slack 2004, Wang et al. 2004, Brooks and Cullinane 2007) to deal with different maritime inquiries. On the basis of a bibliometric analysis of 395 researches in port economics, policy and management during the period 1997–2008, Pallis et al. (2010) identified the issue of governance as one out of seven key themes of port studies. The study of port governance has drawn wider attention in recent years, boosted by the proliferation of port privatisation and the changes in ownership structures and administration models (Roe 2013).

To figure out the role of governance in port activities, a summary of selected literature on port governance is presented in Table 2.2. This table is mainly structured based on Roe's (2013, p. 35) statement that 'governance is a complex and ever changing concept both reflects and is reflected by societal change'. It thus covers 'what changes are facing the seaport sector in the current era of maritime development' (columns 2 and 3), 'what port activities are related to the issues of governance' (column 4) and 'how port governance should respond or have responded to port changes' (column 5).

Table 2.2 shows that the 'governance approach' has been followed by many maritime researchers to study the fast changing seaport industry. The changes facing seaports are related to port activities at not only the intra-port level (e.g. port operations, spatial development and superstructure design) but also the inter-port and regional level (e.g. port competition, networking and regionalisation), as well as the global supply chain network level (e.g. supply chain integration, global adjustment of maritime network in port calls, changing pattern of cargos flows and global terminal operations). The governance approach to cope with these port changes covers a range of ports on a global scale.

Table 2.2 The significance of governance in ports

Source	Port in focus	Identified port changes	Covered port governance issues	Respond of port governance (implied or observed) to port changes*
De Langen (2004)	Port of Rotterdam	Changing role of seaport as the concentrations of logistics activities, commercial centres, information hubs and shipping hubs.	Port competition, development and performance. Port cluster activities. Variables for the quality of the governance in port clusters (i.e. trust, intermediaries, leader firms and solutions to collective action problems).	Network governance beyond market with port authorities as ‘cluster managers’. Emphasis on the importance of leader firms and intermediaries (i.e. forwarders). Building trust among stakeholders. Developing solutions to collective action problems (i.e. hinterland accessibility, innovation and marketing) in port clusters. Using various ‘arrangements’ (e.g. port authorities, stakeholder associations and networks and the public-private partnerships) in port clusters governance.
Wang et al. (2004)	Ports in China	Providing more standardised services. Pressure to render transport networks and infrastructural capabilities intelligible to the outside world. Structural change caused by the emergence of global terminal operators and port reform.	Port development, regulation, ownership structure and reform.	Developing a three-dimensional model of port governance (i.e. spatial-jurisdictional dimension, stakeholder community dimension and logistical capabilities dimension). Considering social, historical and cultural issues in port governance. Decentralised hierarchies and market-oriented port operations based on legal and regulatory support and the involvement of private sectors. Redefining the role of the port authority in port administration and operations. Widening the definition of stakeholder.
Wang and Slack (2004)	Port of Shanghai	Changing role of port authorities. Regional and international networking of ports. Maritime network adjustment in port calls.	Internal port governance issues: the role of port authority, ownership structure, land management, development plans, government services (e.g. safety inspection). External port governance issues: port role in logistics networks, port-related infrastructure and hinterland-related services, financing and pricing, liabilities and responsibilities of all stakeholders	Recognising the complexity of both internal and external port governance issues. Emphasising regional port governance based on the cooperation of ports in proximity. Decentralising port administrative authority. Giving the financial autonomy to port authorities. Involving more stakeholders (i.e. shipping lines and intermodal transport firms) in the policy- and decision- making process.

* Roe’s (2013, pp. 387-388) maritime interpretation of postmodern governance based on Newman (2001) was referenced to systematise the content of this column.

Table 2.2 Continued

Source	Port in focus	Identified port changes	Covered port governance issues	Respond of port governance (implied or observed) to port changes*
Notteboom and Rodrigue (2005)	Ports in general	Port regionalisation. Changing port-hinterland relationships. Port integration into regional load centre network. Port congestion. Lack of space.	Port governance structure and concerns. Problem-solving. Value of stakeholders' opinions. Balance of resource use. Dealing with immediate changes caused by port regionalisation.	New and flexible network governance structure based on initiative, cooperation and consultation, and adopts quickly to changing logistics chains. Emphasis on regional and local collaboration with other transport nodes. Coordination and cooperation among institutional agencies and market players. Widening of stakeholder definition to include, for example, carriers, shippers, transport operators and government bodies. More stakeholder input and participation in policy-making. Considering governance concerns (e.g. over-optimism of market conditions and proper distribution of costs and benefits among stakeholders).
Cullinane and Wang (2007)	Ports in China	Increasing demand for port service. Inadequate port capacity. Lack of knowledge and skills in port operations.	Port regulation, administration and ownership structure.	Decentralising institutional decision-making framework. Involving private sectors in port operations.
Cullinane et al. (2007)	Port of Singapore	Intensified competition. Pressure to improve service quality. Lack of space for port development.	Ownership structure. Port market development.	Involving private sector in port operations. Devolving decisions-making power. Developing cross-jurisdictional decision-making framework.
Song and Cullinane (2007)	Port of Hong Kong	New geopolitical context in South China. Changing patterns of trade flows.	Port competition, legislation, planning, administration and regulation.	Involving interest groups (i.e. terminal operators and carriers) in the policy-making process.
Valleri et al. (2007)	Ports in Italy	Pressure to improve productivity and competitiveness.	Decision-making hierarchies. Port regulations.	Restructuring the port legal setting. Reforming the institutional structure to grant terminal operators decision-making and financial autonomy.
Debric (2010)	Ports in Europe and Canada	Port service specialisation. Concentration of cargo flows. Port privatisation and internationalisation. Supply chain integration.	Port legislation, supervision, administration, financing and ownership structure. Responsibilities in decision making.	Decentralised hierarchies and public/private partnership in policy- and decision-making. Sustainable development of the port. Cross-jurisdictional linkage in decision making. Widening of stakeholder definition to include actors from the inland logistics network.

* Roe's (2013, pp. 387-388) maritime interpretation of postmodern governance based on Newman (2001) was referenced to systematise the content of this column.

Pallis et al. (2010) in their bibliometric study reported a variety of port governance themes, which include theorising the context of governance, port reforms and governance models, industrial relations in ports, the role of port authorities, governance through cooperation in and between seaports, and institutional issues. These themes reflect the significance of governance in ports and are witnessed to varying degrees in the studies covered in Table 2.2. For example, Notteboom and Rodrigue (2005) studied port governance in the theorised context of port regionalisation, Wang et al. (2004) developed a three-dimensional model of port governance and suggested to redefine the role of the port authority in port administration and operations, and Wang and Slack (2004) noticed the changing industrial relationships in maritime networks and proposed a regional port governance framework based on the cooperation of ports in proximity.

The overall topic of port governance was listed by Pallis et al. (2010) in parallel to terminal studies, ports in transport and supply chains, port planning and development, port policy and regulation, port competition and competitiveness, and spatial analysis of seaports as one of the seven key themes of port studies during the period 1997–2008. They noticed that a number of papers that focus on terminal studies linked the results to port governance. In Table 2.2, the wide concept of governance seems to have much broader implications on various themes of port study than just terminal studies. The wide coverage of governance issues in ports can be seen in Wang and Slack's (2004) work, which categorises port governance issues at both the internal and external port level (Table 2.2). Meanwhile, Wang et al. (2004) claimed that social, historical and cultural variables were also a vital dimension of port governance study. In addition to studies covered in Table 2.2, Roe (2013) cited the work of Plasman (2008, p. 912) and argued that there was much more to port governance than those issues covered in the contemporary port literature.

Overall, the examination of previous literature on port governance has revealed the significance of governance in ports. The governance approach to port study reflects

the substantial changes characterising the current maritime industry. Whereas the issue of port governance involves many sub-topics that relate to all seven of the themes of port studies identified by Pallis et al. (2010), the current port literature still has not fully explored the role that the wider concept of governance plays in the activities of ports and in the maritime marketplace (Roe 2013).

2.6.3 Governance and Power

The issue of governance is of great significance to the understanding of power (Rhodes 1997, Griffin 2012). Several characteristics of the concept of governance such as interdependence, resource exchange and the rules of the game (Rhodes 1997, cited in Roe 2013) are also key concepts highlighted in influential power studies (e.g. Emerson 1962, Hwang 1987, Cox et al. 2002, Casciaro and Piskorski 2005). As argued by Stoker (1998), the concept of governance has greatly contributed to the identification and understanding of power relationships in the complex social network involving various stakeholders (e.g. individuals, business organisations and states).

In this study, the research focus is given to the inter-organisational power relationships between port/terminal operators and liners. As two crucial actors in the port community, the issue of governance tends to exert significant implications on the examination of power issues in their business relationships. For example, the mode of network governance in ports may affect the patterns of power use among various stakeholders in the port community because it advocates the norm of reciprocity in business interactions (see Section 10.2.1.2). Nonetheless, governance is a complex concept. To what extent this concept relates to the selected research context requires further examination. In view of this consideration, the issues of port governance in China will be further examined in Section 5.3.

2.7 Summary

The relationship between terminal operator and liner shipping company represents a key inter-organisational relationship in the maritime sector. The focus on this dyadic relationship has been justified by the trend of port integration in the supply chain and the importance of terminal operators and liner operators in the maritime industry. Under the background of port integration in the supply chain, the status of seaports has been rising because supply chains are increasingly centred on the seaport. This is one of the key features of the development of the rapidly changing maritime industry.

The increasingly centring of supply chains on the seaport sector implies that seaports have acquired a favourable market position with regard to other players in the maritime industry. However, the development of the logistics chain and the shipping sector has brought challenges to seaports and terminal operators. In particular, the seaports sector has restructured itself in the face of an increasingly competitive market due to globalisation, containerisation, and intermodalism.

Although liner operators also face strong competition, they act cooperatively to manage competition and they use mega vessels to acquire economies of scale. These factors result in an increasingly concentrated liner market, which means that seaports are dealing with a smaller number of strong liner operators. On the other hand, cooperative activities have also been witnessed in the seaport sector and terminal operators have expanded their business all over the world.

The review of the market features of the maritime industry has revealed that both terminal operators and liner shipping companies seem to be increasingly powerful in supply chains. The issue of governance is of great significance to the understanding of power and the fast changing maritime marketplace. Yet, governance is an intricate concept. Its implications on the power relationships between port/terminal operators and liners require further examination.

Therefore, it is still unclear which party is more powerful in relation to the other, and it is uncertain how and to what extent the emerging practices of these two parties have contributed to their respective market positions. Despite this gap, terms including 'market power', 'buyer power' and/or 'monopoly power' have been widely used in the port and shipping literature to describe the vested business relationships (see e.g. Heaver et al. 2001, Song and Panayides 2002, Van de Voorde and Vanellander 2010, and Woo et al. 2011). The wide use of power terms implies the importance of the concept of power for advancing knowledge in marmite studies. However, these terms lack any detailed elaboration and robust theoretical interpretation.

As an essential attribute of a social system, the concept of power has been widely used in inter-organisational studies. This concept is also significant for the investigation of the research gap that has been identified. Based on the notion of studying the vested business relationships using the theory of power, the next two chapters will examine power theory in detail and they will form the ORQs in this study.

Chapter 3 The Theory of Power

3.1 Chapter Overview

This chapter examines the concept of power and reviews the early studies of IOP. The objectives are to understand the main debate about power as a philosophical concept, and the theoretical and empirical origin of IOP studies. These two tasks will be tackled respectively in Sections 3.2 and 3.3. A summary of this chapter will then be presented in Section 3.4.

3.2 The Concept of Power

Power is one of the central and yet most problematic concepts in the sociological lexicon (Martin 1971). The root of power research resides in the field of political study. According to Sadan (1997), modern discourse about power dates back to the early sixteenth century when Niccolò Machiavelli published his political treatise ‘The Prince’, in which he regarded power as a valuable asset and suggested several methods (e.g. military action and execution of political rivals) that a prince can use to gain and maintain his power. In spite of the long history of power study, the phenomenon of power is so complex that a universally-accepted concept of power has never been developed (Parsons 1963, Gattorna 1978).

3.2.1 Power as a Capacity

The meaning of ‘power’ seems to be a common-sense knowledge of all social members since it forms an essential aspect of people’s everyday experience (Scott 1994). In general, power often refers to some kind of influence exercised by individuals or groups upon each other (French and Raven 1959, Martin 1971). Early writers who contributed to the discourse of the concept of power include Russell (1938), Weber (1947), Hobbes (1951), French and Raven (1959), Dahl (1961),

Emerson (1962), Parsons (1963), Blau (1964) and Wrong (1968).

Russell (1938) defined power as the production of intended effects. Given two persons with a similar desire, the one with the ability to achieve relatively more desires has more power than the other. This argument stresses the element of 'will' or 'intention' in the concept of power (Lukes 1986). Weber (1947) recognised this attribution and further claimed that power is the capacity to be realised rather than the actual production of intended effects. For Weber (1947, p. 152): 'power is the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests.'

The Weberian definition of power provides the starting point for most modern discussion of this concept (Martin 1971). On the basis of Weber's definition, Dahl (1961, cited in Sandan 1997, p. 42) conceptualised power from the perspective of behaviour control and defined it as 'the ability to make somebody do something that otherwise he or she would not have done.' In addition, Blau (1964, p. 117) focused on how to achieve intended effects and defined power as 'the ability of persons or groups to impose their will on others despite resistance through deterrence either in the forms of withholding regularly supplied rewards or in the form of punishment.'

These early scholars view power as a specific type of relation between objects, individuals and/or groups (Martin 1971). Since a key feature of power in these definitions is the ability to influence others despite resistance, the idea of 'power over' other persons and/or groups is embedded in the Weberian definition and its derivatives (Lukes 1986). In other words, these definitions recognised an opposition between power-involved parties and conceptualised power in such a way that it can be exercised by some person or groups over those who do not have power. This conceptualisation believes that power exists independently of the subject and acts upon it. While it is possible that a set of relationships may not be mediated by power, power is regarded as a thing that can be owned, acquired or lost by the actors involved in a power relationship (Foucault 1977a).

In spite of its widespread use, the stream of Weberian conceptualisation of power has two major problems (Martin 1971). The first one is the built-in attribution of conflict in the concept. The idea of resistance in the Weberian definition of power implies the opposition between power-involved parties (Parsons 1963). However, these parties may have mutual interest and the notion of 'power over' may not be applicable to all power relationships. When power-involved parties have mutual desires, the question of 'who rules whom' is no longer relevant. Power in this case may serve the desires of all power-involved actors.

The second problem of the Weberian definition is the misconnection of a property of social relations as a property of actors (Martin 1971). As argued by Foucault (1977a), the power-influenced discourses of various rules and norms are embedded in every aspects of social life. Power does not emanate from a certain individual. Instead, it is distributed throughout society. Although one may conceive of power as a property, it is a property of relations rather than owned by someone in society (Martin 1971).

In view of the two problems of the Weberian definition, Parsons (1963, p. 103) defined power as: 'generalised capacity to secure the performance of binding obligations by units in a system of collective organisation when the obligations are legitimised with reference to their bearing on collective goals.' In Parsons's definition, power is analogous to money, a generalised system resource or facility in the society. It enables the achievement of collective goals through the legitimised leadership. The authority of the leadership is based on the value consensus or agreement of members in society (Lukes 1986).

Parsons's (1963) conceptualisation of power is not without critics. The first problem with his conceptualisation is the rejection of conflict and coercion as one attribution of power (Giddens 1968, Scott 1994). Parsons chose to ignore coercion and conflict in social relations to interpret power consistently with his general social theory. Since these issues are two main concerns of the nature of power in society and they are key aspects of social relations, such ignorance when defining power misses out the

divisions of interests and the hierarchical character of power in society (Cox et al. 1986, Giddens 1968).

Second, by ignoring conflict, Parsons (1963) viewed power as always legitimised since it is based on the 'value consensus' of the power system. Authority for Parsons (1963) seems to be the only type of power. It thus narrowed an interest-based concept that forms the basis of many leading writers (e.g. Max Weber and Robert Dahl) to a legitimation-based concept (Scott 1994).

Third, the notion of generalisability is embedded in Parsons's (1963) conceptualisation of power. However, power is not like money in the sense that it only has limited liquidity. One of the key reasons for the use of money as a circulating medium is due to its utility to measure disparate objects in monetary terms. Power does not have this quality due to its relational attribution. In a triangle relationship involving three persons or organisations (A-B-C), A may have the power to obtain B's compliance with regard to one issue X but not to gain similar compliance from C. Thus power is only specific to a certain relation rather than a generalised capacity (Martin 1971).

The Weberian and Parsonian discourses of power form two significant approaches towards power conceptualisation; however, they both suffer some problems. In particular, Weber ignores the possibility of mutual interests in power relations and misconceives a property of social relations as that of individuals. On the other hand, Parsons defined power out of the existence of conflict in society and overrated the liquidity of this concept as a generalised system resource.

While the debate of power conceptualisation did not reach a census in early power studies, later power researchers have developed more definitions about power. For example, Martin (1971), on the basis of the critics of the Weberian and Parsonian conceptualisation, viewed power as a type of information flow that links the sub systems (e.g. cultural system and social system) in a society and symbolise

non-self-satisfying behaviour for the recipient. Lukes (1974) largely accepted Weber's definition and defined power as the ability of one actor to affect the behaviour of another actor in a manner contrary to the second actor's interest. Wrong (1979, p. 2) followed Russell (1938) and defined power 'as the capacity of some persons to produce intended and foreseen effects on others.'

3.2.2 The Attributions of Power

Despite the various conceptualisations of power, they all failed to provide a universally-accepted discourse about this concept. As argued by Lukes (1986, p. 4) 'none offers a generally satisfying and informative definition that excludes just what all can agree should be excluded and includes just what all can agree should be included.' Even so, the early interpretations of power all revealed some true and relevant attributions about this concept.

First, no matter whether power is a property of individuals or social relations, its effects are embedded in relational discourses (Wrong 1979, Martin 1971). In addition to the definitions of power examined in Section 3.2.1, Emerson (1962) directly linked power with a specific type of relation: dependence. For Emerson (1962), the power of actor A over B equals the dependence of B upon A. Since dependence is one type of inherent relation in social life, the issue of power thus bears strong relational features and becomes a central concern of almost any sociological research (Bacharach and Lawler 1980).

Second, the concept of power involves the element of will or intention and it affects behaviour (Lukes 1986, Morriss 2002). The idea of affecting behaviour is a central aspect of social interaction, which is manifested in mutual influence and control (Wrong 1979). However, the exercise of power is not the same thing as influence and control. The intentionality of power makes this concept identical to intended influence rather than unintended influence, although both types of influence can have an impact on others' behaviour (Wrong 1979).

Third, power is often defined as some kind of capacity to influence behaviour, as seen in the Weberian and Parsonian conceptualisation. This means that two dimensions of power—actual and potential power—are embedded in its definition. While the ability to conduct behavioural alternation is a key feature of the concept of power, the possession of this capability and its actual conduct are obviously different. Wrong (1968) explained this issue from the perspective of defining power and argued that when power is regarded as ability, it is a dispositional concept. He employed Gilbert Ryle's (1949, cited in Wrong 1968, p. 677) argument about 'knowing' to further explain this idea:

To say that a person knows something, is not to say that he is at a particular moment in process of doing or undergoing anything, but that he is able to do certain things, when the need arises, or that he is prone to do and feel certain things in situations of certain sorts.

Apparently, this statement also applies to the concept of power. 'Having power' and 'exercising power' are fundamentally different; there might be a circumstance wherein an entity has power over another without using it (Cronin Jr et al. 1994, Kumar 2005, Lukes 2005).

3.2.3 The Contentedness of the Concept of Power

Although the examination of the concept of power reveals some generally-accepted attributions about his concept, disagreement about the definition of power still remains. There are a couple of reasons that may contribute to the lack of agreement. First, it may stem from the researchers' broad interests in this topic in different fields of study. French and Raven (1959, p. 152) claimed that 'the strength of power O/P in some system A is defined as the maximum potential ability of O to influence P in A.' From this definition, it is noticeable that the connotation of power is connected with 'system A', in which power actors are involved. In other words, the dynamics of power between parties depend on the particular environment that they reside in

(Agusti-Panareda 2004).

The topic of power has been studied in various fields or 'systems' from different perspectives. Whereas seminal power studies were produced by political researchers, power has been a key area of study in a range of disciplines. For example, Alfred Adler discussed power in psychology; Stephen Lukes and Anthony Giddens underscored the importance of power research and deepened the understanding of the concept of power in the field of sociological research; and Michel Foucault developed the concept of power in the field of medicine, psychiatry, penology, and human sexuality (Clegg 1989, Sadan 2004).

Different research disciplines have various competing theoretical bases of research traditions. Therefore, the concept of power and its analysis has been approached from various theoretical directions with different assumptions (Cox et al. 1985). As a result, Pfeffer (1981) argued that power is 'context specific', which means that researchers who focus on different research contexts may have different appreciations about the concept of power.

Second, Lukes (1974) and Cox et al. (1985, 2002) employed the term 'essentially contested' to justify the conceptual diversification of power from a theoretical perspective. The related theoretical origin was presented by Gallie (1955–1956, p. 169), who noticed that 'there are concepts which are essentially contested, concepts the proper use of which inevitably involves endless disputes about their proper uses on the part of their users.' Examples of these concepts include democracy, Christian tradition, and art, whose interpretation cannot be agreed upon by different groups of people.

Accordingly, the pursuit of a correct or standard use of these concepts based on their different uses and characteristic arguments cannot provide any shared result. These concepts are essentially contested because they are changeable and open to rational debate, and they cannot be formally verified (Cox et al. 1985). There are seven criteria

for a concept to be essentially contested, which are: appraisiveness, internal complexity, diverse describability, openness, reciprocal recognition, exemplars, and progressive competition (see Gallie 1955–1956 for a detailed description). Despite some criticism of Gallie’s framework (e.g. Gray 1977, Clarke 1979), it is instructive for the evaluation of the application of some concepts in certain research contexts (Collier et al. 2006).

Inspired by Gallie’s work, Lukes (1974) argued that the concept of power is essentially contested. According to Lukes (1974, p. 243):

Power is one of these concepts which is ineradicably value-dependent. [...] Both its very definition and any given use of it, once defined, are inextricably tied to a given set of (probably unacknowledged) value-assumptions which predetermine the range of its empirical application. [...] The concept of power is, in consequence, what has been called an ‘essentially contested concept’.

The value-dependence feature of power can to some extent be reflected by the various prefixes of power that researchers have used to establish their research boundary, including structural power (Hart and Saunders 1997, Cendon and Jarvenpaa 2001), economic power (Betancourt and Cautschi 1998, Ailawadi et al. 1995), purchasing power (Ramsay 1994, Stannack 1996), and market power (Clarke 2000). The approach to this concept from various theoretical directions with different assumptions makes the concept of power evaluative and there can be no formal or rational verification; thereby, it is essentially contested. Due to this special feature, the development of a universally accepted concept for power seems to be difficult to achieve.

However, there is concern regarding whether the concept of power fits all seven criteria in Gallie’s framework. This is evidenced in the debate between MacDonald (1976) and Lukes (1977). On the basis of this debate, Cox et al. (1985, p. 39) concluded that the ‘solution is perhaps to adopt a more eclectic and detached

perspective, which would involve keeping an open mind to the insights which competing theories offer and recognising that some concepts are likely to remain essentially contested.’

3.3.4 Implications for the Study of Power

Given that a universally-accepted concept of power is difficult to form, Dahl (1957, p. 201–202) argued that it is probably not necessary to have a rigorous concept of power:

If we take as our criterion for the efficiency of a scientific concept its usability in a theoretical system that processes a high degree of systematic and empirical import, then we simply cannot say whether rigorous definitions of the concept of power are likely to be useful in theoretical systems with a relatively pay-off in the hard coin of scientific understanding.

A definition of power that captures the central understanding of this concept may not be applicable to any specific research problems. While it is unlikely to create a concrete ‘theory of power’, it is possible to generate a range of understanding about this theory with limited scopes that is able to tackle of a research problem in a selected context (Dahl 1957). On the basis of this notion, Dahl (1957) proposed forming a general definition of power that covers the intuitive understanding of this concept and he advised using a modified version of this definition to deal with specific research issues in view of the conceptual diversification of power.

Considering that the endless discussion about the concept of power may never get through the ‘swamp’, Dahl’s (1957) statement implies an approach to conceptualise power in a constrained research setting and shifts the focus of power research from the meaningless debate about the definition of power to study actual power problems in reality. This idea was supported by Foucault (1977b), who criticises that the early conceptualisations of power often followed a problematic deductive approach which

starts from its centre and attempts to discover the concept until it permeates into the base and reproduces itself down to, and including, every tiny component of society. For Foucault (1977b), power circulates and functions in a net-like organisation. Individuals articulate between its threads and they are always in a situation to undergo and exercise power. They are an effect of power and, at the same time, the element of its articulation.

On the basis of this understanding, Foucault (1977b) further argued that power analysis should be conducted in an ascending manner rather than a deductive manner. Specifically, the study of power should start from its infinitesimal mechanisms with diverse contextual features and we should then see how these mechanisms have been discoursed by more general mechanism of power. It is only if we understand these micro-mechanisms embedded in various contexts that form the social whole, we can figure out the function of the general mechanism of power in society. Following such ascending approach, Foucault (1976, 1977c, 1979) extended the study of the concept of power from sociology to many sub-fields in social sciences (Sadan 1997).

The thoughts of Robert Dahl and Michel Foucault were later supported by another influential power writer, Stephen Lukes (1986), who argued that the search for a generally satisfying definition is a mistake because it involves variations in will and interests. Instead, the analysis of power can be conducted by asking ‘power questions’ that we have in mind. The power questions may include ‘Who can control whom?’ and ‘Who can affect the interests of whom?’ The understanding of power through asking power questions, on the one hand, suggests putting aside the debate about the definition of power and, on the other hand, it implies an approach to study power in a constrained empirical setting. These ideas are largely homologous to those of Dahl (1957), Foucault (1977b) and Cox et al. (1985), and they significantly affected later study. The contribution of these influential writers towards the conceptualisation and analysis of power exerts important impact on this research.

First, although the concept of power has some commonly-acknowledged attributions, it is changeable to rational debate and has been approached from various theoretical directions with disciplinary features. Thus, the understanding of this concept at a disciplinary level becomes important. This effort follows an ascending approach towards the analysis of power by gaining insights about power problems in the selected research setting or the micro-mechanism of this concept. In this study, the micro-mechanism in focus is the power relationships between terminal operators and liner shipping companies. Second, the way of knowing power by solving specific power problems provides the theoretical justification for the investigation of the vested power relationships through an empirical approach.

These two implications justify the rationale for the general design of this research and provide the guideline for the review of power literature in the following sections of this chapter and in Chapter 4. The power relationship (terminal operators versus liner shipping company) in this research is in essence an inter-organisational supplier-buyer relationship that is embedded in the supply chain and logistics network. To address the disciplinary feature of this study, the scope of power literature review will cover IOP study in the context of general management and supply chain management. Meanwhile, the literature review will also address empirical power study to find out how power has been studied and how power problems have been solved in various research settings.

3.3 A Review of the Early IOP Studies

Simpson et al. (2013) conducted a review of IOP literature published before the 2010s and found that the modern discourse about IOP has mainly developed from the 1950s to 1970s. From the 1980s onward, power researchers' interests has largely shifted from the discussion of the concept of power to IOP study in various empirical settings. Based on this finding, the review of IOP literature in this research is divided into two parts. The researcher will first examine the key works that form the origins of the

conceptualisations of IOP and the early empirical IOP studies in the context of business management and supply chain management. The conduct of this task forms the rest of this chapter. A particular focus will then be given to the time period when the application of power theory became the major focus of power researchers, and the next chapter will systematically review IOP studies since the 1980s.

3.3.1 Origin of IOP Studies

Power is an important area of study in the general field of business management. As stated by Cox (2001), power is at the centre of all business-to-business relationships. The concept of power has often been analysed by early business researchers within the organisational scope, whereas the inter-organisational dimension has been largely neglected (Provan et al. 1980). In the organisational domain, early empirical power studies have mainly focused on the personal level (e.g. Mechanic 1962, Zald 1962, Holdaway et al. 1975, Cotton 1976, Lord 1977) and/or departmental level (e.g. Perrow 1970, Blau and Schoenherr 1971, Salancik and Pfeffer 1974, Hinings et al. 1974, Hill and Mahoney 1978, Busch 1980). In spite of the growing interest in inter-organisational relations in the field of business study (e.g. Salancik 1979 and Kochan 1975), not many empirical studies have shed light on power issues between organisations (Provan et al. 1980).

The theoretical basis of IOP was first developed in the field of organisational sociology and industrial organisations (Zhang and Gimeno 2010). Three streams of organisational research are essential to the study of power in the inter-organisational dimension (Provan et al. 1980). The first thread draws on RDT to conceptualise unilateral power within a dyadic business relationship. Firms are embedded in an exchange network and they rely on other firms' resources to achieve their business goals (Ramsay 1994). The need of organisations to secure scarce resources creates interdependence among firms, and the amount of power held by a firm in exchange

relations can be expressed in the degree of dependence of its business partners on this organisation (Emerson 1976, Pfeffer 1981).

The second thread of organisational research examines the topic of power from the standpoint of an exchange network (Hirsch 1972, Pettigrew 1972). It focuses on business activities among groups of organisations or organisation set. Rooted in political study, this approach was later developed by network researchers such as Cook (1977), Bonacich (1987) and Borgatti (2005), and it has become an important approach to conceptualise power in the business world.

The third thread examines power relations within the context of a broader environment (Provan et al. 1980). This thread recognises the context-specific feature of the concept of power. In addition to the domain of exchange network, firms are exposed to a larger political and cultural environment that has an impact on their power relations with other organisations. The analysis of power that focuses on these environmental linkages thus forms the last stream of power researches in the field of business study.

In addition to the contribution of organisational power studies, several seminal works represent the origin of the conceptualisations of IOP including Simon (1953), French and Raven (1959), and Emerson (1962) (Simpson et al. 2013). The first two studies focuses on the conceptualisation of power by investigating its bases. Simon (1953) used the term 'influence base' to conceptualise the condition of exercising influence. The influence base stems from the value position of social actors, and includes authority and wealth.

French and Raven (1959) further classify the bases of power into five categories: coercive power, reward power, legitimate power, expert power and referent power. Whereas coercive and reward power are derived from the ability to mediate punishment and dividends, expert and referent power often take the form of assistance and support activities (Stern and Reve 1980, Doherty and Alexander 2006). In

addition, legitimate power is based on the target's belief in the legitimacy of the source's right to prescribe its behaviour (French and Raven 1959). French and Raven's (1959) work captures the bases/sources of power with a wide breath and it forms the theoretical basis for a large amount of empirical power studies (e.g. Brown et al. 1995, Maloni and Benton 2000, and Benton and Maloni 2005).

In addition to the power bases approach, the power dependence approach developed by Emerson (1962) is another key origin of the conceptualisation of IOP. The RDT developed on the basis of this approach has provided the theoretical lens for a range of empirical power studies (Simpson et al. 2013). For Emerson (1962, p. 32) 'the power of actor A over actor B is the amount of resistance on the part of B which can be potentially overcome by A.' It equals the dependence of B upon A. In this power dependence model, the determinants of dependence are motivational investment (goals and investment in goal mediation) and the availability of alternatives (number of alternatives and switching cost) (El-Ansary 1975). Conceptually, the essential contribution of the power dependence approach towards the understanding of power is linking the concept of power with dependence, which makes power a central concern of almost any sociological research (Bacharach and Lawler 1980).

3.3.2 Key Streams of Early IOP Research

The power base approach and power dependence approach have significant implications for early empirical IOP studies. Two key streams of these studies have focused on the test of the validity of these two approaches for the conceptualisation of power and for the examination of the impact of power on relational issues (i.e. business satisfaction and conflict).

For the power bases approach, an important problem that has often been neglected is its applicability to the inter-organisational research setting. Specifically, French and Raven (1959) conceptualised the five power bases in a dyadic relation involving two actors—A and B. For example, reward power is based on A's perception that B has the

ability of mediate rewards for him and coercive power is based on A's perception that B has the ability to mediate punishments for him. For French and Raven (1959, p. 151), A refers to a person, and B can be 'either another person, a role, a norm, a group or a part of a group'. This means the seminal conceptualisation of power bases does not consider the power relationship between organisations. Its applicability to the inter-organisational setting thus becomes questionable (El-Ansary and Stem 1972, El-Ansary 1975). In spite of this consideration, a number of studies (e.g. Hunt and Nevin 1974, Etgar 1976, Etgar 1978, Wilkinson 1981) have later demonstrated that there is a strong relation between power bases and an entity's power in the inter-organisational context. Even so, Brown et al. (1995) claimed that such a correlation is uncertain since an entity may possess power bases but may not be regarded by the target as powerful. The reason for this may lie in the concept of power as a dispositional concept (see Section 3.2.2).

For the power dependence approach, the dependence of one party on another is necessary and ubiquitous in an exchange network (Emerson 1962). Given that different organisations in this network are specialised in different functions (e.g. raw material production, transportation, and financing), they need to depend on others to fulfil their own needs and deliver value to the final customers. The power dependence approach believes that the power of actor A over B equals the dependence of B on A ($P_{ab}=D_{ba}$) (Emerson 1962). This relation between dependence and power forms the basis of the power dependence approach.

However, using data gathered from the distribution channel of heating and cooling equipment, El-Ansary and Stem (1972) found that the relation between power and dependence was not statistically significant. In other words, the expression of power through dependence may not be appropriate. They attributed this abnormal finding to the lack of an established power structure in the selected business relationship. Even so, it again raises the concerns about whether the seminal conceptualisation of IOP (i.e. power bases approach and power dependence approach) that was originally

developed in sociological context can be unchangeably used in the context of inter-organisational study. Nevertheless, early empirical evidence that supports the relation between power and dependence can be found in Etgar (1976), El-Ansary and Stem (1972) and Salancik (1979).

The intensive study of the relations between power and several variables forms another key stream of early IOP studies. This stream has greatly influenced power studies in the 1970s. A summary of relevant IOP studies can be seen in Table 3.1. In general, these studies focus on the investigation of the impact of power and/or power bases on conflict, satisfaction and/or performance. Although the study of these relations covers a range of business sectors, the automobile industry seemed to be the most popular research context (see e.g. Lusch 1976, Lusch 1977, Brown and Frazier 1978, Michie 1978).

Table 3.1 Summary of major IOP studies in the 1970s

Sources	Research Context	Power-related Constructs
Walker (1972)	Manufacturer and retailer (laboratory simulation)	Power, conflict, satisfaction.
Hunt and Nevin (1974)	Fast food franchises	Power, power bases, satisfaction
Porter (1974)	Consumer goods industries	Power, performance
Wilkinson (1974)	Manufacturers and retailers in the household durable supply chain	Power, power bases
Etgar (1976)	Insurance agents	Power, performance
Lusch (1976)	Auto dealers	Power bases, conflict.
Lusch (1977)	Auto dealers	Power bases, satisfaction
Brown and Frazier (1978)	Auto dealers	Power bases, power, conflict, satisfaction.
Michie (1978)	Auto dealers	Power bases, satisfaction.

Source: adapted from Gaski (1984)

A key feature of the early IOP studies that are listed in Table 3.1 is the wide utilisation of the quantitative research approach to examine business relationships (Gaski 1984). The constructs of power bases suggested by French and Raven (1959) has greatly facilitated the quantitative examination of power issues. In Table 3.1, studies that employed the power bases approach to statistically study various power relations

include Hunt and Nevin (1974), Wilkinson (1974), Lusch (1976, 1977) and Brown and Frazier (1978). These studies have reached some common understanding about the bases of power. Whereas the coercive power often causes conflict and reduces satisfaction, the noncoercive power (viz. reward power, legitimate power, referent power and expert power) has the opposite impact on these constructs (Hunt and Nevin 1974, Lusch 1976, 1977, Brown and Frazier 1978). For the correlation between power and performance, the proper use of power can improve business partner's performance (Porter 1974, Etgar 1976).

From the perspective of the research disciplines, whereas the study of power between organisations has largely been neglected by researchers in the field of general management (Provan et al. 1980), relatively more attention has been drawn in the field of market research (Gaski 1984, Simpson et al. 2013). However, Gaski (1984) claimed that these early IOP studies in the discipline of marketing suffered some methodological and conceptual drawbacks (e.g. poor operationalisation, information bias, insufficient evidence of validity and reliability, and inadequate statistical analysis). Thus, the field of IOP study still seems to be immature.

After the 1970s, research interest in power issues has continued to grow. Power relations have been examined from the inter-individual level (e.g. Kerr et al. 2012, Min and Kim 2013), the intra-organisational level (e.g. Homburg et al. 1999, Merlo 2011, Shields and Malhotra 2008), the individual-organisation level (e.g. Carrillat and d'Astous 2014, Bitzan and Chi 2006, Lonsdale 2004), and the inter-organisational level (e.g. Emery and Marques 2011, Hingley 2001, Doherty and Alexander 2006).

Some new features have begun to emerge in IOP studies. First, modern analytical methods such as structural equation modelling have been widely used in power studies (e.g. Casciaro and Piskorski 2005, Benton and Maloni 2005). Second, many new variables, such as trust (Kumar 1996) and cooperative/collaborative activities (Dapiran and Hogarth-Scott 2003, Hingley 2005b), have been studied with regard to their relationships with power. Third, researchers have investigated power relations in

a wider spectrum of industrial sectors, such as construction (Ireland 2004), insurance (Watson 2001), manufacturing (Frazier and Summers 1986, Lee 2001), and retailing (Dapiran and Hogarth-Scott 2003, Quinn and Doherty 2000, Rawwas et al. 1997). Nonetheless, there is a lack of a review of the IOP studies in the context of business management and supply chain management. Considering the context-specific feature of the concept of power, the need for a systematic review of these literatures implies a research gap. This issue will be dealt with in the next chapter.

3.4 Summary

This chapter is the first of the two chapters that review the literature of power. It has two parts. The first part examined the concept of power. The conceptualisation of power has been approached by various researchers from different disciplines. Among these contributions, the Weberian and Parsonian discourses of power formed two significant approaches towards power conceptualisation.

The early conceptualisation of power has revealed some common attributions of this concept, as follows: its effect is embedded in relational discourses, it involves the element of intention or will, and it is often defined as some kind of capacity to influence behaviour. In spite of this common understanding, the conceptualisation of power lacks of census, which may be due to the essential contentedness of this concept. It is context specific and changeable to rational debate. One way to cope with the conceptual diversity of power is to form a general understanding of this concept and analyse specific power problems in a micro-mechanism of the social whole. This idea provides justification for the general design of this research and serves as a guideline for the review of power literature in the second half of this chapter and in the next chapter.

In essence, the power relationship analysed in this research is an inter-organisational buyer-supplier relationship embedded in the supply chain and logistics network. To address this disciplinary feature, the second part of this chapter has focused on the

review of the early development of IOP. The theoretical basis of IOP was originally developed in the field of organisational sociology and industrial organisations. Two power approaches represent the origin of the conceptualisation of IOP, namely the power bases approach and the power dependence approach. On the basis of these two approaches, there are two important streams of early IOP studies (prior to the 1980s). The first stream tests the validity of these two approaches for conceptualising power and the second stream studies the correlation between power and some business variables, such as conflict, satisfaction and performance.

In academia, the interest in power issues continued after 1980 and the empirical investigation of power has become the main focus of power studies (Simpson et al. 2013). However, there is lack of an examination of the modern development of IOP studies since 1980s. In order to fill this gap, the next chapter will present a detailed review of modern IOP studies in the context of general management and supply chain management.

Chapter 4 Review of the Literature of Inter-organisational Power

4.1 Chapter Overview

This is the second chapter of the review of the literature of power. The aim is to review IOP studies in the context of general business management and supply chain management, and establish a theoretical framework for the understanding of the concept of power in the maritime industry.

To achieve these aims, this chapter will be structured into two parts. The first part reviews IOP studies. The objectives are to understand the development of IOP research, assess the theoretical and methodological landscape of power studies, identify the research gaps, and articulate the implications for this research. This part covers Sections 4.2 to 4.6 and is organised as follows. Section 4.2 discusses the rationale behind this review. Then, Section 4.3 describes the methodology that was used to conduct the review. Sections 4.4 and 4.5 present and discuss the findings. Finally, Section 4.6 provides the implications of this literature review for the formation of the whole thesis. The second part of this chapter forms the initial research questions and the theoretical framework of this study. This part covers Section 4.7. The last section presents a brief summary of this chapter.

4.2 Gaps in the IOP Literature

Several questions have arisen following the review of the early IOP studies in Chapter 3. First, although power has been studied in a number of disciplines, establishing a widely accepted conceptual and methodological basis for power research has always been a challenge. For the concept of IOP, it is unclear whether there is a conceptual consensus in academia. Second, before power was discussed in the business world, this concept had already been developed in other disciplines for decades. Thus,

established theoretical knowledge has been transferred to, and applied in, the domain of supply chain and business studies. However, how the knowledge has affected the conceptualisation and research of IOP are also unexplored in academia. Finally, it is unclear how the research methods and the scope of IOP studies have evolved in the domain of supply chain and business studies. To address these issues and reveal any potential research gap in the current body of IOP literature, a systematic review of IOP studies is conducted. Accordingly, the first task of this chapter is to report the results of the literature review.

4.3 Review Methodology

4.3.1 Scope of the Review

This literature review mainly focuses on IOP studies in the context of supply chain management and general management. The first issue considered is the time scale and the range of publications to be covered. This chapter reviews IOP studies between 1980 and 2014. The reason for this is twofold. First, the term ‘supply chain management’ first appeared in 1982, when transportation and logistics experts developed an integrated logistics concept incorporating materials management, physical distribution, and transportation activities (Cooper et al. 1997, Tan 2001). Therefore, the selected time scale has covered the critical periods in the development of supply chain management.

Second, the core theory of power was mainly developed between the 1950s and 1970s (Simpson et al. 2013). Early power literature published in this time period has been reviewed in Chapter 3. The purpose of the literature review in this chapter is to figure out how IOP has been studied in the context of supply chain management and general management. Since power theory after 1980 is relatively mature, it is advantageous to focus on articles published from this year onwards so as to examine the application of the theory in the empirical settings.

To maintain the quality of this review, the relevant articles were sourced from peer-reviewed journals. In total, 24 journals were searched, covering the fields of transportation (especially the maritime sector), logistics and supply chain, marketing, and general management and strategy. The selection of journals was based on two general criteria. First, the journals should have a comprehensive coverage of relevant articles. Second, they should be on the Chartered Association of Business Schools' (ABS) journal ranking list so that the quality of the sourced articles is guaranteed.

The search for articles was conducted using the online databases (i.e. ABI/inform Global and Business Source Premier) and the selected journals' websites. Prefaces, editorial notes, book reviews, and calls for papers were not covered in the scope of the search. The keyword 'power' was used to source the articles. The search was limited to the title and abstract of the articles. In view of the conceptual diversification of power, a broad meaning of power, which is the ability to alter another's behaviours (Hunt and Nevin 1974, Taylor and Jackson 2000, Kahkonen 2014), was adopted in order to keep the search result focused on the issues addressed in Section 4.2, reduce the confusion caused by the multiple meanings of 'power', and filter out irrelevant articles. A full scan of the power-related articles was conducted, and only articles with a primary focus on IOP were included.

All supply chain, marketing and general management journals sourced were on the ABS list. Transportation journals listed have various foci. Only those that have an interest in inter-organisational business relations were selected. As a result, four out of five transport journals were selected from the ABS list, with the exception of the Journal of Transport Economics and Policy. Maritime journals are not on the ABS list and the selection of the journals accords with the first criteria presented earlier in this section.

The first group of journals that was sourced for articles included four major journals in the field of transportation and two journals focusing on maritime transportation. The reason for the inclusion of transportation journals and maritime journals was due

to the focus of this thesis on the port and shipping sector. Furthermore, regardless of the debate about the definitional scope of transportation, logistics, and supply chain, the transportation and maritime sector is viewed as a sub-dimension of supply chain in this thesis. This means that the inclusion of these journals accords with the vested scope of the literature review.

The first group of journals included Transportation, Transportation Journal (TJ), Transportation Research Part A (TRPA) and Part E, Maritime Policy and Management, and Maritime Economics and Logistics. The search revealed that four out of these six journals had not published any IOP-related studies during the selected period. Therefore, only articles from TJ and TRPA were included in the review.

The second group of journals came from the field of supply chain management. Eight journals were selected, namely: Journal of Purchasing and Supply Management (JPSM), International Journal of Logistics: Research and Applications (IJLRA), International Journal of Operations and Production Management, Journal of Business Logistics (JBL), Journal of Operations Management (JOM), International Journal of Physical Distribution and Logistics Management (IJPDLM), Journal of Supply Chain Management (JSCM), and Supply Chain Management: An International Journal (SCM). Out of these journals, the International Journal of Operations and Production Management were excluded because no IOP article was found.

Five marketing journals provided the third source of articles. They were the European Journal of Marketing (EJM), the International Journal of Research in Marketing (IJRM), the Journal of Marketing (JM), the Journal of Marketing Research (JMT), and the Journal of Retailing (JR). The reason for incorporating marketing journals in this review is that the marketing context in which power has been studied is highly homogeneous to the context of supply chains. Marketing channel (see e.g. Walters and Bergiel 1982, Rosenbloom 1990) and supply chain (see e.g. La Londe and Masters 1994, Mentzer et al. 2001, Christopher 2001) both cover the channel of distribution, the range of actors and activities involved in these two concepts overlap

significantly. Thus, they both provide an ideal context for the study of inter-organisational buyer-supplier power relations. In addition, as the concept of supply chain is relatively new compared to that of marketing channel, IOP research has drawn much more attention in the marketing literature than supply chain literature (Simpson et al. 2013). Thus, the source of IOP literature from marketing journals is necessary for an in-depth understanding of the development of IOP studies.

The last source for articles comes from five journals in the field of general management and strategy. These journals are: Academy of Management Journal (AMJ), Academy of Management Review (AMR), Administrative Science Quarterly (ASQ), British Journal of Management (BJM) and Journal of Management Studies (JMS). These journals were all included in this literature review because relevant IOP articles were published in the selected time period.

4.3.2 Classification Framework

The search process generated 101 relevant articles from 19 journals. A database of these articles was established (see Appendix 1). The analysis of these articles aims to address the gap in the body of power literature identified in Section 4.2. This led to the formation of a classification framework, as shown in Table 4.1.

Table 4.1 Classification framework of the literature review

Classification	Content	Purpose
1. General trend	Distribution of publications by time and journal	Describe the general trend of IOP-related publications
2. Methodological concerns	Research scope Approach to theory building Primary source of data	Examine the scope of IOP studies Determine the research method used in IOP researches
3. Theoretical concerns	Approaches to definitions Power-related theories Origin of IOP conceptualisation	Explore the consistency or variation of the definitions of power used in IOP studies Determine the range of theories used in IOP studies and explore how they have affected the conceptualisation of power

Source: based on Burgess et al. (2006)

The classification framework is based on Burgess et al.'s (2006) structured review of the supply chain management literature. The aim of this classification is to provide a conceptual and methodological examination of IOP studies. In Table 4.1, classification 1 provides an illustration of the general trend of IOP studies, while classification 2 deals with methodological concerns. The last classification examines the theoretical evolution of IOP research.

A data extraction table was used to analyse the sourced articles. The table was created using Excel, and it covers all four classifications and their sub-dimensions. The results of the analysis were inputted into the table and saved as part of the literature database. To further ensure the quality and reliability of this review, the analysis was conducted in several rounds and double-checked for errors.

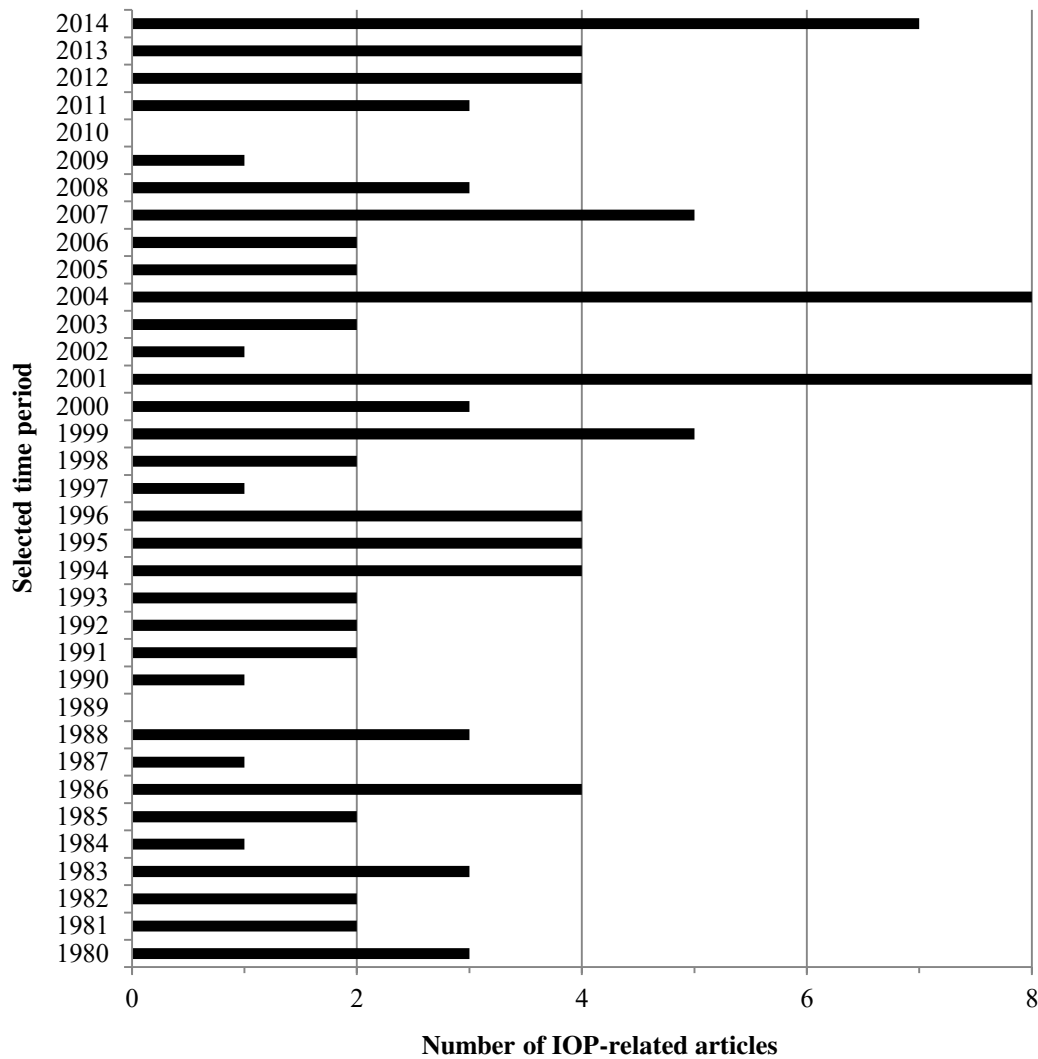
4.4 Findings

4.4.1 General Trend

Figure 4.1 shows the distribution of IOP articles by year. In the coordinate system, the horizontal axe indicates the number of published articles, ranging from zero to eight, and the vertical axe represents the time period covered in this literature review (i.e. from 1980 to 2014). Overall, Figure 4.1 illustrates how many IOP articles were published in each year covered in the selected time period.

In general, the number of published IOP articles reveals a largely stable trend with some fluctuation shown, especially after the 2000s. Specifically, in the 1980s, no more than three articles were published each year. Although there was an exception to this trend in 1986, the increase of the number of articles was minor. In the 1990s, 27 articles were published, which was six more than in the previous decade. Despite this slight increase, the annual number of IOP articles published in the 1990s generally remained below five.

Figure 4.1 The distribution of IOP-related articles between 1980 and 2014

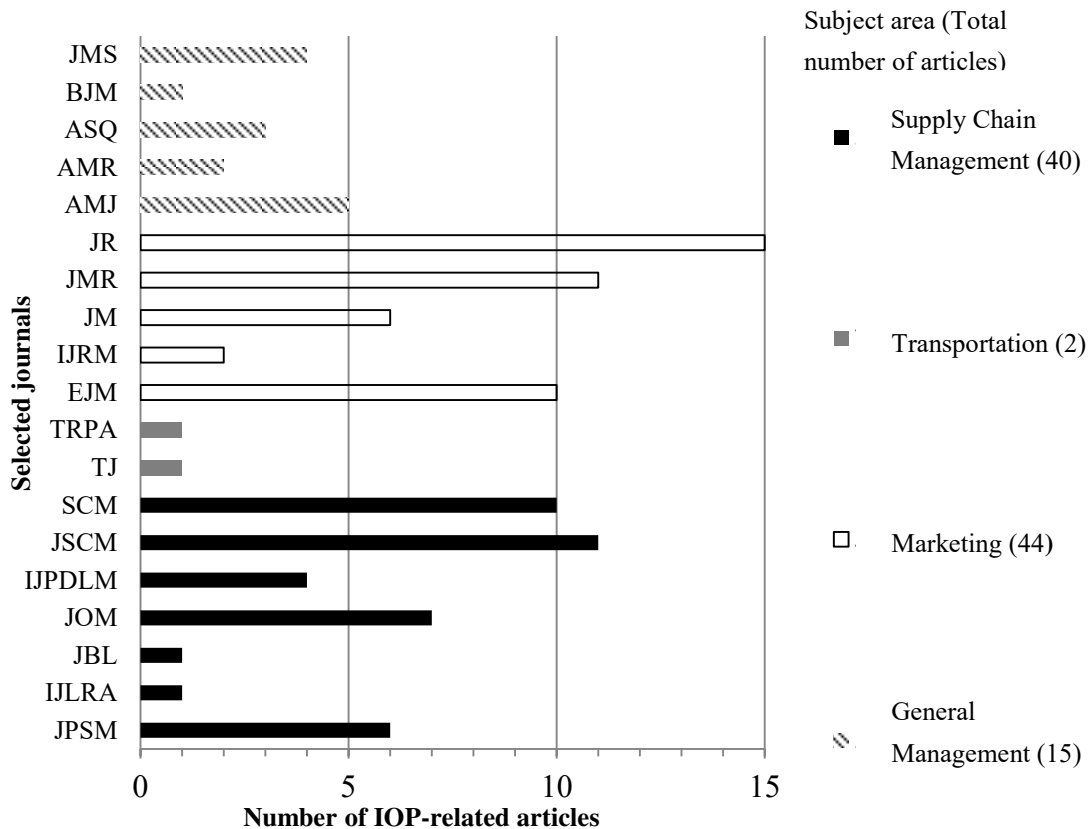


The number of published IOP articles increased by eight in the 2000s in comparison to the 1990s, with a remarkable surge in the years 2001 and 2004. These two years also represented the largest number of yearly publications during the selected period. Scholarly interest in IOP issues continued in the 2010s. Although no IOP article was published in 2010, the total number of articles reached 18 in half a decade.

The distribution of articles by journals can be seen in Figure 4.2. In the figure, the horizontal axe indicates the number of published articles, ranging from zero to 15. The vertical axis represents the 19 journals that have IOP studies published in the selected time period. These 19 journals were categorised in two four groups according to their targeted disciplines: supply chain, transportation, marketing, and general management.

In general, the number of articles published in these four groups of journals was 40, 2, 44 and 15, respectively.

Figure 4.2 The distribution of IOP-related articles in 19 selected journals



When the transportation sector was categorised as a sub-dimension of supply chain, the IOP articles were almost equally distributed between marketing and supply chain journals, although the total number of journals sourced from the latter domain nearly doubled that from the field of marketing. This adds support to the statement that power issues have attracted greater attention in the field of marketing than in supply chain and logistics studies (Ramsay 1996, Simpson et al. 2013). In comparison to these two fields, IOP studies have drawn relatively less attention in the field of general management and strategy. Overall, the three journals that had the most IOP articles were the Journal of Retailing, the Journal of Marketing Research, and the Journal of Supply Chain Management.

4.4.2 Methodological Concerns

4.4.2.1 Research Scope

The issue of research scope in this section analyses the distribution of articles by nation and industrial sector. The first categorisation examines the country in which the IOP relationship resided. The results are presented in Table 4.2. The largest group was formed by 33 IOP studies that focussed on the United States. In addition, 30 articles had no relevant information since a large proportion of articles in this category were analytical (25 out of 30). No relevant information was found in the 5 empirical studies in this category either, and subjective judgment was not attempted so as to maintain objectivity.

Table 4.2 Geographical features of IOP relationship in selected articles

Country	Articles (Reference No.)	Count
Australia	14, 47, 98	3
China	27, 79, 100, 101	4
French	59	1
Finland	54, 55	2
India	56	1
Japan	53, 63	2
Netherland	60, 78	2
Norway	82	1
Spain	7	1
UK	12,17, 26, 48, 50, 68, 71, 75, 83, 84, 85, 95, 96	13
USA	5, 8-11,13,15, 28, 30, 31, 33-35, 40, 41, 43-45, 49, 52, 61, 65-67, 69, 76, 77, 86-90, 94	33
Multi	32, 36, 38, 39, 62, 64, 70, 73	8
No data	1-4, 6, 16, 18, 19-25, 29, 37, 42, 46, 51, 57, 58, 72, 74, 80, 81, 91-93, 97, 99	30
Total		101

Researchers also showed a keen interest in the IOP relationships in British supply chains. With 13 studies, the UK was the third largest group. Next, IOP relationships in eight articles were formed by parties from more than one country. The remaining IOP studies were largely equally distributed among nine countries with relatively more attention paid to the Chinese marketplace, even though the research settings of IOP

studies were predominantly located in developed nations.

The information about the research scope in the data extraction table also covers the industrial sectors that have been studied by previous researchers. However, due to the focus on the inter-organisational domain, one article can involve several industrial sectors, and thus the categorisation of each article into one specific industrial sector seems unfeasible. Even so, articles that focus on the seaport and shipping sectors were rare. Only one article (reference number 84) was found that explored the market of shipbuilding, repair, and maintenance.

4.4.2.2 Approach to Theory-building

An examination of the methodological choices of IOP researchers is beneficial for our understanding of how the knowledge of power has been acquired. Followed Burgess et al. (2006), the classification of the options in this section was based on Wacker's (1998) scheme concerning theory-building approaches. The scheme divides studies into analytical and empirical studies. The classifications of the analytical studies include conceptual, mathematical, and statistical research, and the empirical studies include experimental design, statistical sampling, and case study. Based on this scheme, the results are presented in Table 4.3.

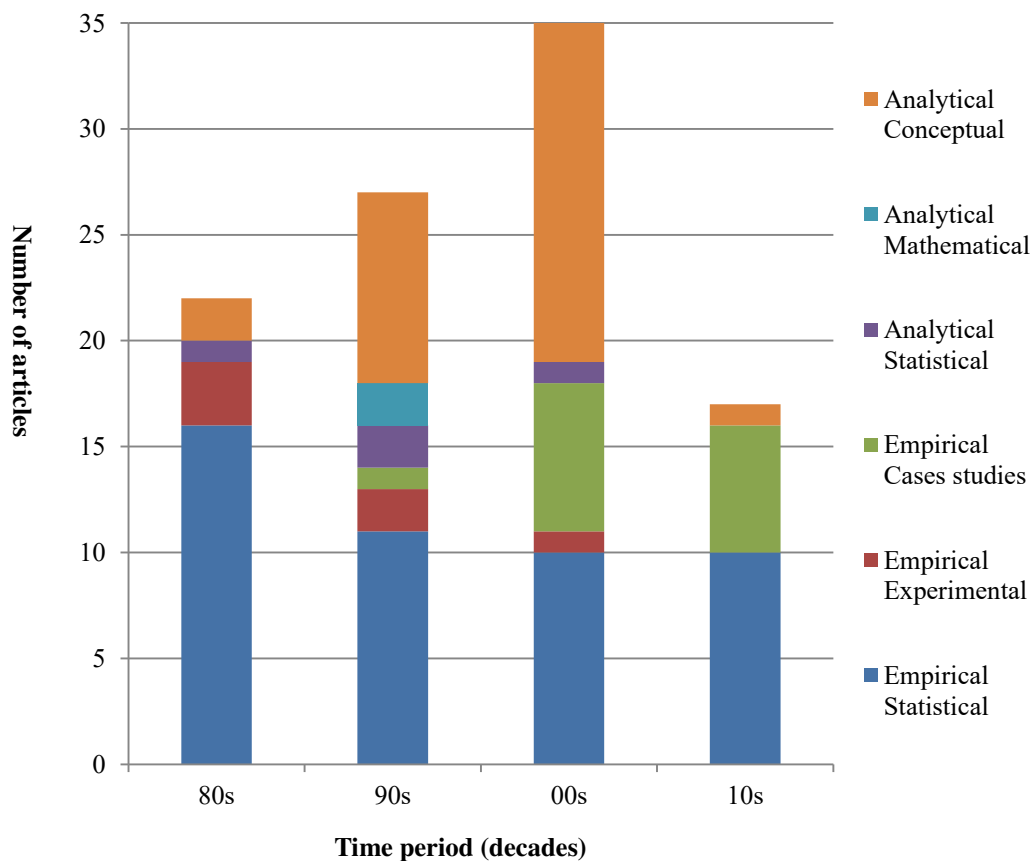
Table 4.3 Approaches to theory building in IOP studies

Approach to theory-building	Reference Number	Count
Analytical		
Conceptual	1,3,4,12,17-21,23,24,28,28,27,46,50,51,57,58,64,74,80,84,85,92,93,96,97,99	28
Mathematical	6,81	2
Statistical	2,25,52,59	4
Empirical		
Experimental design	29,30,42,47,69,86	6
Statistical sampling	5,7,9,10,11,13,15,16,31-36,38-41,43,45,48,49,53,56,60,63,65-67,70,72,75-79,82,87-91,94,98,100,101	47
Cases studies	8,14,22,26,27,54,55,61,62,68,71,73,83,95	14
Total		101

In general, Table 4.3 shows that the number of empirical articles almost doubled the number of analytical studies in the selected period. With 47 articles, the empirical statistical sampling group had the most articles. Experimental design had six articles and case studies had 14 articles. In terms of analytical articles, most (i.e. 28) were conceptual. There were only two articles in the analytically mathematical category, and the remaining four studies were analytically statistical.

Figure 4.3 and Table 4.4 show how the approaches to IOP theory evolved in the selected period. The number of analytical conceptual studies increased by seven when comparing the 1980s to the 1990s. The 2000s showed a dramatic growth due to the contributions by Andrew Cox and/or his colleagues (i.e. Paul Ireland, Chris Lonsdale, Joe Sanderson and Glyn Watson). The use of this type of strategy then decreased dramatically in the first half of 2010s, with only one article published. Two analytically mathematical articles were published in the 1990s, and four analytically statistical studies were seen in the first three decades of the selected period.

Figure 4.3 Evolution of IOP research approaches



Empirical experimental studies were also absent in the 2010s. With three articles published in the 1980s, the number of articles on this type of research gradually decreased to one in the 2000s. In the 1980s, empirical statistical IOP studies were the most popular approach adopted by IOP researchers, with 16 articles found. Although this number decreased to 11 in the 1990s, the popularity of this type of research has been largely consistent since then. Empirical case studies did not arrive until the 1990s. With one article published in the 1990s, this approach to theory-building was adopted in seven papers published in the 2000s and in six papers published in the 2010s.

Table 4.4 Evolution of IOP research approaches

Strategy	1980s	1990s	2000s	2010s	Total
Analytical Conceptual	2	9	16	1	28
Analytical Mathematical	0	2	0	0	2
Analytical Statistical	1	2	1	0	4
Empirical Experimental	3	2	1	0	6
Empirical Statistical	16	11	10	10	47
Empirical Cases studies	0	1	7	6	14

4.4.2.3 Source of Data

Empirical studies were found to be the dominant approach to the theory building of IOP in the selected time period. Under this classification, researchers have used different data sources to deal with power enquiries. This section aims to deepen the understanding of this category of research by examining the data collection method adopted in these studies. This classification and its sub-dimensions were based on the methods indicated in the IOP literature.

Table 4.5 presents the main data source of 67 empirical IOP studies. Five articles (reference numbers 7, 48, 70, 73, 76) used multiple data sources. More than half of the empirical IOP studies used surveys or questionnaires for data collection. Structured interviews and experiments were each used in five articles. Documentary material was the major data source for eight articles, and qualitative interviews were used in 15 studies. The remaining two empirical articles had no relevant information.

Table 4.5 Data sources for IOP studies

Method	Reference Number	Count
Survey/questionnaire	5,7,9,11,33-35,37-40,44,45,47-49,53,60,63,65,67,70,72,75-79,82,87-91,94,100,101	37
Structured interview	10,13,56,83,98	5
Experiment	19,30,42,69,86	5
Qualitative interview	7,14,26,27,41,48,54,55,61,62,68,70,71,73,76	15
Documentary	8,15,16,31,32,43,66,73,	8
Not indicated	23,95	2

Table 4.6 shows the evolution of data collection methods. Two categories were formed, which were structured/quantitative methods and less or unstructured/qualitative methods. Structured/quantitative methods included the first three methods in Table 4.5 and less or unstructured/qualitative methods covered studies that used qualitative interview methods. Articles that used multiple data collection methods were counted in duplicate in each of the respective categories. Seven articles (reference numbers 8, 15, 16, 31, 32, 43, and 66) that used documents as their primary data sources were not covered in Table 4.6, although their contents were generally quantitative.

Table 4.6 Evolution of data collection methods of IOP studies

Method	1980s	1990s	2000s	2010s	Total
Structured/quantitative	18	11	10	8	47
Less or unstructured/qualitative	0	1	7	8	15

As seen in Table 4.6, the structured data collection method was widely adopted in IOP studies. This implies that positivism was the dominant research philosophy in the field of IOP research. Despite this popularity, the amount of research that used the structured data collection method has decreased since the 1980s. In comparison, the anti-positivist approach has been increasingly adopted by IOP researchers. The first use of qualitative data collection methods was seen in one article in the 1990s (i.e. reference number 76). This number increased to seven in the 2000s. In the first half of the 2010s, this number further grew to eight, which accounted for more than half of the IOP studies published in this period.

4.4.3 Theoretical Concerns

4.4.3.1 Definition

This section presents the definitional issues of IOP. Consistent with the review of the methodological issues, the examination of the definition of power in selected IOP studies is based on evidence from the original literature—subjective judgement is not attempted. The classifications for this issue include four sub-dimensions, which reflect the definitional choice of IOP researchers. These choices and the results of the review can be seen in Table 4.7.

Table 4.7 Definitional choices of IOP researchers

Approach to definition	Reference Number	Count
Develop own definition	3,51,80,81,92,98,99	7
Use existing definition	2,4,6,9,11,14,15,26,29,30,33,36,37,42,44,45,49,55,58,59,60,63,65,67,70,73,77,78,82,87,89,93,94,100	34
Incrementally changed existing definition	7,10,35,38,39,54,56,72,84,101	10
No definition used	1,5,8,12,13,16-25,27,28,31,32,34,40,41,43,46-48,50,52,53,57,61,62,64,66,68,69,71,74-76,79,83,85,86,88,90,91,95,96,97	50
Total		101

Many IOP researchers introduced the definition of power without reference to previous research. Seven articles were grouped into the category of ‘developing own definition’. The definitions in these articles either focused on the concept of power in general or on certain aspects of power, such as information power and purchasing power.

Studies that had no clear indication of the definition of power represented the largest group of studies out of the four classifications. With 50 articles, this type of IOP study accounted for almost half of the total number of IOP studies reviewed. In most cases, the term ‘power’ was broadly used in the category of ‘none used’. Eight of the articles were contributed by Cox and his colleagues. Although they did not give a definition of power in these articles, a detailed discussion about the concept of power has been presented elsewhere (see Cox et al. 2002).

In addition, 44 articles used existing or modified definitions of power. In those studies that used existing definitions, ten different definitions of power were adopted. The details of these definitions and their frequency of adoption are presented in Table 4.8. Four definitions of power had been adopted in more than one article. These four definitions were developed by El-Ansary and Stern (1972), Emerson (1962), French and Raven (1959), and Hunt and Nevin (1974). Among these studies, the definition proposed by Emerson (1962) was the most popular—it was used in 12 IOP articles. El-Ansary and Stern's (1972) definition was adopted in six articles, and the remaining two popular definitions were both used in five IOP studies. In comparison to these four definitions, the other versions of power definition were less frequently adopted.

4.4.3.2 Application of Theory

IOP researchers drew on a range of theories to deepen the understanding of the concept of power. Findings about the application of these theories are presented in this section. Consistent with the classification of the definitional issue of power, the theory applied in IOP studies needs to be clearly stated. The results based on this criterion are presented in Table 4.9. In general, 18 different theories were identified in 34 articles. These included both macro and micro theories, which implied that the conceptualisation of power had a wide scope.

Although there was no consensus in this classification, several theories had a wider scope of adoption. RDT, transaction cost theory (TCT) and agency theory (AT) were the most popular theories for IOP researchers, with RDT adopted in nine articles and the other two theories adopted in six and five articles, respectively. Exchange theory and social exchange theory (SET) was categorised as one type of theory in Table 4.9. Together they were ranked as the fourth most popular theory (theories) in IOP studies. The remaining 14 theories were less commonly seen. Whereas the industrial organisational theory and game theory were each used in two articles, the other 12 theories (such as coalition theory and coercion theory) were witnessed in only one article each.

Table 4.8 Definitions of power used in IOP studies

Origin	Definition	Frequency	Reference Number
Emerson (1962, p.32)	Dependence (Dab): the dependence of actor A upon actor B is (1) directly proportional to A's motivational investment in goals mediated by B, and (2) inversely proportional to the availability of those goals to A outside of the A-B relation. Power (Pab): the power of actor A over actor B is the amount of resistance on the part of B which can be potentially overcome by A. $Pab = Dba$.	12	4,9,15,29,30,42, 60,67,70,73,77, 82
El-Ansary and Stern (1972, p. 47)	The power of a channel member is his or her ability to control the decision variables in the marketing strategy of another member in a given channel at a different level of distribution.	6	6,11,33,37,59, 63
French and Raven (1959, p. 152)	The strength of power O/P in a system A is defined as the maximum potential ability of O to influence P in A. It has five bases, including reward power, coercive power, legitimate power, referent power and expert power.	5	14,36,89,94,100
Hunt and Nevin (1974, p. 186)	Power, in its most general sense, refers to the ability of one individual or group to control or influence the behaviour of another.	5	26,44,45,65,87
Gaski and Nevin (1985, p. 130)*	Power is defined conventionally in the behavioural science literature as the ability to evoke a change in another's behaviour; that is, the capability to get someone to do something he or she would not have done otherwise.	1	49
Beier (1976, cited in Taylor and Jackson 2000, p. 12)	Channel power can be defined as the ability of one channel member to alter the decisions of another.	1	93
Dahl (1957, p. 202-203)	A has power over B to the extent that he can get B to do something that B would not otherwise do.	1	58
Narasimhan et al. (2009, p. 376)	Power is 'the ability of one member of a supply chain to influence or control the decisions and behaviour of other persons, groups, or organisations'.	1	78
Wilemon (1972, cited in Ailawadi et al. 1995, p. 214)	Power refers to the ability of one channel member to induce another channel member to change its behaviour in favour of the objectives of the channel member exerting influence.	1	2

Table 4.8 continued

Origin	Definition	Frequency	Reference Number
Stannack (1996, p. 51)*	We can define supply management power as the ‘the capacity to optimise the behaviour of suppliers and subcontractors in accordance with desired performance objectives’; purchasing power, on the other hand, can be defined as ‘the capacity to achieve a successful negotiated contractual outcome on behalf of an organisation’.	1	55

* The original article is also included in the literature review but not categorised into the group of ‘use existing definition’. Thus, it is not included when calculating the frequency of citation.

Table 4.9 Application of theory in IOP studies

Theory	Reference Number	Frequency	Theory	Reference Number	Frequency
Resource dependence theory	15,24,43,51,66,73,75,80,81	9	Bargaining theory	52	1
Transition cost theory	3,31,45,51,72,100	6	Bilateral deterrence theory and conflict spiral theory	60	1
Agency theory	14,26,27,44,71	5	Coalition theory	4	1
Exchange theory or Social exchange theory	41,49,72,78,92	4	Coercion theory	92	1
Industrial organisational theory (structure-conduct-performance paradigm)	2,17	2	Behavioural theory	2	1
Game theory	47,81	2	Social network theory	94	1
Institutional theory	27	1	Social comparison theory	40	1
Relational exchange theory	82	1	Practice theory	61	1
Reciprocal action theory	34	1	Social capital theory	51	1

In addition to the issues of definition and theory, several influential power research approaches were widely used in IOP studies to form the theoretical basis of a power investigation and to guide the research design, as shown in Table 4.10.

Table 4.10 Essential approaches to IOP studies

Origin	Articles that established a theoretical basis on the seminal power study	Frequency
Cox and/or his fellows	18-23,64,73,83,84,95,96	12
Emerson (1962)	2,10,13,15,24,25,29,30,33-35,37,40-44,48,49,56,60,62,65,73,76,77,80,82,90,91,101	31
French and Raven (1959)	2,4,5,7,9,11,14,26,27,29,35-37,39,44,45,49,53,58,65,67,71,72,78,79,87,89,93,94,97-99,100	33
Total		76

Three power studies or groups of power studies established the theoretical foundation of IOP research. This result partly confirms Simpson et al.'s (2013) finding who reported that Emerson (1962) and French and Raven (1959) represented the origin of power conceptualisation in studies focusing on inter-organisational relationships. Of the 101 articles covered in this research, 33 were based on French and Raven's (1959) contribution regarding power bases, and 31 articles adopted Emerson's (1962) power dependence approach.

It is noticeable that French and Raven's (1959), and Emerson's (1962) power research approaches to power research were used in combination in seven IOP articles (Reference numbers 2, 29, 35, 37, 44, 49, 65). Another important approach towards power conceptualisation was developed by Cox and/or his colleagues. In total, they generated 12 IOP articles, which accounted for about 10% of all IOP studies covered in this review. However, other than in their own research, the empirical application of their power conceptualisation was rare, even though their studies were widely cited by other IOP researchers.

4.5 Discussion

This section discusses the findings of this literature review with reference to the dimensions outlined in Table 4.1.

4.5.1 Descriptive Features

IOP is a key dimension of power studies in the context of supply chains and marketing research. However, despite its significance, the descriptive finding about IOP research reveals that this topic has been underdeveloped, especially in the 1980s and 1990s. Although the total number of publications has been increasing each decade, with several noticeable peaks in the years 2001, 2004 and 2014, the average publication of about three articles per year seems to be far less than adequate in the quest to obtain a comprehensive understanding of the concept of power in various research settings.

The sourcing process has indicated that IOP studies are easier to find in the discipline of marketing than in the disciplines of supply chain management and general management. This finding is also supported by the distribution of IOP articles by journal type. During the selected period, the number of IOP studies in four marketing journals outnumbers those in five supply chain journals and five general management journals. This may be due to the traditional interest in the topic of power in the discipline of marketing (Simpson et al. 2013). In comparison to these three disciplines, studies that have a primary focus on IOP were rarely found in the selected transportation journals, and there was no trace of them in the key maritime journals. This implies that the issues of power in the transportation industry, especially the maritime sector, have been greatly overlooked by researchers.

4.5.2 Methodological Issues

Table 4.2 revealed that IOP in developed countries has drawn much more attention in comparison to that in developing countries. The reason for this may lie in the origin of

power theory rooted in Western society. The continuous focus on this research context is necessary because the overall research topic of power is still underdeveloped. On the other hand, there is evidence that the difference in market features and cultures tends to have a significant influence on the conceptualisation of power (Kale 1986, Zhao et al. 2008). Therefore, it is necessary to pay more attention to the marketplace in developing countries. Unexpected findings about this topic are likely to be generated by placing power discourse in a different society. This will further contribute to a more comprehensive understanding of the concept of power.

IOP researchers have used both analytical and empirical approaches to the building of theory. The analytical conceptual approach, empirical statistical approach, and empirical case study approach have a wider application in IOP studies in comparison to other approaches. The analytical conceptual approach was the major approach used in the 2000s, whereas almost all IOP studies adopted an empirical approach to theory building in the 2010s. This implies that an increasingly mature theory of power has been acquired, and the use of empirical evidence is increasingly important for the future development of this theory.

For the data source used in empirical studies, structured methods have a wider application than unstructured or semi-structured methods. This implies a dominance of positivism in IOP research (see Chapter 6 for a detailed discussion about the philosophical and methodological issues). This dominance has also been identified in the wider discipline of general supply chain and logistics research (Mangan et al. 2004, Mentzer and Kahn 1995, Naslund 2002, Sachan and Datta 2005).

Even so, over recent decades there has been a noticeable growth in the use of qualitative data and a decrease of the use of quantitative data. This means that anti-positivism is increasingly applied in the field of IOP research, and researchers tend to draw on in-depth data with multiple sources of information and rich contextual details to deepen the understanding of the concept of power in various contexts.

4.5.3 Theoretical Issues

4.5.3.1 Definition of Power

The review of theoretical issues about power research is a key focus in this literature review. In this regard, the review first aims to shed light on definitional issues. According to Burgess et al. (2006), the maturity level of a field can be accurately indicated by the researchers' attitude to the definitions of the key concepts. The examination of the definitional issue of power has shown that a number of IOP researchers have chosen to develop new definitions or use modified definitions.

For researchers who use the existing definition, a variety of definitions of power were adopted. Although several existing power definitions have a relatively wider scope of application, the entire field of IOP research lacks consensus in terms of an unambiguous definition. Such definitional diversification was similar to the status of the overall field of power study, as examined and explained in Section 3.2. This implies that the study of IOP is still under development.

Despite the lack of agreement, the interpretations about the concept of power are not without similarity. As can be seen in Table 4.8, a generally accepted definition of power would be one party's ability to influence/control another party. This has been identified as a common understanding of the attribution of power, as examined in Section 3.2.2. Accordingly, this broad definition of power is adopted in this thesis to facilitate the understanding of this concept. Whereas it captures the common interpretation about the concept of power, the definition seems to be open enough to be accepted by the visions of competing theories. The use of this definition thus implies the adoption of an eclectic and detached perspective towards the examination of power issues, as proposed by Cox et al. (1985).

4.5.3.2 Theoretical Construction of Power

The findings of the literature review show that power-related theories are rooted in a number of disciplines, such as economics, strategic management, and sociology. The application of these theories in IOP studies implies that the concept of power is multidimensional and complex in the sense that it cannot be fully known by a single theory. Some theories are more commonly used in IOP studies than are others. Table 4.11 describes the popular power-related theories and outlines their implications for the understanding of the concept of power. Whereas TCT, AT, and SET mainly provide insights into the issue of power use, RDT seems to conceptualise power from a broader scope.

The examination of the distribution of all power-related theories has shown that, generally, each article relies on one theory to study the issues of power. This implies that IOP studies mainly focus on one dimension of the concept of power. This isolated approach to power study has a potential drawback since it may overlook the connections among the sub-dimensions of this concept (see Section 4.7.4). Consequently, the examination of the key sub-dimensions in one research context will be beneficial for the development of an in-depth understanding of the concept of power.

There also seems to be a conflict between the implications of the power-related theories and the philosophical dominance of positivism in IOP studies. More specifically, Table 4.11 shows that TCT, AT and SET have emphasised the contextual and/or multidimensional feature of the concept of power to varying degrees. This implies that the topic of power is better explored with methods that are capable to appreciate the importance of the research context. Methodologically, positivism and its related methodological toolkit seem to be inadequate to fulfil this task (see Section 6.2). Instead, the use of a qualitative research approach is expected to bring new insights to the understanding of the concept of power.

Table 4.11 Key theories adopted in IOP studies

Theory	Descriptions in the inter-organisational context	Implications on the understanding of power
RDT	Firms are embedded in a network of exchange seeking resources provided by other parties to survive. The desire for these resources generates an interdependent relationship among firms. A firm's power resides in other firms' dependence on resources controlled by the source firm (Emerson 1976, Pfeffer 1981).	Power is a property of the social relation and stems from resource dependence. Different patterns of power are formed based on the level of interdependence among firms. The understanding of power can be grounded in dependence discourse (Emerson 1962, Casciaro and Piskorski 2005, Merlo 2011).
TCT	Transaction costs are incurred when making economic exchange. The characteristics of transaction, such as uncertainty, frequency, and asset specificity, can affect transaction costs. Firms seek the appropriate governance structure to reduce this cost (Argyres and Liebeskind 1999, Emery and Marques 2011).	TCT offers insight in terms of how firms gain power within transactions. Firms can use a number of ways to manipulate power through the management of the characteristics of a transaction. The selection and management of the governance structure shapes the context of power relationship (Ireland and Webb 2007, Zhao et al. 2008).
AT	AT aims to deal with two problems that can occur in agency relationship: partial goal conflict and information asymmetry between principal and agent. The key idea of AT is that the principal-agent relationships should reflect efficient organisation of information and risk-bearing costs (Eisenhardt 1989).	AT identifies the participants in a power relationship and challenges the absolute power of principle. It underlines the importance of context such as contract and agency relationship on studying power (Moore et al. 2004). The theory advocates the use of coercive power for maintaining control in the agency relationship (Doherty and Alexander 2006, Quinn and Doherty 2000).
SET	Firms interact to achieve desired relationships. The basic motivation for interaction is to seek reward and avoid punishment. In repeated interaction, firms adjust their behaviours and actions toward each other based on expected relational benefits (Emerson 1976, Hoppner et al. 2014, Pulles et al. 2014).	Power is a multi-dimensional concept. Certain aspects of power exercise may impair business relationships and sometime be regarded as unjust. To achieve desired relationships, firms need to consider carefully the impact of different dimensions of power exercise (Anderson and Narus 1984, Provan and Gassenheimer 1994).

4.5.3.3 Resource Dependence Theory and Social Exchange Theory

Two theories in Table 4.11 (i.e. RDT and SET) are of great importance to the study of power in this research. RDT has been one of the major theoretical perspectives in the field of organisational study since the early writing of Emerson (1962, 1976) and Pfeffer and Salancik (1978). The general premise for RDT is the social context mattered for the understanding of organisational choices and actions (Pfeffer and Salancik 2003). The theory views organisations as embedded within networks of interdependencies and social relationships (Pfeffer and Salancik 1978). Rather than being self-contained or self-sufficient, they need to obtain resources from other organisations for survival (Emerson 1976, Ramsay 1994, Coff 1999). The dependence on the external sources of resources thus characterised this theory ‘resource dependence’ (Pfeffer and Salancik 2003).

RDT recognises that organisations were constrained by their situations and external environments. In order to pursue organisational interests, they are motivated to negotiate their positions with the constraints using various tactics (Pfeffer and Salancik 2003). Once the external conditions are altered, organisations are exposed to new environments and constraints, and their patterns of dependence change accordingly. Thus the continuous negotiation with the external environments becomes a common practice in the process of organisation development. From a broad perspective, there is a ‘dynamic interaction and evolution of organisations, environments and inter-organisational relations over time as the various social actors manoeuvre for advantage’ (Pfeffer and Salancik 2003, p. xii).

The introduction of the concept of power to organisational study is a key contribution of RDT (Davis and Cobb 2010). With reference to the power dependence approach (see Section 3.3.1), RDT has significant implications on the examination of power dynamics in the inter-organisational dyads (Emerson 1962, Casciaro and Piskorski 2005, Merlo 2011). In the field of IOP study, this theory is applied more frequently than other discernible theories (Table 4.11).

In terms of SET, seminal studies that contribute to the development of this theory include Homans (1961) and Blau (1964). This theory was initially developed to interpret interpersonal relations (Homans 1958, Blau 1964), and later used widely in the inter-organisational level to explain a variety of business interactions such as coalition behaviours (Das and Teng 2002, Bastl et al. 2013) and relationship management (Morgan and Hunt 1994, Yang and Wang 2011).

A social exchange refers to ‘voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others’, and it ‘involves the principle that one person does another a favour, and while there is a general expectation of some future return’ (Blau 1964, p. 91, 93). In essence, this type of exchange comprises interdependent interactions that are contingent on the activities of other social actors (Cropanzano and Mitchell 2005). In comparison to economic exchanges, social exchanges involve not only material goods but also intangible resources (e.g. friendship and amenities) indicating a broader investment in the relationships (Gu et al. 2008, Lambe et al. 2001, Pulles et al. 2014).

Lambe et al. (2001, p.6) summarise four premises of SET as follow: ‘(1) exchange interactions result in economic and/or social outcomes, (2) these outcomes are compared over time to other exchange alternatives to determine dependence on the exchange relationship, (3) positive outcomes over times increase firms’ trust of their trading partner(s) and their commitment to the exchange relationship, and (4) positive exchange interactions over time produce relational exchange norms that govern the exchange relationship’.

Thus SET is ‘in reality a collection of explanations, propositions and hypotheses, embodying certain general assumptions about social behaviour’ (Chadwick-Jones 1976, cited in Lambe et al. 2001, p.5). This theory recognises the basic motivation of individuals or organisations for social interactions is to seek reward and avoid punishment (Emerson 1976). In repeated interaction, social actors thus adjust their behaviours and actions toward each other based on expected relational benefits

(Emerson 1976, Hoppner et al. 2014, Pulles et al. 2014).

Similar to RDT, SET also has important implications on the understanding of the concept of power (see e.g. Blau 1964, Cook and Emerson 1978, Cook and Rice 2003). These two theories will be used to deal with power enquires in the main study (Chapters 8 to 10) as a theoretical reinforcement of the exploratory study. Further discussion about their implications on the study of power issues in this research will be presented in Section 8.2.2, Section 9.2, and Section 10.2.1.2.

4.5.3.4 Key Approaches to the Conceptualisation of Power

The two influential approaches of IOP study, power bases approach (French and Raven 1959) and power dependence approach (Emerson 1962), were extensively used in the 1970s (see Section 3.3) and in the selected period of the literature review in this chapter. This adds support to their status as the seminal works of IOP. Besides, these two approaches are especially important for the empirical investigation of IOP. The information that is given in Tables 4.3 and 4.10 reveals that about 70% of empirical IOP studies have been guided by these two approaches.

Cox and his colleagues have also contributed a noticeable portion of IOP studies in the selected period. Their works cover both analytical and empirical approaches to theory building and have brought new insight to the conceptualisation of power. Whereas the power bases approach and power dependence approach often rely on the respondents' perceptions for the analysis of power, Cox et al. (2002) argued that power should be studied from outsider's point of view rather than the power-involved actors' expressed preferences or feelings. Following this idea, Cox et al. (2002) introduced the concept of rents and value. The first factor refers to the 'earnings of the firm's costs of production that are not eroded in the long run by new market entrants' (p. 6). From a resource-based point of view, rents will be acquired by those who control the critical resources in a supply chain. The second factor (i.e. value) generally refers to the revenues that are allocated to different actors in a series of exchange relationships in a

supply chain (Cox et al. 2002). The amount of power held by a firm is proportional to its ability to acquire rents and value (Cox et al. 2002).

Cox et al. (2002) further claimed that there are four possible power relationships between buyer (A) and supplier (B): $A=B$ (buyer-supplier interdependence), $A>B$ (the existence of powerful buyer and less powerful supplier), $A<B$ (the existence of powerful supplier and power-disadvantaged buyer), and $A \approx B$ (buyer-supplier independence). An illustration of these four power relationships is presented in Figure 4.4. These four types of power relationships form the power regime that can be used to examine the relative and total amount of power held by the power-involved parties.

Figure 4.4 Power matrix

High Buyer power attributes relative to supplier Low	Buyer Dominance $A > B$	Interdependence $A = B$
	Independence $A \approx B$	Supplier Dominance $A < B$
	Low	High

Source: Cox (2001b)

4.6 Implications of the Literature Review

The review of IOP studies has a number of implications for this research, as follows:

- The examination of power issues in the inter-organisational domain is an essential area of study. However, this topic has been greatly overlooked in the field of transportation and maritime study.
- The theory of power was originally developed, and has since been mainly studied, in Western societies and developed nations. The investigation of power issues in other societies with different cultures is essential for the further development of this theory (Johnson et al. 1993, Lee 2001). However, empirical power studies that look at developing countries and non-Western cultures are still rare.

- Positivism and its related methodological toolkit have been widely adopted in IOP studies. This seems to be in contradiction to the context-specific feature of the concept of power. The study of power requires methods that can generate rich data and appreciate the importance of the research context.
- A range of power-related theories have been used to guide IOP studies. These theories have contributed to the understanding of the different dimensions of the concept of power. A comprehensive study that covers several key sub-dimensions of this concept in one research context is still rare.
- Several key approaches towards IOP study have identified. They are power bases approach (French and Raven (1959), power dependence approach (Emerson 1962) and power regime approach (Cox et al. 2002). These approaches provide a means to facilitate power research in various contexts.

Overall, the key findings of this literature review and its implications on the formation of this study are outlined in Table 4.12.

Table 4.12 Implications of the literature review

GRQ: How can the concept of power in the business relationships between port/terminal operators and liner shipping companies be understood in the context of the Chinese seaport sector?	
Review findings	Implications on the development of the research
There is a lack of power research in developing countries There is little research into power in the maritime industry	Explore the power issues in China Focus on the IOP relationship between two primary actors in the maritime industry (i.e. port/terminal operators versus liner shipping companies)
The selection of research methods should appreciate the context-specific feature of the concept of power	Adopt a qualitative case study design to explore the vested research questions (see Chapter 6)
The definition of power is debatable and context specific Several key research approaches and theories indicate an essential path towards IOP studies The investigation of multiple dimensions of power in one research field is beneficial for the understanding of this concept	Use a broad definition of power and keep an open mind to competing findings and theories Address key issues about power in an underexplored research context based on the examination of key power research approaches (Section 4.7) Develop a power study that explores key dimensions of the concept of power

4.7 Theoretical Framework and Research Questions

Based on the literature review, this section develops the initial research questions and forms the theoretical framework of this study.

4.7.1 Resource Exchange and the Source of Power

The power bases approach (French and Raven 1959), power dependence approach (Emerson 1962) and the power regime approach (Cox et al. 2002) are three key approaches towards the conceptualisation of IOP. Although they discourse the concept of power from different angles, they have all accepted of the resource-based view (RBV) in which firms are viewed as a unique bundle of resources (Coff 1999). From this perspective, these three power research approaches have reached an agreement about the source of power.

To begin with, the homology of the power bases approach and the power dependence approach has been recognised by Brown et al. (1983), Stern and El-Ansary's (1992), Berthon et al. (2003), and Zhuang and Zhou (2004). The underlying principle that supports the power dependence approach is that a firm depends on another supply chain member's resources to achieve its goals. As a result, the possession of resources (e.g. assets, information, raw material and expertise) that are valued by a target company determines the resource owner's ability to influence the target (Emerson 1962). Therefore, these valuable resources are the sources or bases of the latter party's power (Stern and El-Ansary 1992). Because these resources are diverse, they separately link to and combine to form French and Raven's (1959) five power bases. Thus, the power bases approach and power dependence approach towards power conceptualisation are highly connected, and both variables (power bases and dependence) should be individually adequate to serve as the indicators of power (Gaski 1984).

In addition to the power bases and power dependence approach, Cox et al.'s (2002) conceptualisation of power also takes a RBV. They believed that 'rents' will be

acquired by those who control the critical resources in a supply chain. A source firm is able to leverage 'value' from its competitor, customer, or supplier due to these actors' dependence on the resources held by the source firm (Cox et al. 2002). The underlying mechanism is that the control of resources grants the source firm power which can be used to exploit value from other parties in the supply chain.

Overall, these three key approaches towards the conceptualisation of power all embrace a RBV. Power is thus regarded as stemming from the control of resources. In other words, no matter how power manifests itself (i.e. dependence, power bases or the acquirement of value or rent), the source of power theoretically resides in the possession of resources.

In the maritime industry, the power of port/terminal operators in relation to liner shipping companies thus comes from the latter's dependence on the resources held by the former. A firm's resources 'include all assets, capabilities, organisational processes, firm attributes, information, knowledge etc. controlled by a firm that enables the firm to conceive of and implements strategies that improve its efficiency and effectiveness' (Barney 1991, p. 101). In the seaport sector, the resources of a container port may include harbour and cargo handling equipment, transportation and storage capacity, dredged channels and quays, human resources, and information systems (Marlow and Paixao 2003, Lee et al. 2003). In spite of the efforts of maritime researchers to classify port resources, it is unclear how these resources can contribute to the source of the power/terminal operators' power in relation to the liners. In view of this gap and the research context in this study, the first original research question asks:

ORQ 1: What are the sources of port/terminal operators' power in relation to liner shipping companies?

4.7.2 Power Pattern

The amount of power held by supply chain actors is a key issue for both the power dependence approach (Emerson 1962) and the power regime approach (Cox et al. 2002). From the standpoint of RDT, a dyadic power relationship involves two dimensions, namely: power imbalance and mutual dependence (Casciaro and Piskorski 2005). Whereas power imbalance refers to the difference between two actors' power, mutual dependence captures the existence of bilateral dependencies/power in the dyad. In essence, these two dimensions of power relationship raise the question as to what extent the relationship is balanced or unbalanced (Casciaro and Piskorski 2005). This issue has been termed as a power pattern or a power configuration in this research.

Cox et al. (2002) developed a power matrix based on four possible patterns (see Figure 4.4). These four types of power configurations are formed according to the relative amount of power held by the actors (A and B) in a dyadic power relationship. Whereas $A > B$ and $A < B$ refer to an imbalanced power relationship, $A = B$ and $A \approx B$ represent situations in which A and B have largely equal amounts of power. The power matrix has been widely used in IOP studies to examine the configurations of a power relationship (see e.g. Cox 2004, Cox et al. 2001a, 2001b, 2002, Touboullic et al. 2014).

The issue of power pattern represents the basic understanding of a power relationship. For the maritime industry, the patterns of power between port/terminal operators and liner shipping companies require investigation (see Chapter 2). Thus, the second original research question aims to examine the patterns of power between port/terminal operators in Chinese seaports and their liner customers. It asks:

ORQ 2: How do port/terminal operators perceive their power patterns in relation to liner shipping companies?

4.7.3 Power Exercise

The issue of power exercise is central to the understanding of organisational behaviours in the context of supply chain management: 'the use of power by individual channel members to affect the decision making and/or behaviour of one another (whether deliberate or not), is the mechanism by which the channel is organised and orderly behaviour preserved' (Wilkinson 1996, p. 32). A firm's supply chain strategy would be unrealistic, ineffective, and unfeasible without consideration of the influence of power (Maloni and Benton 2000).

In practice, the exercise of power has greatly contributed to supply chain actors' perceptions about the attribute of power, which is sometimes believed to be problematic. For example, Doney and Cannon (1997) argued that power harms exchange relationships and business success, and acts as an obstacle to cooperation. In addition, there is a wide concern that the power-advantaged party would exploit its position at will and abstract value from power-disadvantaged actors (Kumar 1996, Hingley 2005a). Provan and Gassenheimer (1994) argued, however, that power asymmetry is not necessarily associated with the abuse of power. Furthermore, the use of power has been regarded as a possible positive factor to improve business integration, coordination, cooperation, and trust (see e.g. Andaleeb 1996, Berthon et al. 2003, Gundlach and Cadotte 1994, Kim 2000, Stern and El-Ansary 1992, Wilkinson 1996, Zhao et al. 2008, Zhuang and Zhou 2004).

The judgment about the attribute of power is based mainly on the power bases involved. Power use involves the transformation of power sources into the ability to control (Scheer and Stern 1992, Geyskens and Steenkamp 2000, Kim 2000). Among the three key IOP research approaches, the power bases approach has been widely adopted to examine the issue of power exercise (e.g. Farrell and Schroder 1999, Ramaseshan et al. 2006). When an influence is attempted, the associated power bases must be considered (Scheer and Stern 1992). A general agreement about the five power bases is that

whereas the coercive aspect of power is related to the ‘wrongful’ use of power, and has the potential to cause conflict and reduce business satisfaction, non-sanctioning power (i.e. reward power, legitimate power, referent power and expert power) reflects the positive side of power, which is likely to improve business relationships (Morales 1997, Belaya and Hanf 2009).

The investigation into the issue of power exercise has been an important stream of IOP studies. Researchers have studied this from various perspectives, including the interrelations among the use of power sources/bases (Gaski 1986), the interrelations between power bases and the selection of various influence strategies (Doherty and Alexander 2006, Doherty et al. 2014, Farrell and Schroder 1999), conditions (e.g. channel climate and the level of mutual dependence) that affect the use of influence strategies (Boyle and Dwyer 1995, Frazier et al. 1989, Hu and Sheu 2005, Kim 2000, Nyaga et al. 2013, Quinn and Doherty 2000), and the impact of power use on relational outcomes (e.g. coordination, integration, satisfaction, cooperation, opportunism, trust and conflict), resource allocation, and performance (Dapiran and Hogarth-Scott 2003, Frazier and Summers 1986, Geyskens and Steenkamp 2000, Handley and Benton Jr 2012b, Johnson et al. 1993, Moore et al. 2004, Pulles et al. 2014, Rawwas et al. 1997, Scheer and Stern 1992).

In general, these research interests cover a comprehensive range of the behavioural aspects of the concept of power with three key themes: the antecedent/source, the pattern, and the consequence of power exercise. Even so, these topics have received uneven levels of attention and the examination of power exercise in the maritime sector has been greatly overlooked. In view of this research gap, the third original research question asks:

ORQ3: How do port/terminal operators use their power to exercise control in relation to liner shipping companies?

4.7.4 Formation of the Theoretical Framework

Three issues of power (i.e. power source, power pattern and power exercise) are used to open up the study of power in the selected research context. In addition to the inspiration obtained from the key IOP research approaches, the focus on these issues is also due to their status as the fundamental pillars of the concept of power.

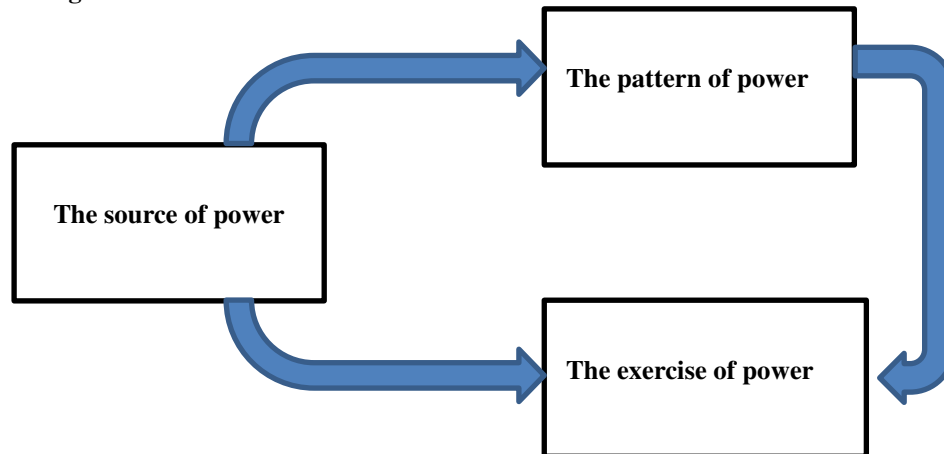
The content of power is complex, idiosyncratic, and specific to the situation (Bacharach and Lawler 1980). Early scholars had a different understanding about the spectrum of the content of power. Kaplan (1964), from a definitional perspective, was concerned with the weight, domain, scope, and bases of power while Dahl (1986) argued that the descriptive features of power include magnitude, distribution, scope, and domain. In addition, Bacharach and Lawler (1980) asserted that power content includes the base, source, and type of power, along with power dynamics and decision areas.

The identification of the content of power presents a conceptualisation of the sub-dimensions of this concept. Despite the difference in spectrums and terms, these types of categorisation (Kaplan 1964, Bacharach and Lawler 1980, Dahl 1986) generally focus on the sources/bases of power, the pattern of power (e.g. power weight (magnitude) and distribution (dynamics)) and the use of power (e.g. power type, weight (magnitude), and domain (decision areas)). These three issues thus form the fundamental components of the concept of power (Gaski 1984, Wilkinson 1996).

A power pattern, as a manifestation of relative and mutual power, is closely related to the source of power since the latter variable determines the amount of power held by the power-involved actors. From the perspective of the power dependence approach, a power pattern further shapes the context for the evaluation of business actions within the dyadic relationship (Cook and Yamagishi 1992). The impact of power pattern on the use of power has been widely observed in the power literature (e.g. Dickson 1983, Handley and Benton Jr 2012a, Hoppner et al. 2014 and Lusch and Brown 1996). Meanwhile, the possession of certain power sources largely sets the boundary for the

specifics of power use. When exercising power, the sources of power serve as the antecedent (Geyskens et al. 1999, Keith et al. 1990, Farrell and Schroder 1999). Based on the interrelations among the source, pattern, and exercise of power, the original theoretical framework (which will be revised later in Chapter 7) used in this study is shown in Figure 4.5.

Figure 4.5 Original theoretical framework



4.8 Summary

This chapter reviews IOP research in the context of general management and supply chain management, which provides the basis upon which the research questions and theoretical framework were formed. Three research questions were initially formed with reference to the key sub-dimensions of the concept of power. These questions are concerned with the issues of power source, power pattern, and power exercise in the business relationships between port/terminal operators and liner shipping companies in the context of the Chinese seaport industry. After the research questions and theoretical framework have been established in this chapter, the next chapter will examine the characteristics of the research context in this study.

Chapter 5 Research Context

5.1 Chapter Overview

In view of the context-specific feature of the concept of power, the issues of context need to be carefully considered to obtain a comprehensive understanding of this concept. Therefore, this chapter aims to examine the characteristics of the selected research setting (i.e. the Chinese seaport sector) with the focus on two issues: the *guanxi* culture and the characteristics of port governance in China. This chapter will be structured in three parts. Section 5.2 examines the concept of *guanxi* and its implications for power issues in Chinese society and in this research. Then, Section 5.3 examines a wide range of governance issues in the Chinese seaport sector. The last section presents a brief summary of this chapter.

5.2 Guanxi and Power

The issue of national culture has been widely recognised as an important factor that affects the dynamics of power (see e.g. Kale 1986, Johnson et al. 1993, Lee 2001, Ramaseshan et al. 2006, Zhao et al. 2008). In terms of this study, ‘*guanxi* reflects delicate fibres woven into every person’s social life and every aspect of Chinese society’ (Park and Luo 2001, p. 456). The practice of *guanxi* has significantly influenced the interpersonal and inter-organisational dynamics in Chinese society for centuries (Park and Luo 2001, Yang 1994). In modern China, the fast-changing business environment has rendered the issue of *guanxi* increasingly important to our understanding of the social attitudes, business practices and power relationships in this society (Park and Luo 2001, Lee et al. 2001, Zhuang and Zhou 2004 and Zhao et al. 2008). Consequently, this section examines the concept of *guanxi* and its significance for the study of power in Chinese society and in this research.

5.2.1. The Concept of Guanxi

Guanxi is a cultural characteristic of the Confucian value system which addresses harmony, trust, consensus and responsibilities in relational connections (Dahles 2005). It generally refers to a system of relational ties based on mutual benefits, interests, understanding and obligations that binds business partners to reciprocally exchange favours in social networks (Luo 1997, Lee et al. 2001).

The fundamental concepts behind guanxi mainly comprise of renqing (human feeling) and mianzi (face) (Hwang 1987, Seligman 1999, Yang and Wang 2011). On the one hand, renqing is one form of exchangeable resource that creates leverage in business transactions (Hwang 1987). The development of renqing is a precondition for establishing guanxi network and a consequence of using such network for one's benefit (Luo 1997). Renqing can be obtained through the offer of favour or gift in the form of money, service and information (Hwang 1987). The establishment of renqing generates a guanxi network based on the other party's reciprocal obligations to repay the favour that it received (Park and Luo 2001). On the other hand, mianzi is highly valued by Chinese people as a symbolic capital in the concept of guanxi (Yang 1994, Smart 1993). It offers leverage for social actors to expand and utilise a guanxi network (Luo 1997). The magnitude of one's mianzi is usually positively related to his or her social status and material wealth. By increasing or saving other's face, one becomes the moral and symbolic superior in the guanxi network (Yang 1989).

On the basis of the philosophical understanding of the concept of guanxi, several characteristics of a guanxi network has been summarised by Luo (1997). First, it is transferable in the sense that two unrelated social actors can establish guanxi through a common connection with a third actor. Second, guanxi is utilitarian and is based on the exchange of favours. Last but foremost, guanxi is reciprocal. The notion of reciprocity (bao) is central for guiding the interactive behaviour in the guanxi network. The offer of social resource (renqing or mianzi) implies an inequity between parties in

the guanxi-governed exchange relationship. To sustain the guanxi relationship, these parties are committed to each other by the social norm of reciprocity and they are obliged to repay the favour and maintain the equality of exchange in terms of mianzi or renqing (Lee et al. 2001). Social actors who ignore or violate the rule of reciprocity will be defined as untrustworthy and consequently detached from the guanxi network (Luo 1997).

5.2.2 Guanxi and Power in Chinese Society and in this Research

The importance of guanxi for the examination of power issues in the Chinese marketplace has been recognised by a number of researchers, such as Lee et al. (2001), Zhuang and Zhou (2004) and Zhao et al. (2008). In the field of IOP study, this importance can be explained from two aspects: guanxi as a business and political resource for potential power acquirement, and guanxi as a relational mechanism that governs business exchanges and power use.

5.2.2.1 Guanxi as a Business and Political Resource

Guanxi is a valuable resource that helps companies to strengthen cooperation, to gain access to desired information, to expand business connections and to acquire benefits by arbitrating relational networks (Park and Luo 2001). First, the reason for guanxi and its fundamental concepts (i.e. mianzi and renqing) as an organisational resource is related to the norm of reciprocity that characterises a guanxi network. Although this network is essentially established on inter-personal relationship, it can be transferred to the organisational level to facilitate business exchange (Peng and Heath 1996, Chen et al. 2004, Gu et al. 2008). A network of guanxi involves the exchange of favours and obligations (Hwang 1987). When firm A offers a favour to firm B in their business exchanges, the latter party is in the debt of renqing. Guided by the norm of reciprocity, B is therefore obliged to return A's favours in a future transaction to maintain its own mianzi and sustain its guanxi with A. The exchanged favours can be manifested as the preferential treatment in transaction and guaranteed access to valuable resources, such

as information, land and capital (Park and Luo 2001, Gu et al. 2008).

Second, the issue of *guanxi* can be an essential resource in the Chinese marketplace considering the political characteristics of the nation (Su and Littlefield 2001, Li and Zhang 2007). In particular, *guanxi* with the Chinese government serves as a political tie for firms to obtain regulatory resources (Sheng et al. 2011). This issue has been explained by researchers (e.g. Suchman 1995, Hillman et al. 1999 and Faccio 2006) from three aspects. First, the government in the emerging economy of China often influences economic practices by guiding industrial development and formulating regulatory policies. A connection with the government implies important access to policy and aggregated industrial information. Second, the Chinese government possesses a range of scarce resources such as land and subsidies. Consequently, good *guanxi* with the government offers a shortcut for firms to access these resources. Third, relational ties with the government can improve a firm's legitimacy which further helps the firms to gain favourable treatment and institutional support.

Overall, from the perspective of the resource-based view (Barney 1991), *guanxi* thus becomes an intangible capital or asset of firms to acquire desired resources and support from both economic and political parties involved in the *guanxi* network to enhance the firm's performance and gain competitive advantages (Peng and Heath 1996, Luo 1997, Park and Luo 2001). From the perspective of power study, the significance of resources as the fundamental source of power has been examined in Section 4.7.1. As one important component of firm resources, *guanxi* tends to exert significant implications for the understanding of the concept of power in Chinese society and in this research.

5.2.2.2 Guanxi as a Relational Governance Mechanism

Chinese society is a network-based society where *guanxi* plays a crucial role to influence organisational behaviours as a non-contractual governance mechanism (Davies et al. 1995, Lambe et al. 2001, Wellman et al. 2002). The need to maintain

harmonious relationships has established a system of reciprocal exchange of favours and gifts which aggregates and expands interpersonal and inter-organisational connections among Chinese firms (Bond 1991, cited in Gu et al. 2008). This system is characterised by the *guanxi* network.

Mianzi, *renqing* and the rule of reciprocity involved in the concept of *guanxi* have significant implications for the governance of organisational behaviours (see Section 2.6.1 for a detailed discussion of the concept of governance). The importance of *guanxi* network for doing business in China motivates firms to seize opportunities to offer favours or gifts to business partners, which helps them to become superior in terms of *renqing* (Hwang 1987, Park and Luo 2001). This move has been recognised by Gouldner (1960) as the ‘starting mechanism’ for the establishment of a reciprocal exchange relationship. Parties in the debt of *renqing* are thus obliged to evaluate the received favours and repay the *renqing* equally or with something larger (Lovett et al. 1999, Zhang and Zhang 2006).

The norm of reciprocity governs the attitude of firms in a *guanxi* network towards long-term and cooperative inter-organisational relationships (Michailova and Worm 2003, Chen and Chen 2009, Barnes et al. 2011). Meanwhile, it also establishes a structural constraint on self-seeking opportunism since relevant activities may be regarded as losing face and jeopardise the sustainability of a *guanxi* relationship due to the inequality in the exchanged favours and obligations (Wong 1998, Standifird and Marshall 2000, Lee et al. 2001). Thus, the *guanxi* network provides a mechanism to preserve resources within the *guanxi* network and to govern business activities with the principle of reciprocity (Park and Luo 2001, Carney 2006, Gu et al. 2008).

In terms of *guanxi*’s implications for the understanding of the concept of power, the issue of national culture has been widely recognised as an important factor that affects the dynamics of power (see e.g. Kale 1986, Johnson et al. 1993, Lee 2001, Ramaseshan et al. 2006, Zhao et al. 2008). The importance of *guanxi* network implies a necessity for every social actor in Chinese society to depend on somebody else

(Kiong and Kee 1998, Xin and Pearce 1996). By becoming involved in this relational network, firms are able to expand their product and market reach, and improve market and political power in contrast to freestanding competitors (Park and Luo 2001).

With reference to the dependence discourse of power (Emerson 1962), the guanxi network, to some extent, represents a power network where parties embedded within can offer dependable support to each other (Zhuang and Zhou 2004). Once a guanxi connection is established, it can positively affect the perception of relationship quality and potentially move the relevant power pattern towards the interdependence block in Cox's (2001a,b) power matrix (Lee et al. 2001).

In Chinese society where the institutional legal system has not been well-developed, the guanxi network, especially the norm of reciprocity embedded in this network, becomes a significant relational-based mechanism to govern social actors' power use (see e.g. Lee et al. 2001, Zhuang and Zhou 2004, Zhao et al. 2008). With reference to the power bases approach (French and Raven 1959), first, firms that establish sound guanxi with the government (e.g. state-owned companies) are often regarded as having the legitimate right to influence its business partners who are obliged to accept such influence (Ahlstrom and Bruton 2001, Ahlstrom et al. 2008, Zhao et al. 2008).

Second, a guanxi network involves the exchange of favours such as preferential treatment in business transaction and access to limited resources (Lee et al. 2001). These favours can be seen as the manifestation of rewards (Tsui and Farh 1997, Hu et al. 2004, Chen et al. 2011). Due to the rule of reciprocity, the guanxi network thus presents a relational mechanism that fosters the use of reward power and potentially other non-coercive powers (e.g. referent power and expert power) that are usually regarded as beneficial for business harmony (Zhao et al. 2008, Yang and Wang 2011). Third, since the coercive aspect of power is likely to harm business satisfaction (Morales 1997, Belaya and Hanf 2009), the norm of reciprocal exchange and the need to maintain business harmony in the Chinese culture also establishes a social constraint on the use of coercive power among parties in a guanxi network (Lee et al.

2001).

Overall, the Chinese culture of *guanxi* provides a relational mechanism that fosters organisational interdependence, and governs organisational behaviours and power uses. The norm of reciprocity and maintaining business harmony plays a critical role in this mechanism.

5.3 Port Governance Issues

Chapter 2 has reviewed the broad market environment of the maritime industry. In view of the geographical immobility of seaports, the extent to which the broad market environment can be applied to the Chinese seaport sector remains uncertain. The seaport sector in China has been characterised by substantial changes (see Table 2.2) over the past few decades as a result of the nation's fast economic growth and a series of port reforms (Cullinane and Wang 2007, Qiu 2008). These changes shape the research context in this study.

The concept of governance has been examined in detail in Section 2.6. It is related to a wide range of port activities (e.g. port ownership, administration and regulation) and it is extremely important for understanding the industrial changes facing the seaport sector and the wider maritime marketplace (see e.g. Bennett 2000, Selkou and Roe 2004, Wang et al. 2004, Debie et al. 2013, Roe 2007, 2009, 2013, 2016). In view of this significance of the concept of governance, this section examines a number of governance issues in Chinese seaports (i.e. port reform, administration, ownership structure, legal aspect and regulatory environment, financing channels, entry barriers to foreign direct investment (FDI), port cooperation and network development) and it sets the context for the case studies in this research.

5.3.1 Port Reforms in China: A brief History

According to the Interpretation of the Port Law of the People's Republic of China

(National People's Congress of the People's Republic of China 2004), the evolution of the port administration system in China has been marked by three milestones: the establishment of the republic (1949), the reform and opening up of China (1978), and the implementation of the Port Law of the People's Republic of China (PLC) (2003).

In the first stage of Chinese port reform (1949–1978), the port management structure was quite unstable due to many political movements. When the republic was established in 1949, ports were managed by the Ministry of Transportation of China at the central government level. After the Great Leap Forward (1958–1960), the administrative authority was decentralised to local governments but then retrieved by the central government in 1966. When the Cultural Revolution started in 1966, the administrative power of the ports was again decentralised. This decentralised management structure ended in 1973 when the authority of port administration returned to the central government.

The Chinese government conducted another major reform towards port administration after the reform and opening up of China in 1978. It established a dual management system where both the local and central governments were involved in the management and operations of the ports. As China's reform and opening up continued to develop, the dual management system constricted the development of the national port industry. First, the wide involvement of the political institutions in port management was contradictory to the economic reform in China. Second, central government played a dominant role in the dual management system, and this undermined local governments' initiatives to develop the ports in their prefectures. Third, both locally- and centrally-controlled terminal operators were allowed to operate terminals within an individual port. Since they followed different or even contradictory orders from different levels of government, the dual management system caused conflicts in port operations.

In view of the drawbacks of the dual management systems, the PLC was implemented in 2004 to guide the latest port reform in China. This law was 'enacted with a view to

strengthening port administration, maintaining port safety and operational order, protecting the legal rights and interests of the stakeholders, and promoting the construction and development of the ports' (PLC 2003). Port reform after 2004 has mainly been characterised by two principles, which are the corporatisation of port authorities and the establishment of a municipal port management system (National People's Congress of the People's Republic of China 2004). This implies that the national port governance model in China has followed a trend towards decentralised hierarchies and the insertion of market principles (Wang et al. 2004).

5.3.2 Governance Issues in the Current Chinese Seaport Industry

The port reform triggered by the implementation of PLC in 2004 represents a milestone that has significantly affected the current seaport industry in China (Wang et al. 2004, Cullinane and Wang 2007). This landmark event has drawn wide attention of maritime researchers who have adopted a governance approach to examine the changing port sector in China (see e.g. Cullinane et al. 2004, Wang et al. 2004, Wang and Slack 2004, Cullinane and Wang 2007, Qiu 2008, Lam et al. 2013, Notteboom and Yang in press). In general, their studies has covered a number of port governance issues, including port administration, ownership structure, financing channels and the entry barriers to FDI, legal aspect and regulatory environment, port cooperation, and network development. Based on these studies, this section examines the governance issues that characterise the current Chinese seaport industry.

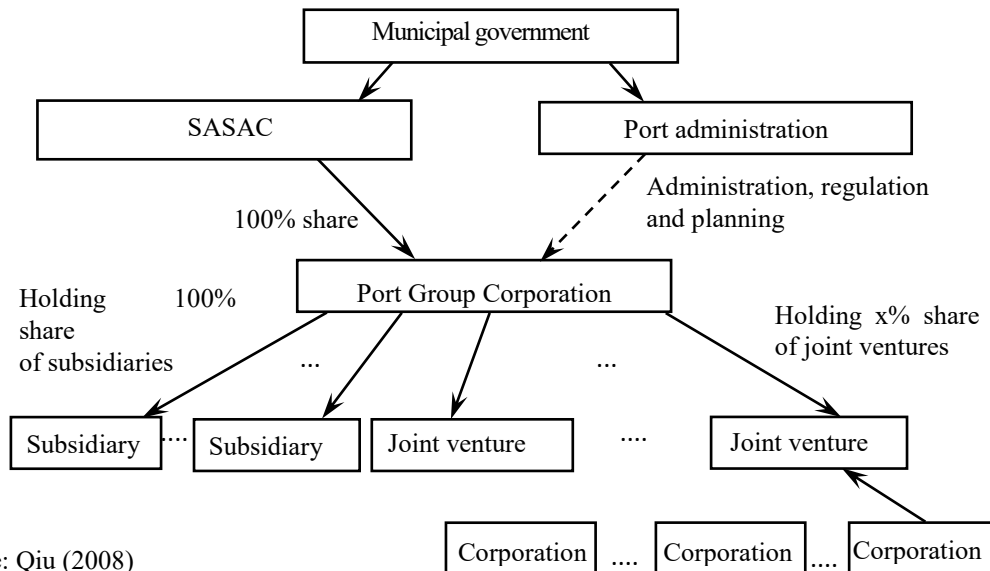
5.3.2.1 Port Administration

PLC introduced a modern enterprise system into the port industry (Cullinane and Wang 2007). The port authority that used to play the role of both market player and regulator was replaced with a port administration bureau and a port group corporation. The former is usually run by the municipal or provincial government and it carries out regulatory activities (e.g. port planning and safety supervision). The latter operates as a commercial and self-sustaining organisation and is in charge of daily port

management and operations (Cullinane and Wang 2007).

The specific administration model at the port level may vary. According to Qiu (2008), there are three seaport administration models in mainland China: the generic model, the Shanghai model and the Shenzhen model. For the generic model (see Figure 5.1), the port group corporation is owned by the municipal State-owned Assets Supervision and Administration Commission of the State Council (SASAC). It incorporates a number of subsidiary or joint-ventured companies that carry out the daily port operations. The Shanghai model is similar to the generic model. The difference between these two models is that the Shanghai Port Group Corporation is jointly owned by the municipal SASAC and several other corporations (e.g. China Merchants Holdings Company Limited and Shanghai Tongsheng Investment Co., Ltd) rather than being wholly owned by the local government.

Figure 5.1 Generic model of port administration

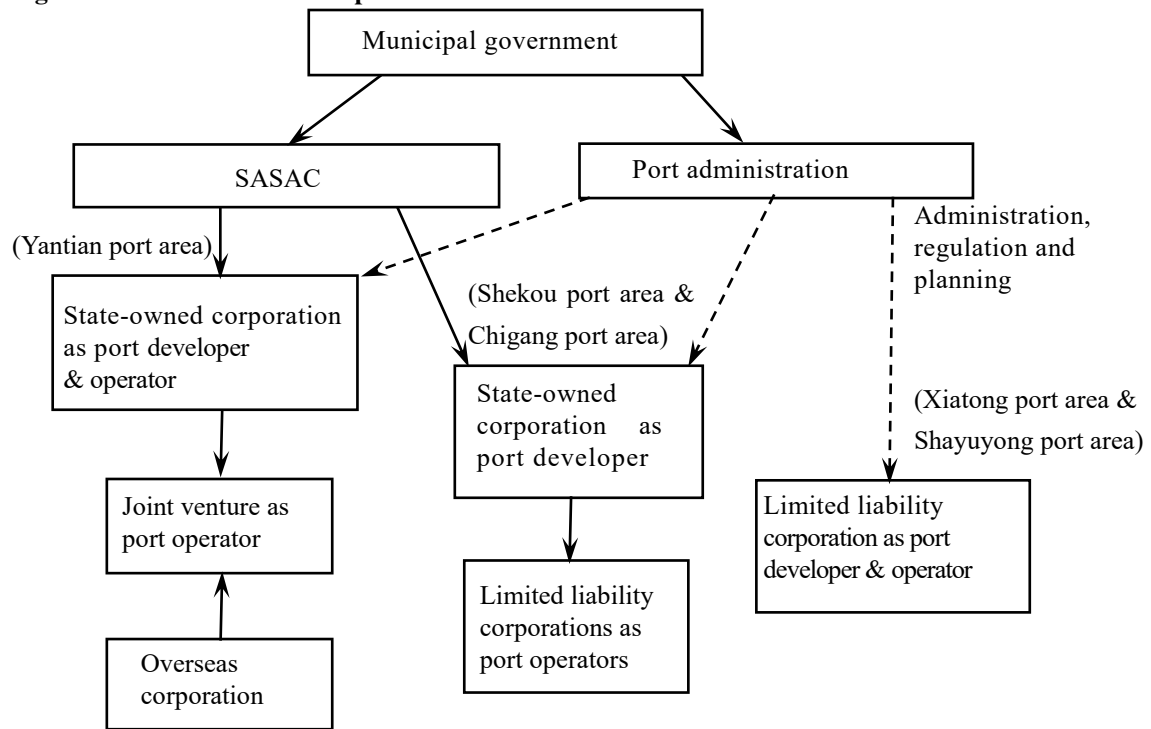


Source: Qiu (2008)

The administration model of Shenzhen Port is quite different from the other two models (see Figure 5.2). Qiu (2008) categorised three modes of port management in this model. The first case is the Yantian port area, which is operated by a joint venture formed by a state-owned corporation and several foreign companies. In the second situation, the port is developed by a state-owned corporation but operated by third

parties rather than by the initial developer (e.g. Shekou port area and Chigang port area). The third situation involves commercial organisations playing the roles of both port developer and operator (e.g. Xiatong port area and Shayuyong port area) (Qiu 2008).

Figure 5.2 Shenzhen model of port administration



Source: Qiu (2008)

5.3.2.2 Ownership Structure

Based on Qiu's (2008) work, it is noticeable that the port ownership structure in China is increasingly diverse after the implementation of PLC. The local government and SASAC retain total or a large proportion of the ownership of ports. From a theoretical point of view, Chinese seaports are generally municipal ports within Stuchtey's (1991) classification of port types (i.e. state-controlled port, municipal port and private port).

In terms of the extent of the involvement of the public and private sectors (World Bank 2007), Chinese seaports can be generally categorised as a tool port, a landlord port, or an intermediary status between these two (see Table 5.1). This happens because both the public sector (port group and/or SASAC) and the private sector can

retain ownership over port superstructure.

Table 5.1 Models of port management

Type	Infrastructure	Superstructure	Port Labour	Other Functions
Public Service Port	Public	Public	Public	Majority Public
Tool Port	Public	Public	Private	Public /Private
Landlord Port	Public	Private	Private	Public /Private
Private Service Port	Private	Private	Private	Majority Private

Source: World Bank (2007)

From the aspect of the privatisation of port functions (Baird 1999, 2000), Chinese seaports are mainly of the Private/I type (see Table 5.2). In this port model, the public sector functions as port regulator and port landowner, whereas the port operation is carried by the private sector. However, the variety of shareholders and the strong governmental background make it difficult to determine the nature of port group corporations as belonging to the private sector or the public sector, even though they operate as commercial organisations. Since port group corporations play an important role in the operation of Chinese seaports, the uncertainty about their nature adds difficulty to the identification of port ownership structures in China.

Table 5.2 Port function privatisation matrix

Port Model	Port Regulator	Port Landowner	Operator
Public	Public	Public	Public
Public/Private (Private/I)	Public	Public	Private
Private/Public (Private/II)	Public	Private	Private
Private (Private/III)	Private	Private	Private

Source: Baird (1999, 2000)

5.3.2.3 Financing Channels and Entry Barriers to FDI

The complexity of ownership issues also stems from the diversification of financing channels in Chinese seaports. According to Wang et al. (2004), there are three main channels of port financing in China: port construction fees, non-governmental domestic investments and FDI.

First, port construction fees are collected by the local maritime authorities (e.g. port

administration bureau or transportation administration department) at the rate of 64 Yuan per TEU. They are mainly used for various aspects of port constructions (e.g. navigation channel, seawall and anchorage ground) (Ministry of Finance of China 2011).

Second, the PLC ‘encourages economic organisations and individuals at home and abroad to invest in port construction and operation in accordance with law’ (PLC 2003). The aim of this policy is to attract both non-governmental domestic and foreign investment to facilitate port development in China (PLC 2003). The non-governmental domestic investment can come from many sources. A recent development of port financing in China is that port group corporations are seeking to go public. For example, Dalian Port Co. Ltd floated its shares on the Hong Kong and the Shanghai stock exchanges in 2006 and 2010, respectively. Qingdao Port International Co. Ltd floated its shares on the Hong Kong stock exchange in 2016. In addition to these two examples, port group corporations in many other ports (e.g. Rizhao Port, Jinzhou Port and Tianjin Port) have also used the stock market as one of their financing channels.

FDI is the third important source of finance for Chinese seaport operators. Earlier, in 1985, the state council had already established a preferential regulation for foreign companies to form joint ventures with Chinese corporations and engage in Chinese port construction and operations. This regulation gave birth to the first Sino-foreign terminal operating company in mainland China, Nanjing International Container Terminal Company Ltd. Formed in 1987, this company is a joint venture between Nanjing Port Authority and US-based Encinal Terminals (Cullinane et al. 2004). The general policy for attracting FDI into the Chinese port sector was further boosted by a couple of regulations in the 1990s, namely the ‘Tax Law of the PRC for Enterprises with Foreign Investment and Foreign Enterprises’ in 1991 and the ‘Catalogue for the Guidance of Foreign Investment Industries’ (CGFII) in 1996.

The central government of China has shown an increasingly encouraging and open

attitude towards the involvement of FDI in Chinese port construction and operations. The amendment of the CGFII is a typical example of this trend. The catalogue was initially released together with interim Provisions on Guiding Direction of Foreign Investment (PGDFI) in 1996. The interim PGDFI was drafted to guide the direction of FDI in order to keep it in line with China's national economic and social development (PGDFI 2002). Projects that involve FDI were politically classified into four categories: encouraged projects, permitted projects, restricted projects or prohibited projects. CGFII deals with the first three types. In CGFII 1995, the construction and operation of port facilities was categorised as an engaged project. However, in comparison to FDI, the Chinese part was regulated to hold the majority of shares of the project ($\geq 51\%$) or play a dominant role (PGDFI 2002).¹

Since 1995, the CGFII has been amended in 1997, 2002, 2004, 2007 and 2011. While port construction and operation by a foreign party was classified as an encouraged project in all these amendments, the restriction on the share of the Chinese part in foreign-invested projects has been removed since PGDFI 2002. This means that the market of port construction and operation in China is fully open to FDI. Due to the encouragement of FDI's involvement in the port sector, a number of global terminal operators (e.g. DP World and PSA International) and shipping lines (e.g. APL and CMA-CGM) have been attracted to the Chinese seaport market. A summary of the foreign logistics operators' participation in the Chinese terminal operating market can be seen in Cullinane and Wang (2007, p. 346), and Notteboom and Yang (in press).

5.3.2.4 Legal Aspect and Regulatory Environment

The inclusion of various domestic and foreign investments in Chinese seaports has shown a regulatory evolution in port financing. In addition, the legal and regulatory environment in Chinese seaport industry has been greatly changed by the PLC. This issue has been explained by Wang et al. (2004) from three areas of port development

¹ A dominant role means the 'proportion of investment made by Chinese investors into a foreign invested project shall be more than the proportion of investment made by any one foreign investor' (PGDFI 2002).

governance. The first area is port planning and construction. The governance of these port activities after the latest port reform involves two levels of governments. At the national level, the Ministry of Transportation formulates the Layout Planning of National Seaports to determine the nationwide planning of port development and specify the role of each port (e.g. the status in regional port clusters, major cargos handled and hinterland coverage) in the national port system. At the local level, the relevant authorities develop Port Master Plans to determine the jurisdictional borders, and assess the current role, the natural conditions and the future developments of each port.

The second area is port operations and management. The PLC specifies the responsibilities of port operators and sets the regulations for the entrants to the port operation market. The third area relates to the responsibilities of port administration body. The task of port administration was transferred from the port authorities to the regulatory agencies (e.g. port administration bureaus and/or transportation administration department) at the local-government level (Wang et al. 2004, Cullinane and Wang 2007). These agencies are in charge of ‘monitoring the implementation of all port-related regulations and laws, regulating the market to ensure fair competition among the operators, and maintaining safety and security within ports’ (Wang et al. 2004, p. 248).

5.3.2.5 Port Cooperation and Network Development

The latest port reform in China has established a port governance model that supports the autonomous and commercially driven port operators (Notteboom and Yang in press). It has resulted in a competitive seaport market in China (Wang and Slack 2004). Port cooperation has been reviewed in Section 2.5.1 as an important strategy for port operators to survive in a competitive environment. In the Chinese seaport industry, a recent development of the national policies (i.e. the Thirteenth Five-Year Plan, the National Development [2014] No. 32 and the Guidance on Promoting the Transformation and Upgrading of Ports) has advocated strong coordination and

cooperation among seaports in a range of port activities (e.g. port planning, port investment and the utilisation of port resources) (Notteboom and Yang in press).

Fostered by the policy changes and the self-interests of port operators to increase competitiveness and optimise shoreline resources and port functionality, port cooperation is a key feature that characterises the current development of the port industry in China (Notteboom and Yang in press). For example, in Jiangsu Province, the State Council released a policy document in 2009 (i.e. the Coastal Development Planning of Jiangsu Province) to promote the integration between Lianyungang Port and Rizhao Port to form a port cluster around Haizhou Bay. In Zhejiang Province, the Zhoushan Port and Ningbo Port merged to form the Ningbo-Zhoushan Port Group in 2016 (Notteboom and Yang in press). With a throughput of 889 million tons, the new enterprise operates as the largest port group in the world (UNCTAD 2016).

Nonetheless, port competition in China is still fierce in and among port clusters due to inter-city competition and the lack of a coordinated administrative system (Lam et al. 2013). The development of a hinterland network through corridors and ICDs emerged as a common desire for Chinese seaport operators to gain competitive advantages (Beresford et al. 2012, Zeng et al. 2013, Werikhe and Jin 2015). This desire has been supported by the central government's 'Go West' policy. In view of the development gap between eastern and western parts of China, the policy was launched in 2000 and it aimed to build a well-off society in the poor western areas through a range of political and financial supports (e.g. investments from the central budget, lower tax rates and preferential policies) (Notteboom and Yang in press). This support has improved the infrastructure development in terms of highways, railways and inland terminals, they have facilitated the increased participation of western regions in logistics networks and they have caused a rising penetration of containers inland (Notteboom and Yang in press).

Seaports in China are developing their cargo distribution/collection networks by establishing a coordination mechanism for the construction, operation and

management of ICDs between themselves and the inland areas (Notteboom and Yang in press). The establishment of ICDs or dry ports has been driven by the intensified competition among ports and the high cargo flows to and from the adjacent hinterlands (Roso et al. 2009, Rodrigue et al. 2010, Zeng et al. 2013). Out of 42 dry ports in China, most of them (e.g. Shijiazhuang Dry Port, Anhui Dry Port and Huinong Dry Port) were developed as joint ventures by the seaport operator(s) and the local government (Werikhe and Jin 2015, Zeng et al. 2013). A summary of dry port developments in China can be seen in Zeng et al. (2013, p. 254-256).

5.4 Summary

This chapter has examined two contextual issues in this study. The first issue is the Chinese culture of *guanxi*. This culture plays an important role in the interpersonal and inter-organisational dynamics in Chinese society. It has been recognised as a business and political resource for potential power acquirement and as a relational mechanism that governs business exchanges and power use, both of which have potential implications for the study of power issues in this study.

The second contextual issue is port governance in China. This chapter has examined a range of governance issues that characterise the current Chinese seaport industry. These issues include port reform, administration, ownership structure, regulation, financing, cooperation and network development. The identification of these issues was based on port governance literature that focuses on the Chinese marketplace after the latest port reform. Although the concept of governance may play a wider role in the activities of ports, the port governance issues covered in Section 5.3.2 seem to be broad enough to set the context for the case studies in this research.

While the concepts of governance and *guanxi* are important for power studies, to what extent they relate to the inter-organisational business relationships between port/terminal operators and liner shipping companies in the context of Chinese seaports remains to be seen. This study has a main focus on the issues of power. This

means that the findings about the significance of *guanxi* and governance for the vested business relationships may be fragmented. In view of this consideration, the data analysis chapters in this study (i.e. Chapters 8 to 10) will mainly focus on the research questions described in Section 1.4.2, whereas the findings about the issues of context (e.g. *guanxi* and governance) will be gathered and discussed in the last chapter. Since the issue of national culture has been recognised by many researchers (e.g. Kale 1986, Johnson et al. 1993, Lee 2001, Ramaseshan et al. 2006, Zhao et al. 2008) as being particularly relevant to the issue of power use, the significance of *guanxi* for the port/terminal operator's power exercise also will be highlighted in Chapter 10. Based on the examination of the selected research context, the next chapter provides details about the methodology and research design of this study.

Chapter 6 Research Methodology

6.1 Chapter Overview

The aim of this chapter is to describe and justify how this research has been designed and conducted. To achieve this purpose, this chapter will examine the methodological options for doing research, explain why the research methods used were chosen, and describe the implementation of the selected methodology and its potential drawbacks. More specifically, Section 6.2 illustrates the procedures for designing research. Then, each procedure is broken down and examined in detail in order to achieve a comprehensive understanding of the available methodological options. Based on this examination, Section 6.3 describes the general design of this research. The logic in this section is, first, to justify the methodological choices and then to introduce how the selected research methods have been used in this study. Possible criticisms of this study's methodology are considered in Section 6.4, and the summary of this chapter is presented in the last section.

6.2 General Procedures of Research Design

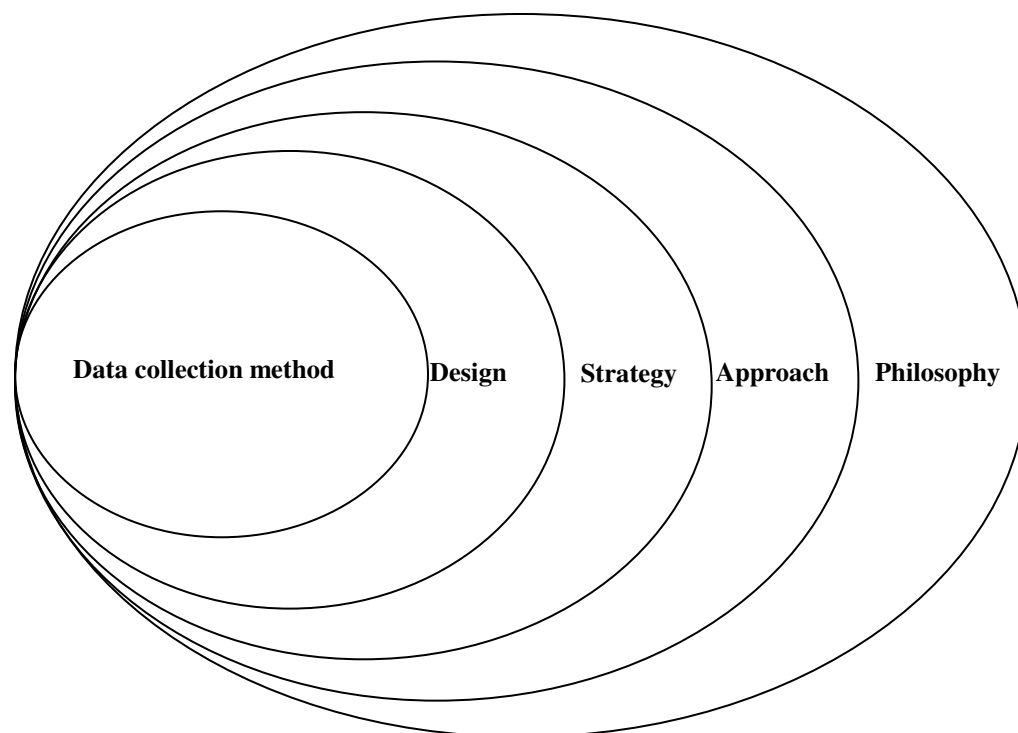
The design of the research study is concerned with the formation of a framework for data collection and analysis (Bryman and Bell 2011). Saunders et al. (2012) argued that the design process is like an 'onion', which consists of many layers (see Figure 6.1). To reach the central layer, the research begins with the consideration of the outer layer, which is the philosophical stance, because this sequentially determines the research approaches, strategies, and, ultimately, data collection and analysis methods.

6.2.1 Philosophical Considerations

Philosophy is concerned with the basic issues about knowledge, reality, and existence (Thomas 2004). It provides 'the version of what exists and therefore how we can go

about seeing it', and influences the researchers' judgment about good or bad research (Mason 2002, p. 6). In the domain of methodological enquiry, philosophy usually covers ontological and epistemological assumptions. The former issue is concerned with the nature and essence of the natural world, and the latter involves how this social reality can be known and how knowledge can be demonstrated (Bryman and Bell 2011). Ontological and epistemological assumptions are often intertwined, and different forms of their combination further generate the core of a range of research paradigms.

Figure 6.1 Research 'onion'



Source: adapted from Saunders et al. (2012)

However, philosophers do not have a general agreement on the variety and classification of existing philosophies and research paradigms. For example, Blaikie (2010) referred to research paradigms as theoretical and methodological ideas, which include positivism, critical rationalism, classical hermeneutics. In contrast, Bryman and Bell (2011) viewed a paradigm as a cluster of ontological and epistemological

beliefs, and they accepted Burrell and Morgan's (1979) categorisation, which covers functionalist, interpretative, radical humanist, and radical structuralist beliefs. In addition to the lack of consensus, different philosophies embrace various combinations of ontological and epistemological stances. This means that their adherents believe in different versions of reality and use different ways to obtain knowledge about it. These issues raise a challenge for researchers in terms of identifying their own philosophical positions. Mason (2002) recognised this challenge and argued that the starting point should be the examination of available opinions and the consideration of their respective implications on research. Despite various views about the scope of philosophies, Solem (2003) remarked that there are two sets of intertwined extremes concerning ontological and epistemological assumptions. Their corresponding research paradigms represent the boundary of a fundamentally contradicting view about the nature of reality and the way of knowing. The remaining paradigms are clusters of intervening ontological and epistemological assumptions. It has been widely accepted that in the field of business studies, these two extreme research philosophies are positivism and interpretivism (Solem 2003). Between these two extremes, realism is another essential research philosophy (Saunders et al. 2012).

Positivism was originally developed by Auguste Comte in the nineteenth century (Benton and Craib 2001). According to Bryman and Bell (2011), positivism in social science can be generally understood as the application of methods from the natural sciences to research of the social world. From an ontological aspect, positivism embraces a 'flat' ontology, which believes that the world comprises various things and patterns that are observable (Benton and Craib 2001). The main task of a positivist is to construct 'law-like' statements that identify relationships between variables or phenomena (Abercrombie et al. 2006).

In comparison, interpretivism is antithetical to positivism. It was originally developed on the basis of phenomenology and symbolic interactionism (Saunders et al. 2012). Interpretivists believe that social reality is the product of social actors. Meaning is

socially constructed and so it ought to be interpreted according to the social context in which the meaning resides (Thomas 2004). Generalised statements neglect the richness of context and, therefore, are incapable of encompassing the reality. Interpretivists seek to establish ‘an objective science of the subjective’ because researchers themselves are constructs of reality (Blaikie 2010, p. 99).

In terms of realism, it embraces a similar ontological stance to positivism and accepts that reality is independent of social actors (Crotty 1998). Philosophically, there are many forms of realism, such as metaphysical realism, semantic realism, epistemic realism, and critical realism (Merrill 1980, Bhaskar and Lawson 1998). It is not necessary to examine them all because the purpose of this investigation, as suggested by Mason (2002), is to understand essential alternatives to positivism and interpretivism. Therefore, the focus is on critical realism due to its popularity in business and management studies (Saunders et al. 2012).

Ontologically, critical realists accept positivists’ reality as one subdomain of their version of what exists. In addition to observed events, there are two other domains, which are unobserved occurred-events and the underlying structure that generates both observed and unobserved events (Blaikie 2010). A critical realist’s main task is to understand the social structure by virtue of which a researcher can know the full picture of what is going on in reality (Bhaskar 2008).

Thomas (2004) recognised the differences between these essential research paradigms and offered three views about methodological enquiry. The first view believes that there is one best way or method to conduct research. This view applies to the field of natural science research, where doing research positively seems to be the only option. However, in the domain of business and management research, positivism is not the only choice. An examination of the alternatives shows that all these three philosophies are logically justifiable, given their ontological and epistemological stances. Therefore, the ‘monistic’ view seems to be too rigid to guide business research. The second view is methodological nihilism, which believes that research need not be

conducted according to any specific method. Therefore, there is no need to discuss methodological issues. Lastly, methodological pluralism offers an eclectic view; pluralists recognise the existence of different philosophies and admit that there is more than one way to conduct research. Among those three views, methodological pluralism is the most popular one in social science research, and this is the view adopted in this research.

Methodological pluralism is closely related to the philosophy of pragmatism. Developed by a group of American philosophers, pragmatism is another essential philosophy in business and management research in addition to positivism, realism, and interpretivism (Morgan 2007, Saunders et al. 2012). Pragmatists generally agree that people develop tool-like concepts with different adaptability to explore the world (Snarey and Olson 2003). Concepts are not 'out there' to be discovered. They are produced by people and support human actions (Kelemen and Rumens 2008). Epistemologically, pragmatism rejects both positivism and anti-positivism. It is not linked with a certain way of knowing or a set of research methods. Instead, pragmatism judges the appropriateness of a research method based on its ability to tackle vested problems. In other words, pragmatists embrace a 'practical' way of knowing. They accept methodological pluralism and believe that different research methods and their related philosophical stances can be used together.

Overall, the issue of research philosophy is complex. As Thomas (2004) claimed, ontological and epistemological arguments themselves are often confused and inconclusive, and research paradigms are sometime overlapping. Therefore, the utility of philosophies for methodological enquiry and the extent to which they can guide a piece of research is unclear. The pragmatist's proposition concerning a 'practical' way of doing research seems to be a solution to the challenge of selecting the appropriate research philosophy among a number of options.

However, it seems that pragmatism challenges Saunders et al.'s (2012) 'onion' procedure of research design. Rather than starting with a philosophical examination,

pragmatists address the importance of the nature of the research question for the selection of data collection and analysis methods. Therefore, it can be argued that this idea makes the ‘onion’ model more complete. Pragmatists do not embrace a certain set of data collection and analysis methods. They rely on research methods that are developed on the basis of positivism and various elements of anti-positivism, despite the rejection of their philosophical assumptions. Accordingly, pragmatists seem to propose an outer layer for the ‘onion’ model by addressing the significance of the nature of research questions. This more complete model is adapted to guide the methodological choices in this research.

6.2.2 Research Approach

This section follows the ‘onion’ procedure for research design and examines the available opinions of research approach. In the field of business and management research, there are three commonly used research approaches, namely: the deductive approach, the inductive approach, and the abductive approach (Bryman and Bell 2011, Saunders et al. 2012). These approaches have different features and are suitable for achieving different research purposes. The details are presented in Table 6.1.

First, deduction reflects a positivist’s way of knowing. It is the dominant research approach used by natural scientists (Saunders et al. 2012). The purpose of the deductive approach is to verify or falsify a theory by testing hypotheses. Any hypothesis is embedded with concepts. The theory under test is used to generate hypotheses and to guide the way that concepts are associated (Blaikie 2010). Thus, a common process of deduction is to move from theory to observations/findings.

Second, the inductive approach presents an antithetical process of ‘knowing’ compared to the deductive approach (Bryman and Bell 2011). Philosophically, it is anti-positivist. The framework of knowledge is no longer important for commencing a piece of inductive research. Instead, induction begins with the observations of the characteristics and patterns of social reality. Observations produce emerging

propositions and further contribute to theory building (Kovacs and Spens 2005).

Table 6.1 Features of the three research approaches

Feature		Deductive	Inductive	Abductive
Closely related philosophies *		Positivism	Interpretivism	Pragmatism
Objective		To test theories, to corroborate true ones and get rid of false ones	To build descriptions of characteristics and patterns	To understand social reality with reference to social actors' meaning and motives
Generalisability		Generalising from the general to the specific	Generalising from the specific to the general	Generalising from the interactions between the general and the specific
Contributions to theory		Theory verification or falsification	Theory building and generation	Theory building or modification
General process		Theory ↓ Hypothesis ↓ Data collection ↓ Findings ↓ Hypotheses confirmed or rejected ↓ Revision of theory	Observations ↓ Produce descriptions ↓ Relate these to research questions ↓ Theory building	Theory ↔ Observations ↓ Generate or modify an existing theory ↓ Observations/data collection ↓ Relate these to research questions/data analysis ↓ Iterative theory development
Research purposes	Exploration		Major	Major
	Description		Major	Major
	Explanation	Major	Minor	
	Prediction	Major	Moderate	
	Understanding			Major
	Change	Minor		Moderate

* Opinions are confined to within four philosophies examined in Section 6.2.1, namely, positivism, interpretivism, critical realism, and pragmatism.

Source: based on Blaikie (2010), Bryman and Bell (2011), Kovacs and Spens (2005), Morgan (2007), Saunders et al. (2012).

Third, the abductive approach has the features of both induction and deduction, and involves the back and forth movement between data and theory (Dubois and Gadde 2002, Taylor et al. 2002). Similar to the inductive approach, an abductive research usually starts with observations of social events and phenomena. Observations on particularities then generate a plausible theory, which has the potential for theory generation and modification. To test this plausible theory, both the deductive approach and the inductive approach are applicable (Saunders et al. 2012). Therefore, the abductive research approach is philosophically rooted in pragmatism.

These three research approaches are often used for different research purposes (Blaikie 2010). Exploration and description are bonded only with inductive and abductive approaches. Since description is also required at the beginning of any deductive research, a deductivist needs to rely on the other two approaches with regard to this issue. One advantage of the deductive approach is to explain social reality, though inductivists also claim to be capable of doing this task. Furthermore, the deductive and inductive approaches are both interested in prediction. Only the abductive approach is concerned with understanding. Its adherents are also interested in change, as are deductivists, but they adopt a different research process to do it.

6.2.3 Other Layers of the ‘Onion’ Model

Research strategy, research design and data collection methods are inner layers of the ‘onion’ model. Methodologically, researchers have different views about the scope and content of research strategies and research designs. For example, Thomas (2004) proposed four research strategies—namely, experiment, survey, case study, ethnography and action research, whereas Yin (2014) classified five research strategies—namely, experiment, survey, case study, archival analysis, and historical analysis. In this chapter, the discussion of research strategy covers qualitative and quantitative strategies (Bryman and Bell 2011), and the scope of research designs is

homologous to Saunders et al.'s (2012) work about research strategies, including experimental research design, survey, action research, case study, ethnography, grounded theory, narrative research and archival research.

The key features of the qualitative and quantitative research strategies are presented in Table 6.2. On the one hand, a quantitative research strategy is frequently used to test hypotheses through the measurement and analysis of the causal relationships between variables (Denzin and Lincoln 1998, cited in Golafshani 2003). This strategy is often regarded as deductive and highly connected with numeric data (Saunders et al. 2012). Philosophically, quantitative studies are based on positivism (Bryman 1988, Bryman and Bell 2011, Burgess et al. 2006, Silverman 2010). Experiment and survey are two essential research designs that follow the quantitative approach (Ghauri and Gronhaug 2002). According to Thomas (2004), these two designs share a similar logic, which is to identify causal connections between variables by comparing the influence of the change of independent variables on dependent variables. To achieve this aim, quantitative researchers rely on hard and reliable data produced by virtue of highly structured data collection methods, such as questionnaires and structured interviews.

Table 6.2 Features of the qualitative and quantitative research strategies

Feature	Qualitative research strategy	Quantitative research strategy
Philosophy	Interpretivism	Positivism
Research approach	Mainly inductive	Mainly deductive
Role of researchers	Insider, close to subject	Outsider, distant to subject
Patterns	Unstructured	Structured
Nature of data	Rich and deep	Hard and reliable
Research designs	Action research, case study, ethnography, grounded theory, narrative research	Experimental research design, survey
Data collection methods	Semi-structured, in-depth and group interview, participant observations	Questionnaires, structured interviews and observations

Source: based on Bryman (1988), Saunders et al. (2012)

On the other hand, Denzin and Lincoln (2005, cited in Creswell 2007, p. 36) defined qualitative research as ‘a situated activity that locates the observer in the world [...] it

involves an interpretive, naturalistic approach to the world.’ The qualitative strategy is capable of generating well-founded cross-contextual generalities (Mason 2002). Unlike the quantitative strategy, which is strongly embedded in positivism, a qualitative strategy does not connect with one specific philosophy (Keleman and Rumens 2008). For example, Thomas (2004) claimed that constructionism, realism and post-structuralism are philosophies that are closely related to the qualitative strategy, whereas Creswell (2007) argued that social constructivism, pragmatism, feminism, critical theory, and queer theory cover a qualitative researcher’s worldview. Despite the lack of any specific philosophical position, Bryman and Bell (2011) claimed that interpretivism can roughly cover the qualitative strategy’s philosophical features.

Instead of using highly structured research design and data collection methods, the philosophical position of a qualitative approach requires a methodology that appreciates the richness, depth, nuance, multi-dimensionality, and complexity of the social world (Silverman 2010). Research designs that are adopted by qualitative researchers include case study, ethnography, action research, grounded theory (Saunders et al. 2012). Qualitative data collection methods include participant observation, qualitative interviewing, focus groups, and documentary analysis (Bryman and Bell 2011).

6.3 Design of this Research

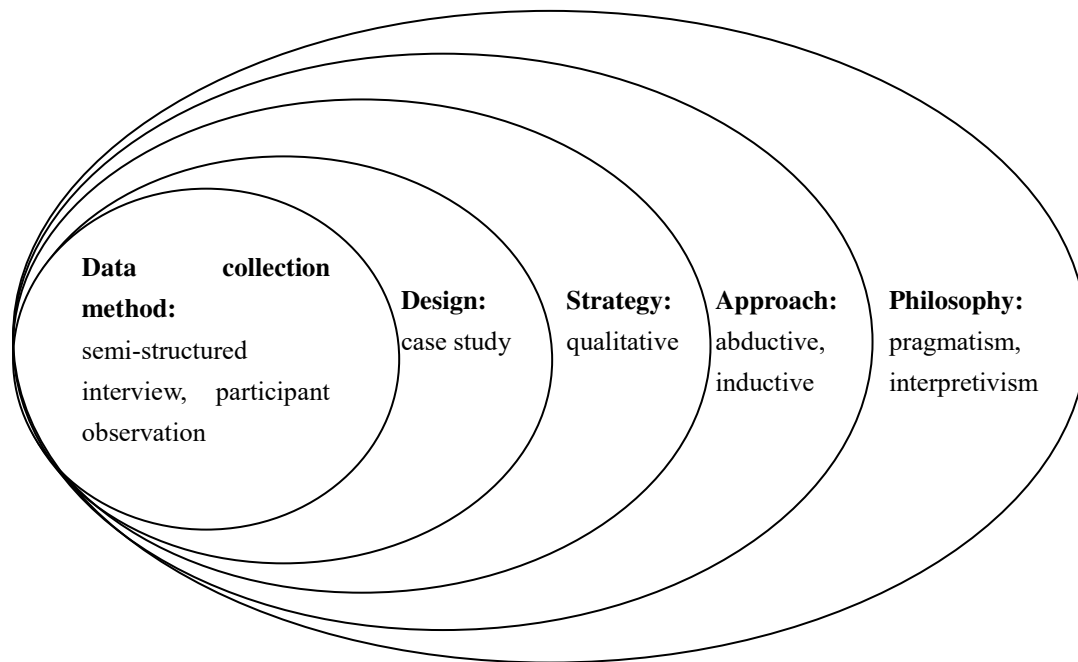
This section describes how this research was designed and why the research methods implemented for the methodology were chosen.

6.3.1 Research Philosophy and Approach

Based on Saunders et al.’s (2012) ‘onion’ research model (Figure 6.1), the methodological framework of this study is presented in Figure 6.2. Philosophically, this study accepts pragmatism and methodological pluralism. This means that the

‘practical’ criterion was used to guide the research design, and the other three research philosophies and their related methodological tools were selectively used to complete the methodological model in this thesis.

Figure 6.2 Methodological model adopted in this research

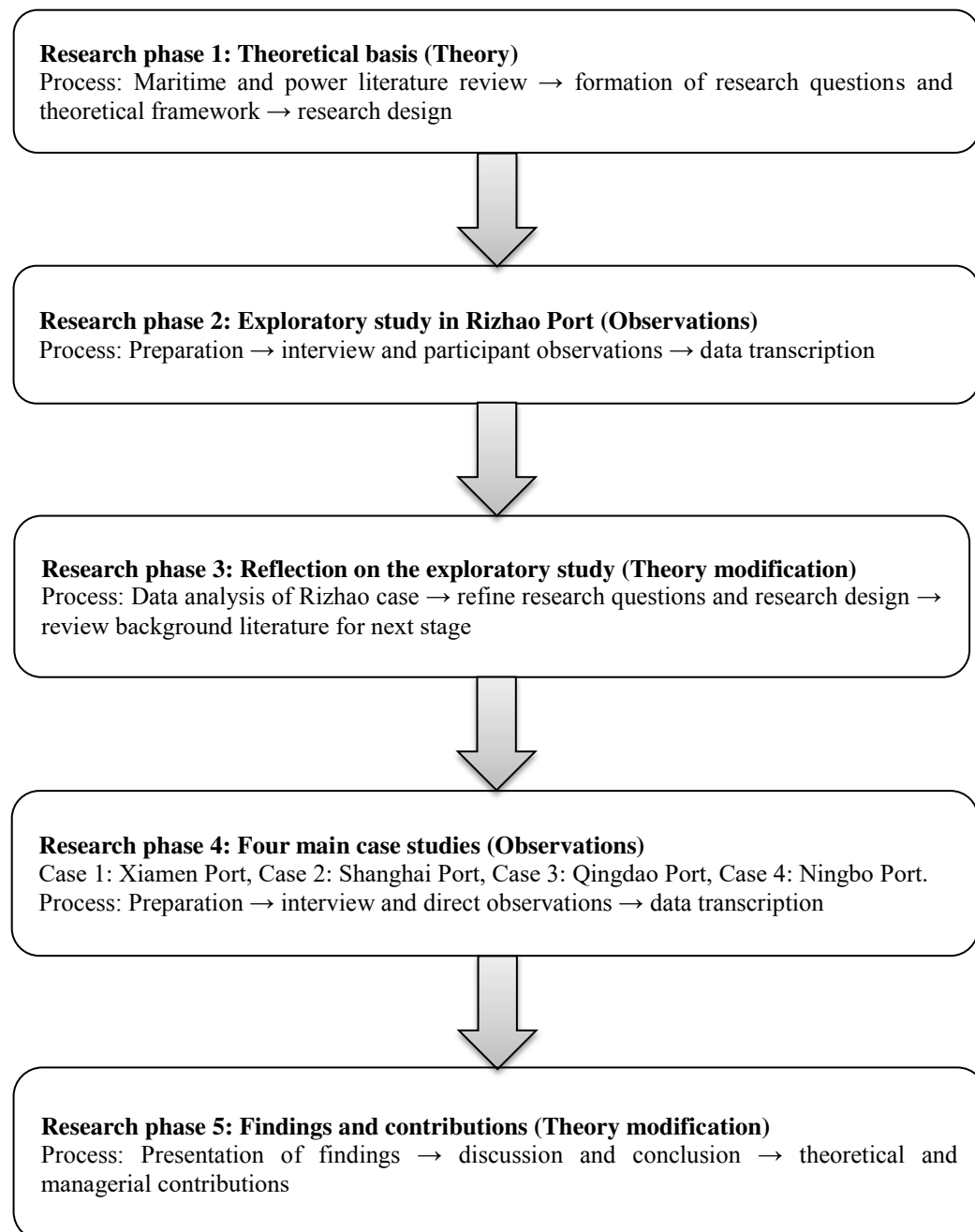


The abductive research approach was adopted in this research under the philosophy of pragmatism. The objective of the abductive research approach is to understand social reality with reference to social actors’ meaning and motives (see Section 6.2.2). This objective accords with the nature of the aim of this research, which is to describe and explore how the concept of power can be understood in port/terminal operators’ and liner shipping companies’ business relationships. Of the three research approaches, the abductive approach is the only one that is capable of achieving all of these tasks (i.e. description, exploration and understanding).

Inductivists also claim to be specialised in exploration and description. Accordingly, interpretivism and the logic of the inductive approach were also adopted in this research. The details are illustrated in Figure 6.3. This research consisted of five phases (see Figure 6.3). These phases reflect a key feature of the abductive research

approach, which involves iterative theory development. This iterative process is evident in phases 1 to 3 and 4 to 5, which represent two cycles of interplay between theory and observations. Each cycle embraces a process from observations to theory/findings.

Figure 6.3 An abductive methodological framework with inductive features



Concerns may arise about starting an abductive approach with theory rather than observations. However, this amendment is beneficial for the examination of power issues in this study. First, the finishing point of this research is theory application and

modification rather than theory generation. Thus, it is necessary to achieve a certain level of understanding about power theory before entering the field. Without a theoretical framework, a researcher faces the danger of just providing meaningless descriptions (Hartley 1994). Second, power is widely believed to be an essential factor that affects social actors' behaviours: there is no need to use observations to reconfirm power's significance in social reality. Lastly, power is a complex concept and it has been studied in a range of disciplines. Starting the research with the review of power literature helped the researcher to narrow down the research scope.

6.3.2 Why use a Qualitative Research Strategy?

The qualitative research strategy was adopted in this research. This strategy uses research methods that can encompass the richness, depth, nuance, multi-dimensionality, and complexity of the social world (Silverman 2010). Consequently, the qualitative research strategy is supported by the author's acceptance of interpretivism and selection of the inductive research approach in this thesis. In addition, the adoption of the qualitative strategy also follows the logic of pragmatism. In other words, the qualitative strategy seems to be more 'practical' than the quantitative strategy when dealing with enquiries about power.

First, quantitative research strategies have been widely used in IOP research, as reviewed in Chapter 4. Researchers have extensively used perceptual measurements to deal with power enquiries statistically (e.g. Frazier and Summers 1986, Etgar 1978, Porter 1974). The perceptual measurement relies heavily on the 'key informant' data collection methods. This contradicts the users' philosophical stance of positivism because they should not rely on social actors' 'awareness' to study the social world, which positivists believe to be independent of the human mind.

Furthermore, the key informant method has a particular drawback for the quantitative investigation of the issues of power since key informants' perceptions about the same power relationship can be diverse due to differences in their personal characteristics,

such as their organisational positions and social norms. This might be one reason why previous quantitative researches have produced different or contradictory findings regarding the same power correlation. For example, previous researchers have found that a firm's power has a positive, negative, or no effect on its use of coercive influence strategies (Kim 2000). The review of power literature in Chapter 3 has revealed that the concept of power has the feature of 'essential contestedness'. The nature of this concept is in contradiction to the quantitative strategy's aims to generate law-like findings that can be generalised to the 'universe'.

Second, the quantitative strategy relies on structured data collection methods, such as questionnaire and structured observations. These methods rule out variables that are not the focus of the research in order to test causal relationships. However, these omitted variables may also affect the dependent variable to varying degrees. Embedded in this artificial context, the precision and accuracy of the quantitative measurement process is questionable, and the test of validity also seems to be meaningless (Bryman and Bell 2011).

The concept of power is context specific. The key theories used in the IOP literature have emphasised the contextual and/or multidimensional feature of the concept of power to varying degrees (see Table 4.11). In addition, Kim (2000) argued that although the 'channel climate' is an essential variable that shapes power relationships, it is usually ruled out by quantitative researchers. The channel climate refers to a channel participant's perceptions of the operational feature of the supply chain, such as intra-organisational characteristics and interrelationships with other supply chain members (Hu and Sheu 2005). Without the consideration of this factor, power findings are ambiguous and inaccurate (Etgar 1978b, Berne 2012). Examples of the channel climate's impact on power studies include Frazier et al. (1989), Kim (2000), Provan and Gassenheimer (1994), Zhao et al. (2008), and Zhuang and Zhou (2004).

Reflecting on the methodological issue, the existence of many contextual factors that influence power research is contradictory to the quantitative researchers' mission to

generate law-like findings. To develop a perfect construct for power measurement/research with high reliability and validity, the quantitative researcher has to rule out these influential external variables to various degrees. This means that quantitative researchers sacrifice the richness of the concept of power to test causal relationships in the hope that the result can be generalised to a larger scale. However, without the consideration of the contextual factors, power findings may not be generalised at all since they may always need to be amended when each omitted contextual factor is taken into consideration. This is the reason why a qualitative strategy was adopted in this thesis.

6.3.3 Research Design: Why Use a Case Study?

Following a qualitative research strategy, the case study design is used in this research. Methodologically, there are many types of qualitative research designs, such as case study, ethnography, and grounded theory. There are no fundamental differences between these research designs in terms of their philosophical background. Research designs under the framework of a qualitative strategy are based on anti-positivism. Due to this similarity, it is not necessary to examine each type of qualitative research design. The reason for the selection of a case study research design in this research is due to the philosophical stance of pragmatism. In other words, the qualitative case study research design is suitable for answering the vested research questions.

In this research, case study is viewed as 'an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context may not be clearly evident' (Yin 2014, p. 16). A qualitative case study design differs from a quantitative research design in the sense that contextual variables are not ruled out in order to improve validity (Saunders et al. 2012). Instead, the ability to gain a rich and deep understanding of the context of the research is a key strength of a qualitative case study. Thus, for researchers who regard the research context as essential, a case study research design is relevant.

The main difference between case study and other qualitative research designs lies in the treatment of theory (Meyer 2001). A typical qualitative research design follows the process from observations to theory. Theory is thus generated from data at the later stage of the research. In contrast, case study is open to the use of theory to guide the whole research process from the formation of the research question to the presentation of the findings. This feature fits well with the research approach adopted in this study.

Case study as a research design for generating and modifying theory can provide researchers with deep insights (Gibbert et al. 2008). It has considerable advantages in terms of answering ‘what’, ‘how’, and ‘why’ research questions (Voss et al. 2002, Saunders et al. 2012). In view of the types of research questions formed in Chapter 4, the case study design is suitable for this research from a pragmatic point of view.

Overall, there are three reasons for the adoption of a case study design in this research from the perspective of pragmatism. First, a case study design can generate a rich and in-depth understanding about the context of the research. This advantage is essential for the investigation of power issues, given the context-embedded feature of this concept. Second, both inductive and abductive research approaches were adopted in this research, and the qualitative case study design is suitable for both. Third, a case study design has considerable advantages in terms of dealing with the types of research questions in this thesis.

6.3.4 Methodological Considerations of the Research Context

The contextual issue of port governance in China (see Section 5.3) has a couple of implications for the design of this research. First, the Chinese port industry has undergone several phases of reform and the port governance model is significantly different in each phase. It is thus necessary to specify the issue of time scale in this study. This study mainly focuses on the power issues between Chinese port/terminal operators and liner shipping companies after the implementation of PLC in 2004. The

reason for this methodological choice is because this milestone event triggered the latest port reform in China. The port reform after 2004 established the current port governance structure in China and it has a direct impact on the power relationships under study. Furthermore, the port governance model in China has been largely stable after 2004. This stability can improve the reliability of the research findings.

Second, the port administration model in China is not without its differences. Among the three models summarised by Qiu (2008), the generic model and the Shanghai model are quite similar, whereas the Shenzhen model is significantly different. The difference in port administration structure requires attention since it shapes the research setting and may have a great impact on the vested power issues. Among these three models, the Shenzhen model has only had a limited application in China, whereas the other two are more popular in Chinese seaports. To acquire a generalisable understanding about the concept of power in the Chinese seaport sector, Shenzhen Port was excluded, and seaports that have adopted the other two administration models were the focus of this research.

6.3.5 Designing the Case Study

This section describes how the qualitative case study was designed. Case study is a flexible research design in the sense that it can be tailored to fit different research approaches and strategies. This is both to the advantage and disadvantage of this research design because the flexibility of the case study approach has given rise to many poor research designs (Meyer 2001). To design a robust case study, a researcher needs to make a number of thoughtful choices, such as the number of cases included, sampling cases, and the unit of analysis (Yin 2014).

6.3.5.1 Single or Multiple Cases

A case study research can have single or multiple cases. Some researchers believe that the close investigation of one case is the essence of case study design (Thomas 2004).

Yin (2014) argued that a single-case study is applicable when it is a critical, unusual, common, revelatory, or longitudinal case. Even so, the single-case study is often criticised for a lack of generalisability. One way to deal with this problem is to involve more than one case in a case study design. Involving multiple cases in a study brings several advantages. Yin (2014) claimed that even two cases can increase the chance of doing a robust study. Multiple cases are often selected to predict similar or opposite results, adding either generalisability or richness to the research. Due to these advantages, a multiple-case study design was adopted in this research.

This study involves one feeder container seaport (Rizhao Port) and four hub container seaports (Qingdao Port, Shanghai Port, Ningbo Port and Xiamen Port) in China (see Figure 1.1). The original intention was to conduct a comparative multiple-case study involving two hub seaports and two feeder seaports in China. Prior to the main study, an exploratory study was conducted in Rizhao Port to familiarise the researcher with the research context, deepen the understanding of the research topic, and improve the research design, given that power has seldom been studied in the field of maritime research.

Located in Shandong province, Rizhao Port mainly serves as the feeder port of Qingdao Port in terms of the international container trade. It is the first case studied in this thesis, and involves research phases 2 and 3 in the research framework (see Figure 6.3). One major change to the research design after the exploratory study was the shift of the research focus to hub seaports in China only (see Section 7.6.2.2). Following a multiple-case study design, the sampling of the hub seaports in China is explained in the next section.

6.3.5.2 Sampling Case

The cases in the main study were sampled from the Chinese hub seaport sector. This methodological choice was made to better fulfil the research aim, which is to understand the concept of power in terminal operators' and liner shipping companies'

business relationships in the current era of maritime development.

First, the focus on the Chinese maritime marketplace is due to the increasingly important role of China in today's international seaborne trade. In particular, the seaport sector in this nation involves a number of the biggest seaports in the world (e.g. Shanghai Port, Ningbo Port and Qingdao Port) that have excellent access to the international maritime trade network enabled by the partnerships with a range of global liners (e.g. Maersk, CMA-CGM and Evergreen) (UNCTAD 2014).

The involvement of a wide spectrum of globally significant port/terminal operators and liners makes the Chinese hub seaport sector a sound research setting to understand the business relationships between the two maritime actors. In addition, Hawley (1970) argued that power is involved in every aspect of social interactions. For hub seaports in China, their large throughput volumes imply intensive business interactions and omnipresent power issues in the vested inter-organisational relationships, thus providing an ideal setting for the understanding of the concept of power.

Second, the review of IOP literature (see Section 4.6) has revealed an overlooked status of power study in developing countries and in the maritime sector. Due to the context-specific feature of the concept of power, the focus on an underdeveloped research setting (i.e. Chinese seaport sector) can generate unexpected findings and greatly contribute to the development of power theories (Kasabov 2007, Kim 2000, Stannack 1996).

The logic of sampling in a qualitative case study is purposive rather than random (Bryman and Bell 2011). Yin (2014, p. 57) argued that each case in a multiple-cases study must be carefully chosen so that 'it either (a) predicts similar results (a literal replication) or (b) predicts contrasting results but for anticipatable reasons (a theoretical replication)'. In this study, case selection first embraces the logic of literal replication. More specifically, all cases selected in the main study should be hub

seaports in nature. Studying them is expected to contribute to the research objectives by predicting similar results about the vested power issues. Following the logic of a literal replication, relevant cases for the main study were identified on the basis of the Layout Planning of National Seaports in China (Ministry of Transportation of China, 2006). This policy document categorises Chinese seaports into five geographical groups, and it also specifies their status (i.e. hub seaport or feeder seaport) and major business focus within each group. With reference to the document, the targeted case hub seaports from north to south China include Dalian Port, Tianjin Port, Qingdao Port, Shanghai Port, Ningbo Port, Xiamen Port and Guangzhou Port.

The second consideration when sampling cases among targeted seaports is the context-specific feature of the concept of power and case-level idiosyncrasies. In this study, the idiosyncrasies of seaport considered are physical location, hinterland features and level of port competition. In contrast to the sampling logic of the literal replication, these idiosyncrasies may generate different research results at the case level. The consideration of this issue in the process of case sampling is beneficial for the acquisition of an in-depth understanding of the concept of power based on the cross-case comparison of research results and port idiosyncrasies. This consideration has affected the number and geographical location of the sampled cases.

For a multiple case study design, Yin (2014) suggested that a literal replication might involve two to three cases. Followed this logic, selecting three cases out of the seven targeted seaports should be broad enough to answer vested research questions. Hence, the initial plan for case sampling was to select three hub seaports, one each from the port groups located on the coast of north China (Dalian Port, Tianjin Port and Qingdao Port), middle China (Shanghai Port and Ningbo Port) and south China (Xiamen Port and Guangzhou Port), in order to address the geographical layout and hinterland diversification of Chinese seaports and their potential impact on the research findings.

Competition has been identified as an important factor that affects the dynamics of

power (Ailawadi 2001, Berne et al. 2012, Bilotkach and Lakew 2014). This factor is particularly relevant for seaports sharing overlapped hinterland (Notteboom 2008, Woo et al. 2011). Thus, ports in proximity were considered when sampling cases. Consequently, another case was added to the case profile in addition to the three cases with different geographical features. This fourth case was selected from the targeted seaport groups located on the coast of middle China for two reasons. First, the two hub seaports in this region, Shanghai Port and Ningbo Port, were the closest pair of adjacent ports in comparison to other targeted ports in proximity. This implies that the issue of port competition are relatively more relevant to their respective power relationships with liners. Second, these two cases are not only hub seaports in the Yangtze River delta but also the national gateway ports of China. Out of seven targeted cases, they are the top two biggest seaports in terms of container throughput (China Ports Yearbook 2015). Their significant role in the national port system and outstanding volume of container throughput imply that the port/terminal operators in these two seaports are experienced at handling the business relationships with liner shipping companies and, therefore, are especially informative for answering of the research questions in this study.

After the identification of the targeted seaports, access to the case companies became a major issue. Access for qualitative business research in China is challenging, and the establishment of *guanxi* is essential (Doherty 2014). This is particularly true in this study because the key informants were expected to come from the companies with strong government background (i.e. port group corporations). This background made access to these organisations extremely difficult, especially taking into consideration the informants' senior management positions. In addition, the research topic may involve some sensitive and confidential business information (e.g. the strategy of port pricing, competition and marketing). This increases the difficulty of obtaining access.

In consideration of the issues of access, an officer from the General Administration of Customs of the PRC and a senior manager from a multinational corporation with

cargos going through a number of Chinese hub seaports were approached through the researcher’s personal network. After explaining the research aims and targeted cases, these two crucial referrers provided access to the four hub seaports that are consistent with the overall sampling logic.

An introduction of the four case seaports can be seen in Table 6.3, they are: Qingdao, the biggest container seaport in terms of throughput in northern China; Shanghai, the world’s largest container port by throughput and the national gateway seaport of China; Ningbo, a hub port within the port system of the Yangtze River delta; and Xiamen, the hub port within the port system in southeast China (Ministry of Transport of the People’s Republic of China 2006; China Ports Yearbook 2015). Each case seaport is ranked within the top 20 container seaports in the world (UNCTAD 2014), and together they accounted for about 44% of the total container throughput of the seaports in China in 2014 (China Ports Yearbook 2015).

Table 6.3 Descriptions of the case Chinese hub container ports (figures from 2014)

Ports	Throughput (million TEUs)	World ranking	Status in China’s national port system	Major container feeder ports
Xiamen Port	8.57	17	Hub port within the port system in southeast China	Fuzhou Port, Quanzhou Port, Putian Port, Zhangzhou Port
Shanghai Port	36.29	1	National gateway port, Hub port within the port system in Yangtze River delta	Nanjing Port, Nantong Port, Zhenjiang Port, Lianyungang Port,
Ningbo Port	19.45	5	Hub port within the port system in Yangtze River delta	Jiaxing Port, Wenzhou Port, Taizhou Port
Qingdao Port	16.62	8	Second biggest container port in north China, Hub port of the port system in Shandong province	Yantai Port, Weihai Port, Rizhao Port

Source: Ministry of Transport of the People’s Republic of China (2006); China Ports Yearbook (2015); UNCTAD (2015)

6.3.6 Data Collection and Analysis Methods

This section describes and justifies the data collection and analysis methods that were used in this research.

6.3.6.1 Selection of the Interview Method

The case study design in this research embraces qualitative data collection methods, including semi-structured interviews and participant/direct observations. The fundamentals of the interview as a data collection method involve ‘maintaining and generating conversations with people on a specific topic or range of topics and the interpretations which social researcher’s make of the resultant data’ (May 2011, p. 131). The term ‘qualitative interview’ is often used to refer to an interview that is semi-structured or unstructured. It relies on an informal exchange of dialogue and brings the research context into the data-collection process to ensure that the data generated are situated (Mason 2002, Bryman and Bell 2011).

Whereas both semi-structured and unstructured interviews allow the interviewer to explore emergent themes, the main difference between them lies in the degree of freedom given to the interviewees (Silverman 2010). Compared to unstructured interviews, the topics and questions in semi-structure interviews are relatively pre-determined prior to the interview being carried out (Saunders et al. 2012). Even so, the interviewees still have a high degree of freedom with regard to how to answer the questions. The reason for the formation of a certain degree of structure is to ensure the data collection process is focused on the research topic (Silverman 2010).

The aim of using interviews in this research was to gather data to answer the research questions formed based on the literature review. This means that the interview topics were largely pre-determined. Accordingly, a completely unstructured interview was unfeasible, and so the semi-structured interview with open-ended questions was adopted to collect data for both the exploratory and the main case study.

6.3.6.2 Application of the Interview Method

In terms of the exploratory study, the following three key themes were covered based on the theoretical framework established in Section 4.7: power source, power exercise, and power pattern. Each theme was investigated by virtue of a set of questions. The

formation of these questions was based on a discussion with two senior academic staff from the Logistics and Operations Management Section of Cardiff Business School and one senior manager in Rizhao Port Group. These questions formed the interview guide presented in Appendix 2.

The analysis of the exploratory study was completed before data were collected for the main study. Based on the reflection of the exploratory study, the original interview guide was further refined. First, several new questions were added to each theme based on the feedback of respondents in the exploratory study in order to deepen the understanding of these three vested power topics. Second, another major theme (i.e. power strategy) was added (see Section 7.6.1.2). The extension of research themes was intended to improve the theoretical framework that guides this research and achieve a comprehensive understanding about the concept of power in the selected research context. These two changes generated a revised interview guide, as can be seen in Appendix 3. Two versions of the interview guide were used in the main case study: one for the port/terminal operators and one for the liner shipping companies. Although the topics covered in these two versions of interview protocols were highly similar, the wording of the questions was amended according to the respondents' affiliation.

Another major methodological difference between the exploratory and the main case studies was the range of interview participants. The exploratory study focused only on the port/terminal operators' perceptions of the original research questions, whereas in the main case study both the port/terminal operators and the liner shipping companies were interviewed. This change is based on the reflection of the exploratory study and the suggestions from previous power researchers (e.g. Bigne et al. 2004, Hensher and Puckett 2008, Maloni and Benton 2000). In total, 54 interviews were conducted, 15 interviews came from the exploratory study and the remainder came from the main case study. For both interview protocols, the wording of the questions was based on the principle of brevity and clarity so that interviewees could understand the questions

and have a high degree of freedom in terms of answering them (Bryman and Bell 2011). Since some key concepts, like power and power bases, may have caused a misunderstanding, their meaning in this study was explained as the interview themes proceeded.

In addition to pre-determined questions, emerging themes were followed with appropriate questions in corresponding interviews. Some background information (e.g. the history of the seaport, operational features, and port/terminal operators' managerial structures) was also gathered during interviews to supplement the secondary data and provide a full-scale description of the research context.

6.3.6.3 Other Data Collection Methods

In addition to the semi-structured interview method, participant observation was adopted in the exploratory study; however, it was not used in the main case study. Participant observation involves a researcher's immersion in the research setting for an extended period in order to understand the life and symbolic world of the people being researched (Blaikie 2010, Bryman and Bell 2011, Saunders et al. 2012). Yin (2014) argued that participant observers have the chance to learn the social world from the perspective of 'insiders'. Thus, their understanding of a case study phenomenon tends to be more accurate.

The adoption of participant observation in the exploratory study is beneficial for the whole study. Since the exploratory study is the first interactive cycle between theory and observations (Figure 6.3), it has a profound implication for the following phases of this research. The deeper the insights gained from this stage of the research, the firmer the ground that can be laid for the main case study. In view of this concern and the methodological strength of participant observation, this data collection method was adopted.

However, participant observation also has some disadvantages. In particular, it is quite time-consuming and costly if the research settings are physically dispersed (Yin 2014).

Consequently, this data collection method was not used in the main case study. Even so, direct observation was adopted as a source of data in the main case study. Since all of the interviews with port/terminal operators took place at port sites, the researcher had the opportunity to observe the port operations directly in all cases. These observations provided additional information about the research topic and the research context.

Documentary data were also collected throughout the data collection process. This type of data mainly came from various kinds of documents, including internal journals, newsletters, books, promotional handbooks, company reports, operational records, and work summaries. Overall, a summary of the data collection can be seen in Table 6.4. As can be seen in the table, semi-structured interviews, participant observation, direct observation, and documentation were the main sources of evidence in this embedded multiple-case study design. Further details about the data collection are presented in Sections 7.3 and 8.3.

Table 6.4 Summary of data collection

Case	Interview summary		Other data sources	Field work time (2014)
	Total No.	Party involved (No. of interview conducted)		
Rizhao Port	15	Rizhao Port Group (12), one terminal operating company (3)	Participant observation, documentation	January
Xiamen Port	9	One terminal operating company (7), one shipping company (2)	Direct observation, documentation	April
Shanghai Port	11	Two terminal operating companies (6), Shanghai Port Group (2), three shipping companies (3)	Direct observation, documentation	May
Qingdao Port	12	Two terminal operating companies (9), three shipping companies (3)	Direct observation, documentation	June
Ningbo Port	7	One terminal operating company (2), Ningbo Port Group (3), two shipping companies (2).	Direct observation, documentation	July
Total	54	Seven terminal operators and eight liner shipping companies		

6.3.6.4 Ethical Issues

‘Ethical issues are present in any kind of research’ (Orb et al. 2000, p 93). The process of research creates tension between the aims of research to make contribution to the benefit of others and the concern of participants to maintain privacy (Orb et al. 2000). Thus, ensuring the ethical quality is a common issue facing researchers (Haggerty 2004). In qualitative research, two important dimensions of ethics should be carefully considered: procedural ethics, which is concerned with getting approval from a relevant ethics committee to conduct research, and everyday ethical issues, which arise while doing research (Guillemin and Gillam 2004). For both dimensions, the understanding of the general ethical issues is critical. In terms of business research, these issues may include the avoidance of harm, privacy, voluntary participation, confidentiality and anonymity, right to withdraw and safety (Saunders et al. 2012). On the basis of this understanding, researchers may identify relevant ethical issues to their researches by evaluating the potential hazards raised by the research process (Jamrozik 2004).

In this research, Cardiff Business School’s ethical procedure for doing empirical research was followed during the research design and data collection process. Before entering the field, the ethical approval forms (Appendix 4) was completed on the basis of the evaluation of the research design and the general ethical issues suggested by Saunders et al. (2012). This form was then submitted to the Cardiff Business School Research Ethics Committee for approval.

Consideration of the consent to participate is critical for the ethical quality of a research project (Lewis 2003). To address this issue, a consent form (Appendix 5) was made and enclosed in the application files for ethical approval. The form was later used in the field study to ensure that the research participants are given sufficient information about the research project (e.g. the aims and implications of the research, the requirement of participating, and the method of data analysis and storage), that they have the opportunity to ask questions and are given the right to freely withdraw

from the study at any time (Saunders et al. 2012).

Preserving the participants' anonymity and confidentiality is a key issue in this research. Anonymity means that the identity of participants is not known to a third party outside the research team (Lewis 2003). Although all of the participants have agreed to reveal their contribution to the research, the main case studies include some sensitive information about the port/terminal operators' use of power and strategies to improve their power positions. Therefore, in order to protect respondents, the use of the respondents' names is strictly prohibited.

The issue of confidentiality requires that participants are not attributed, either directly or indirectly, by reference to revealed research data that might identify an individual (Lewis 2003). In this research, contextual information that may give rise to a confidentiality problem include the names of the participants' working seaports, working companies/departments (intra-port terminal operating company or local branch of the liner shipping company), and working positions. Among this information, the names of the case seaports and the participants' working positions were revealed in order to offer the readers sufficient information about the research setting and the interviewees, whereas details about their working companies/departments are not provided so that only the researcher can trace the revealed research data back to an individual participant. To facilitate the presentation of the research findings in the main case study, each participant is given a code. For example, [SH 1] means interviewee number 1 in the case of Shanghai Port.

6.3.6.5 Data Analysis

In terms of data analysis, Blaikie (2010) argued that qualitative data analysis methods differ in two major aspects. The first one is 'the extent to which researchers remain close to the language, the concepts and meanings of the social actors rather than imposing their own concepts and categories on lay accounts', while the second one is whether a researcher pursues a pure description of the evidence or focuses more on

theory development (Blaikie 2010, p. 212). Recognising that there is no exclusively clear data analysis method for the abductive research approach, Blaikie (2010) suggested that an abductivist should develop theory from lay languages based on description. This suggestion was adopted in this research to guide data analysis and presentation.

Data analysis starts simultaneously with the collection of data. The gathered data were firstly documented and they were then analysed in detail within each case. The data analysis method used in this thesis is content analysis, and the unit of analysis is the whole data set. Coding is a central activity in content analysis. This activity is applied to primary data to facilitate data description and analysis. Bryman and Bell's (2011) guidelines concerning the steps and considerations in coding were followed, which include coding as soon as possible, reading through the initial transcripts, doing it again, reviewing the codes, considering more general theoretical ideas in relation to codes and data, considering if the data can be coded another way, and keeping coding in perspective.

Thematic coding (template analysis) was adopted to assist the coding process. This method generates a list of codes to facilitate the analysis of qualitative data set (Waring and Wainwright 2008). Based on the theoretical framework developed in Section 4.7.4, the overarching themes in the exploratory study were power source, power pattern, and power exercise. Whereas these themes remained important in the main study, a new theme (i.e. power strategy) was added. This amendment was based on the finding from the exploratory study and it was supported by the coding process suggested by King (1998).

The coding process started by reading the whole transcript line-by-line and marking possible codes. This process helped the researcher familiarise himself with the content of the data and to gather the components for a possible coding system. The transcript was read several times in order to ensure that all of the possible codes and themes were marked. During this process, some higher-order categories emerged, which

made it possible to cluster codes and generate a hierarchy of categories. The transcript was then examined again to double check for the accuracy of the content of different levels of categories. Based on the established coding system, the research findings were structured and reported. When reporting the results, multiple sources of evidence (e.g. direct quotations and documentary materials) were used to improve the validity of the research, and summary figures and tables were formed to synthesise the findings and facilitate cross-case comparison.

The unit of analysis in a case study usually refers to whether a case study is holistic or embedded. Whereas the holistic case study design is concerned with the researched entity as a whole, the embedded case study design also focuses on its subunits (Meyer 2001, Saunders et al. 2012). In this study, an embedded case study design was adopted. This research explores the issues of power in the context of Chinese seaports. While there are many organisations involved in a port community, two primary actors are focused on, namely: port/terminal operators and liner shipping companies operating on international trade lanes. These two parties form the unit of analysis in this thesis.

6.4 Possible Criticism and Remedy

This section discusses how research quality is ensured through the consideration of possible criticisms of the methodological choices in this thesis. This discussion focuses on the choice of a qualitative research strategy and a case study design. In general, there are mainly three criticisms of the qualitative research approach: internal validity, external validity, and reliability.

The first criticism, internal validity, generally refers to the truthfulness of the research results (Saunders et al. 2012). In particular, the qualitative approach is accused of being too subjective to reflect the reality because qualitative findings tend to be influenced by researchers' personal views and their involvement in the research setting (Bryman and Bell 2011). However, Silverman (2011) argued that a qualitative researcher does not need be too defensive about this issue because the quantitative

approach suffers from the same problem when researchers analyse and present their data qualitatively. In addition, Coffey (1999) claimed that the qualitative researcher does not have to be a 'fly on the wall' in order to maintain the objectiveness of the study because he or she is implicitly part of the research context. Consequently, the researchers' involvement in the research process can be seen as an advantage of qualitative studies in terms of reflecting reality.

The second criticism of qualitative research lies in the problem of generalisability or external validity because it usually focuses on several cases or a small number of samples, which means that it is not capable to generate law-like findings (Bryman and Bell 2011). However, this argument seems to be unconvincing because previous researchers have already demonstrated that the generalisation of theory from even one case is possible (Thomas 2004). Even though theory cannot be generalised from several case studies, the cases themselves could be complex, unusual, and interesting enough, thereby providing useful findings (Flyvbjerg 2011).

Finally, quantitative researchers argue that the unstructured nature of qualitative research methods often makes the related research difficult to replicate, thus leading to a lack of reliability (Bryman and Bell 2011). Saunders et al. (2012) claimed that the exploration of the complex social world requires a qualitative research strategy to be non-standardised and flexible. Forcing qualitative research methods to be replicable undermines the advantage of a qualitative research strategy. Golafshani (2003) agreed with this argument and further argued that the three criteria that are used to evaluate qualitative research—that is, internal validity, external validity, and reliability—are inappropriate because they are developed from a positivist perspective, which is in conflict with the philosophical position of the qualitative researchers.

The quality of a case study design is also subject to the criterion of construct validity. Construct validity refers to the quality of the operational measures for the concepts being researched (Yin 2014). It is mostly related to the data collection process and it is concerned with the extent to which this process generates an accurate observation of

reality (Meyer 2001).

Regardless of the appropriateness of using these criteria (i.e. internal validity, external validity, reliability, and construct validity) to judge the quality of a qualitative case study, a pragmatist needs to have an open mind about these criteria. Thus, these four criteria have all been taken into consideration in this case study design. Based on Yin's (2014) suggestions, the case study tactics that are adopted in this research in order to cope with these issues can be seen in Table 6.5.

Table 6.5 Case study tactics used in this study

Criteria	Tactic adopted in this thesis based on Yin (2014)
Construct validity	<ul style="list-style-type: none"> ● Multiple sources of evidence are used in this study. ● The chain of evidence is established based on quotations from informants and cross-case comparison. ● For each case study, multiple informants were approached. ● Interviewees were asked to evaluate research questions and give feedback in the exploratory study.
Internal validity	<ul style="list-style-type: none"> ● Pattern matching is adopted in cross-case analysis. ● Contradicting results in data analysis are provided with proper explanation.
External validity	<ul style="list-style-type: none"> ● Replication logic is used in the main case study. ● Practitioners from a high managerial level were consulted concerning the population of interest.
reliability	<ul style="list-style-type: none"> ● Interview protocol was used in all cases. ● Interview protocol was reviewed by senior academic staff and practitioners in the seaport industry and revised based on the exploratory study. ● A database for all the case study data was established.

6.5 Summary

This chapter has addressed the methodological issues and justified the methodological choices made in this thesis. Based on the examination of the procedure for the research design, an onion model was adopted to guide the design of this research. The following five layers of the model were focused on: research philosophy, research approach, research strategy, research design, and data collection method. The available methodological choices in these layers have been addressed and examined in detail.

The design of this research embraces pragmatism and interpretivism. In accordance with this philosophical position, other methodological choices are based mainly on the criterion of available options' practicability to fulfil the research purposes of this study and their ability to appreciate the richness, depth, and complexity of the social reality. Guided by these two criteria, this study follows an abductive approach and employs an embedded multi-cases study design under the framework of a qualitative research strategy. The main sources of data in this research are semi-structured interviews, participant observation, direct observation, and documentation. To ensure the quality of this research, possible criticisms of these methodological choices have been considered, mainly from four aspects: construct validity, internal validity, external validity, and reliability. Based on this understanding, the next chapter presents and discusses the findings about the exploratory study in Rizhao Port.

Chapter 7 Exploratory Study

7.1 Chapter Overview

This chapter opens the discussion of the findings from the field research. Based on the research gaps identified in Chapter 4, three initial research questions have been generated:

ORQ 1: What are the sources of port/terminal operators' power in relation to liner shipping companies?

ORQ 2: How do port/terminal operators perceive their power patterns in relation to liner shipping companies?

ORQ3: How do port/terminal operators use their power to exercise control in relation to liner shipping companies?

To answer these questions, an empirical approach with field investigation was followed. However, considering the overlooked status of power study in the maritime industry, it was decided that a direct investigation of the proposed power issues would be potentially problematic. Therefore, an exploratory study was carried out on Rizhao Port. This arrangement had three advantages. First, this exploratory study helped refine the research design and improve the theoretical framework. Secondly, it was beneficial for the development of a holistic understanding of the daily operation and management of a Chinese seaport. Third, it helped the researcher to become familiar with the vested business relationships under which the power enquiry was explored.

The rest of this chapter is structured as follows. Section 7.2 introduces the research context of this exploratory study. Section 7.3 describes the data collection methods used in this chapter as a complement to the methodology chapter. Sections 7.4 and 7.5 present and discuss the research findings, respectively. This is followed by an examination of the implications of this exploratory study in Section 7.6. The last

section summaries this chapter and finalises the research questions for the main study.

7.2 Research Context of this Exploratory Study

This section introduces the research context of this exploratory study.

7.2.1 Overview of Rizhao Port

Rizhao Port is a deep-water seaport located in Shandong Province, East China. It consists of two port areas, namely: Shijiu and Lanshan. The main types of cargo going through Rizhao Port are bulk cargoes (e.g. ore, coal, and oil products). In comparison, the size of Rizhao Port's container business is relatively small. Currently, there are 48 berths in Rizhao Port, and only four of them are container berths (Rizhao Port Group Official Website 2014). Even so, in 2013, Rizhao Port was ranked as the twelfth biggest container seaport in China in terms of throughput (see Table 7.1).

Table 7.1 Throughput of China's coastal ports over 1 million TEUs (based on figures from 2013)

Rank	Port	Throughput (million TEUs)	Rank	Port	Throughput (million TEUs)
1	Shanghai Port	33.62	10	Yingkou Port	6.3
2	Shenzhen Port	23.27	11	Yantai Port	2.15
3	Ningbo Port	17.35	12	Rizhao Port	2.02
4	Guangzhou Port	16.5	13	Fuzhou Port	1.97
5	Tianjin Port	13	14	Humen Port	1.98
6	Qingdao Port	11.52	15	Quanzhou Port	1.7
7	Dalian Port	10.01	16	Dandong Port	1.5
8	Xiamen Port	8	17	Shantou Port	1.28
9	Lianyungang Port	6.48	18	Haikou Port	1.17

Source: adapted from China Ports Yearbook (2014)

Table 7.2 presents key aspects of Rizhao Port's container business in 2014. With a designed annual handling capacity of over 2 million TEUs, four container berths in the port have a quay length of 1410 metres and the area of container yards is over 6 million square metres. Furthermore, Rizhao Port has over 30 container trade routes, most of which are domestic.

Table 7.2 Container business in Rizhao port

No. of Berths	4	Container yard	0.6 million m ²
Berth Length	1410 m	No. of trade routes	About 30
Draft	17 m	Number of liner operators	15
Design capacity	> 2 million TEUs		

Source: based on the internal brochure published by Rizhao Port Group (2014)

At the time that this research was conducted, Rizhao Port was directly serving international container business to only one trade route, which was the Rizhao-Pyeongtaek (Korean) route. The vessels on this route were operated by the Rizhao Port Group using a passenger-container ship. Due to a technical update of the vessel, at the time of the research this trade route had been shut down. Even so, the port has participated in international liner trade via feeder routes. The routes connect Rizhao Port with a number of hub seaports in China, such as Qingdao Port, Liangyungang Port, and Xiamen Port. According to China's national port layout (Ministry of Transportation of China 2006), Rizhao Port should operate mainly as a feeder port of Qingdao Port in terms of the international container trade.

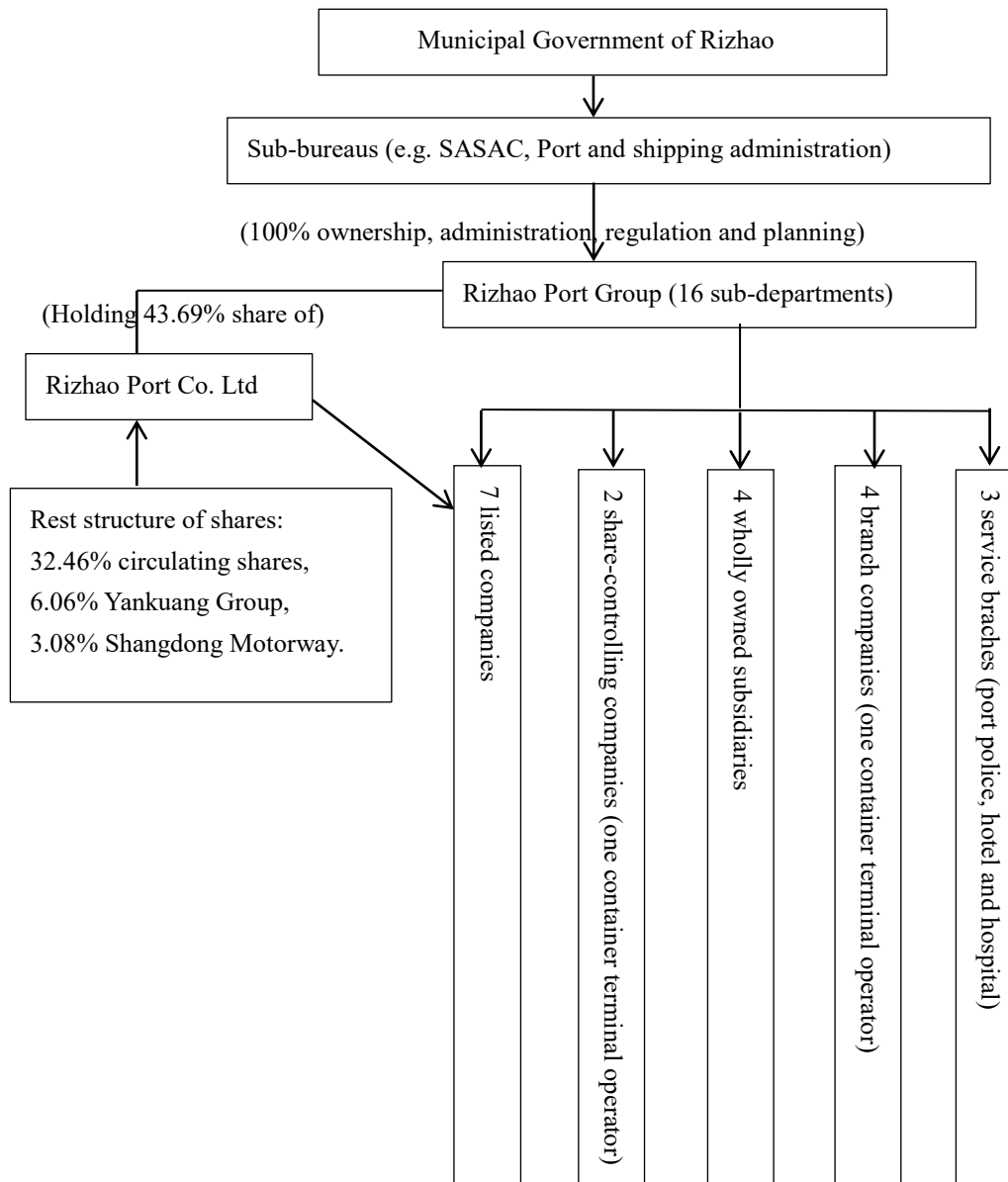
7.2.2 Port Management Structure in Rizhao Port

The management structure of Rizhao Port generally accords with Qiu's (2008) generic model of port governance. As can be seen in Figure 7.1, Rizhao is a municipal port that is owned, regulated, planned, and administrated by Rizhao government and its sub-bureaus, including SASAC and the Bureau of Port and Shipping Administration. As a state-owned corporation, the Rizhao Port Group was established in 2003 to systemically operate and manage the port. This corporation inherited all of the assets and business from the previous port authority after the port reform triggered by the adoption of the PLC in 2003.

There are 16 departments at the top managerial level of the port group, including the production and operation department, investment and development department, human resource department, and security department. Under the supervision of these departments, a total of 20 affiliates and subsidiaries have been established. They carry

out a wide range of business activities, including terminal operation, storage, yard operation, port construction, policing, tugging and barging, property management, fuel and power supply, inner-port rail operation, good tally, and even the health care and hotel business.

Figure 7.1 Organisational structure of Rizhao Port



Source: Adapted from the Rizhao Port Group Official Website (2014)

Nine companies in Rizhao Port Group are in charge of terminal operations, two out of which carry out container handling business. They are Kexiang Container Terminal Company (KXCTC) and Rizhao Qingdao Container Terminal Company (RQCTC). Each company has two berths and is able to accommodate fifth-generation container

ships. Whereas KXCTC is a branch company of the Rizhao Port Group, RQCTC is jointly owned by the Rizhao Port Group and the Qingdao Port Group, with each party holding half of the shares. However, the daily management is largely controlled by managers from the Qingdao Port Group. The services provided by these two companies are similar, which include container handling, storage, warehousing, consolidation, and deconsolidation. With regard to international container business, KXCTC serves the Rizhao-Pyeongtaek line and both terminals accommodate a number of feeder lines to hub seaports in China.

7.3 Data Collection

The exploratory study was carried out in Rizhao in January 2014. Participant observation and face-to-face semi-structured interview were adopted as the main data collection methods. The Rizhao Port Group is a huge company with more than 8,000 employees. Hence, at the beginning of the study, the key issue was to decide who and which department needed to be approached for relevant information with regard to the vested research questions. To solve this problem, initial contact was made with the manager of the department of project construction. After an introduction of the research objectives and research questions, the informant suggested that managers and directors from the department of production and operation, and its sub-sections should be the key informants. In addition, container terminal operators in the port group were also targeted as an essential data source.

Fifteen interviews were conducted at the respondents' places of work during office hours, and each lasted 40 minutes on average. All of the interviews were recorded, transcribed, and double-checked for accuracy. The profile of the respondents can be seen in Table 7.3. This exploratory study involved 15 highly experienced interviewees with an average of 18 years' working experience, which consisted of: three senior managers from three departments of the port group (the department of investment and development, the department of production and operation, and the department of

project construction); three business managers from one container terminal operating company (TOX) of Rizhao Port; and, seven (deputy) directors and two senior staff members from three sub-sections (operation section, container section and production section) of the department of production and operation of the port group.

Table 7.3 Profile of respondents in the exploratory study

Position	Frequency	Percentage	Average Working Age (Years)
Senior manager	3	20	26
Manager/director	10	67	17
Senior staff	2	13	10
Total	15	100	18 (weighted average)

The interview strategy adopted in this exploratory study was semi-structured interviews with open-ended questions. The following three key themes were covered: the patterns, sources, and exercise of the case port/terminal operator's power in relation to liner shipping companies who are involved in international trade. Pre-determined questions for each theme were used to guide the interview. The details of the interview protocol can be seen in Appendix 2. At the end of each interview, the interviewees' suggestions about untouched power issues and improvements for the research design were consulted. The details of the analysis of the data have been provided in Section 6.3.6.5.

In addition to the interview strategy, participant observation and documents were also essential sources of data in this exploratory study. Collected data included internal journals, promotional handbooks, a book edited by the port group, and internal operational documents. All of the available publications were browsed for content that might contribute to this research, and any relevant content was then photographed as a record of the data. In addition, pictures were taken at port sites, including container docks, container yards, and consolidation and deconsolidation depots, in order to record the container operations of Rizhao Port.

7.4 Findings

This section presents the findings from the fieldwork in Rizhao Port.

7.4.1 Patterns of Power in Rizhao Port

Port/terminal operators and liner shipping companies are adjacent actors in the international seaborne logistics chain. They work closely to provide maritime transportation services to shippers. Information gathered from the fieldwork indicated a close business relationship between the port/terminal operator of Rizhao Port and liner shipping companies. From a power dependence point of view, all of the respondents felt that these two parties under study were highly dependent on each other. As one business manager of TOX in Rizhao Port commented,

The need for each other is the most important. One needs the other, and they form a business relationship. Without this interdependence, everything is void.

The interdependent business relationship means that the power between these two parties is largely equal, given $P_{ab}=D_{ba}$ (see Table 4.8 and Section 3.3.1 for further information). This idea was implied by several respondents, who felt that neither their company nor liner shipping companies were capable of controlling each other.

It is very difficult for any party to control another. They are looking for a balanced point. (One director from the department of production and operation)

In contrast to the identified interdependence power pattern, not all of the respondents agreed with the power balance between the port/terminal operator of Rizhao Port and liner shipping companies. Three of the interviewees thought that the power asymmetry was overt and they believed that the liners were more powerful. This is mainly because liner operators have a number of alternatives other than calling at Rizhao Port.

As one director from the department of production and operation pointed out,

Liner shipping is like any another scheduled business. They [i.e. liner shipping companies] may decide to withdraw from the market and choose to call at another port. When they plan their port call, they do not care about the port's opinion.

This explanation is not surprising since the availability of alternatives is a key indicator of powerfulness, as suggested by the power dependence approach, and liner operators have been widely regarded by maritime researchers as footloose.

7.4.2 Sources of the Port/terminal Operator's Power

7.4.2.1 Power-related Resources

Based on the implications of the three key approaches towards the conceptualisation of IOP (see Section 4.7.1), the sources of a supply chain actor's power mainly derives from their resources. In the case of Rizhao Port, the respondents talked about power-related resources from several aspects, such as hinterland resources, physical resources, and service-related resources.

Rizhao Port is mainly a feeder port in China's international container seaport network. Although the port group is keen to attract top-ranking liner operators and expand its services coverage to major international trade lanes, international transshipment operations and trunk route liners were rarely witnessed in the container market of Rizhao Port. In practice, the container business in Rizhao Port relies heavily on the primary hinterland of the port. When discussing the sources of the port/terminal operator's power, all of the respondents recognised the importance of the hinterland to varying degrees. As one department manager from the Rizhao Port Group said,

The economic coverage of a port determines the volume of cargoes. [...] Cargo volume is an attraction to liners and determines how powerful this port is in the

whole logistics chain.

In addition to container flows, the respondents also regarded the collection and distribution system as an essential feature of Rizhao Port's hinterland resources. Rizhao Port is well connected to the national rail and road transportation network. The reliability of the port's inland transportation system has expanded its hinterland to central and west China.

Another source of the port/terminal operators' power is related to the port's physical resources. In addition to basic port facilities (e.g. quay cranes, container yards, and berth capacity), respondents emphasised two key resources of Rizhao Port: the hydrological features and the port group's own railway infrastructure. For the first resource, a deputy director of the department of production and operations commented,

Rizhao is well known as the best place to build port in north China. In south China, the best place is Ningbo.

In terms of the second aspect, Rizhao Port Group had a total length of 130km intra-port railway infrastructure in its two port areas. This infrastructure is owned by the port group and is under the direct operation, maintenance, and management of its subsidiary companies.

Lastly, the function of the seaport is increasingly diverse in today's supply chains. In addition to the traditional container-handling activities, the Rizhao Port group has attempted to expand its service coverage for both liners and shippers. The findings from the interviews show that the ability to provide diverse port services, such as consolidation and deconsolidation, financial services (e.g. impawning supervision and loans), information services (e.g. cargo tracking), and bonded function, were also perceived by respondents as power-related resources in relation to liner shipping companies. In terms of this issue, the 'guanxi' with customs, Entry-Exit Inspection and Quarantine Bureau (EEIQB), and the national railway operator was identified as

one aspect of the port resource. This factor matters because the port/terminal operator, as a state-owned company, can help shippers and liners smooth the import/export procedure with regard to the local branches of these government organisations. Thus, these port users would prefer Rizhao Port to its competitors.

7.4.2.2 Environmental Factors Contributing to the Source of Power

The resources of Rizhao Port are theoretically the fundamental source of the port/terminal operator's power and one key determinant of its power patterns with regard to the liner shipping companies, as illustrated in the original theoretical framework (see Figure 4.5). However, the fieldwork in Rizhao Port revealed several factors that affect the vested power patterns. These 'environmental factors' include the availability of alternatives and switching difficulty, liners' container volume contribution, and the port management structure.

The first factor that influences the vested power patterns is related to the availability of alternatives and switching difficulty. On the one hand, the core service provided by the port/terminal operator for liner shipping companies is cargo handling. One deputy director from the department of production and operation commented that seaports were highly substitutive and liners thus have plenty of alternative port choice other than Rizhao Port.

On the other hand, there is a variation in the market condition of port services in terms of the balance between demand and supplier in different phases of port development. Whereas the demand for maritime transportation services is volatile and unpredictable, the addition of port capacity and the supply of the shipping service respond slowly to market changes (Christiansen et al. 2007, Ng and Liu 2014). When the market condition favours the port/terminal operator, it has more power since liner operators are less motivated to switch to other seaports, while in a market recession the liner shipping companies may seek for other ports of call, leaving the port/terminal operator in a power-disadvantageous position:

It [i.e. power pattern] depends on whether it is a seller's market or a buyer's market. If the terminal operator does not have enough to eat, liner companies are in charge, and vice versa. (One business manager of TOX in Rizhao Port)

Second, the contribution made by the liner companies to the port/terminal operator's throughput or profit was also identified as an important factor that affects the patterns of power between the two maritime actors. In the case of Rizhao Port, this factor was used by the port/terminal operator to evaluate the size of their liner customers. In relation to this operator, big carriers are less substitutive and thus have more power in comparison with those that have a smaller volume of container business with the Rizhao Port Group. As one deputy director from the department of production and operation commented,

If COSCO left us, nobody could replace it in Rizhao Port. If a small company left, there would be a number of substitutes. [...] Those [liner shipping companies] with more cargos have more influence and power. When we make operational policy, we need to consider them more.

The last factor is the structure of port management. In the case the seaport, this factor has greatly weakened the power of the port/terminal operator in Rizhao Port. The reason for this can be seen in the interesting cooperation between Rizhao Port and Qingdao Port. Specifically, these two port groups formed a joint-ventured terminal operating company (i.e. RQCTC) in the Port of Rizhao in 2007. Although the Rizhao Port Group and the Qingdao Port Group each has half of the shares in RQCTC, the management of the company is mainly controlled by staff from Qingdao Port Group. Therefore, the establishment of this company has weakened the case port/terminal operator's ability to control its terminal handling business. Furthermore, the Qingdao Port Group deliberately operates and develops Rizhao Port as a feeder port for Qingdao. This business practice is in conflict with the interest of the Rizhao Port Group who wants to develop its own trunk-routes business, as described in the following comment:

Regarding our cooperation with Qingdao, it is not our will, nor even the will of Rizhao government; it comes from a higher provincial level. These two cities cannot make this happen. It is not pure cooperation. [...] We want to develop our own trunk routes. [...] The motivation for Qingdao port is to undermine competitors. Through the provincial government, they invest and take over the managerial authority. Then they choose not to develop it, or they curb its development. It is for their benefit. (One deputy director from the department of production and operation)

The conflict between these two port groups is an openly discussed issue in Rizhao Port. Two interviewees from the case company said that this issue had motivated the Rizhao Port Group to establish a wholly-owned terminal operating company (KXCTC) in 2011 in order to compete with RQCTC for handling services and to recover the autonomy of the development of terminal services. Even so, RQCTC still controlled the majority of the container handling businesses in Rizhao Port. According to figures in 2012, this terminal operator handled 1.45 million TEUs, accounting for 83% of the annual container throughput of Rizhao Port (based on data collected from the exhibition centre of Rizhao Port and figures from China Ports Yearbook 2012). The management structure of the terminal operators in the case seaport has led to strong intra-port competition. Consequently, Rizhao Port Group is less capable of controlling any terminal handling business conducted in the port. This further weakens the port/terminal operator's ability to influence the liner shipping companies.

7.4.3 Exercise of the Port/terminal Operator's Power

In general, the operator of Rizhao Port has used its power in two main decision areas: port operations and port pricing. All of the interviewees in the case company claimed that the port/terminal operator's power exercise over these aspects was mainly positive since it relied heavily on the reward power base. The degree of reward is contingent on the contribution made by the liner shipping companies to the port's

throughput and on the reliability of the *guanxi* between these two parties. Accordingly, liner operators who bring a relatively large amount of containers to the port would receive preferential treatment in terms of port operations. This is evidenced in the following quotations:

If you [i.e. the liners] have done well, we can offer you direct berthing without waiting, like the boarding of first class passengers in airline transport. Or, for example, the average waiting time is 20 minutes; I can sign a contract and guarantee you 10 minutes. [...] We have a reward policy. If you bring us a certain amount of cargo, we can offer you a discount or money back. (One deputy director from the department of production and operation)

*For some companies' [those with good *guanxi*] containers, we can distribute them as a priority to make sure they reach the customers faster.* (One business manager of TOX in Rizhao Port)

Price differentiation is a key method for the Rizhao Port Group to exercise control in relation to liners. In the decision area of port pricing, liners with more containers going through the port can get a lower price for handling services. Based on the regulated port charges by the Ministry of Transportation of China, Rizhao Port Group offers differentiated rewards (i.e. price discount) to liner shipping companies according to their business volume. In the case company, the actual charge for port services was often below the regulated rate. This implies that the port/terminal operator lacks the ability to exercise influence in the decision area of port pricing.

7.5 Discussion

This section discusses the findings from the fieldwork in Rizhao Port.

7.5.1 Power Patterns

Evidence from the fieldwork shed new light on the power relationships between the

port/terminal operator in China and liner shipping companies. The port industry and liner shipping industry are highly interdependent since these two transportation sectors have no available alternatives at the inter-sector level. At the inter-organisational level, the interdependence between port/terminal operators and liner shipping companies increase further once the supplier-buyer relationship is established.

Based on the power-dependence discourse of power, the power pattern of interdependence between the case port/terminal operator and its liner customers indicates that their power in relation to each other is significant and relatively balanced (Emerson 1962, Cox et al. 2002). However, some of the respondents in the case company perceived that liners were the more powerful party. This means that the power patterns in the inter-organisational domain can be multidimensional and the existence of high interdependence does not mean that the power relationship is absolutely balanced.

7.5.2 Power Sources

Based on the theoretical framework established in Chapter 4, the pattern of power between supply chain actors is essentially determined by their power sources, and the possession of resources is regarded as the ultimate source of power (Scheer and Stern 1992). For a container seaport, its resources may include harbour and cargo handling equipment, transportation and storage capacity, dredged channels and quays, human resources, and information systems (Marlow and Paixao 2003, Lee et al. 2003). In the Port of Rizhao, resources that grant the port/terminal operator power are categorised into three groups: hinterland resources, physical resources, and (outreach) service-related resources. While the latter two types of port resources are easy to understand, the hinterland resource is not covered in the traditional classification of container port resources.

As a feeder port, the cargo flows going through Rizhao Port mainly come from its

hinterland. The perception of a port hinterland as one element of the port/terminal operator's power-related resources can be explained by the idea of 'derived demand'. From this point of view, the demand for marine service is triggered by the demand for transported cargo. Since the cargo tends to be economically tied to a specific seaport's hinterland, the cargo flows can, to some extent, be regarded as the 'asset' of a seaport. This asset helps the port/terminal operator attract liner operators.

Power-related resource was also found to bear some contextual characteristics in this exploratory study. The issue of *guanxi* potentially forms one important element of a firm's resources in China (see Section 5.2.2.1). Based on the field work in Rizhao Port, *guanxi* was found to be related to the service quality of the case port group. A good *guanxi* with customs, EEIQB, and the national railway operator can improve the case seaport's ability to offer 'convenience' to shippers and attract liners.

In addition to the power-related resources, there are several factors in the case seaport that shapes the vested power relationships. These factors include the availability of alternatives and switching difficulty, port management structure and liner shipping companies' container volume contribution (i.e. sales and profit contribution). In addition to the relevant evidence reported in this chapter, these factors have also been identified in previous IOP literature as crucial to the configuration of a power relationship (see e.g. El-Ansary and Stern 1972, Kale 1986, Frazier et al. 1989, Anderson et al. 1987, Zhuang and Zhou 2004). The reason for this lies in their impact on the level of mutual and relative dependence between power-involved parties (Emerson 1962, Frazier et al. 1989).

For Rizhao Port, the market condition at the inter-port level and the port management structure at the intra-port level has increased the liners' alternative port/terminal choices and weakened the case port/terminal operator's ability to influence the liner shipping companies. At the inter-port level, the operator of Rizhao Port faces strong competition. Two hub container seaports are within a 100 km radius of Rizhao Port: Lianyungang Port and Qingdao Port. These two seaports are all bigger than the case

seaport in terms of hinterland coverage, port capacity and container throughput. At the intra-port level, competition between terminals was also witnessed. For the two terminal operators in Rizhao Port, RQCTC is managerially controlled by the Qingdao Port Group. Consequently, it is viewed by Rizhao Port Group as a competitor to its wholly-owned terminal operating company (i.e. KXCTC).

Business volume (i.e. the liners' container volume contribution) was identified as another factor that affected the patterns of power in the vested business relationship. Theoretically, the issue of 'sales and profit' has widely been used as an indicator for the magnitude of power/dependence in an inter-organisational business relationship (e.g. Kale 1986, Anderson et al. 1987, Zhuang and Zhou 2004). The rationale for this approach is that the more sales and profits (container volume) that are contributed by a buyer firm (liner shipping company) to the supplier (port/terminal operator), the more the latter party depends on the former. Therefore, the amount of the case port/terminal operator's power in relation to liners was found to be inversely related to the liner shipping companies' contribution to port throughput.

7.5.3 Power Exercise

In terms of the exercise of power, the case port/terminal operator has mainly used its reward power to influence liner shipping companies in the decision area of port operation and port pricing. Reward is a contingent power whose exercise is based on the influence target's degree of compliance with the power user's stated desires (Frazier and Summers 1986). In the case company, the granting of reward or privilege in these decision areas is contingent on the liner shipping companies' container volume contribution and on the soundness of their *guanxi* with the port/terminal operator. It is noticeable that the former variable has been also identified as a factor that positively influences liners' power in relation to the port/terminal operator (see Section 7.5.2). In addition to the reward power, the use of other types of power (e.g. coercive power and legitimate power) was not reported in the case company. The

reason for this may lie in the methodological deficiency of this exploratory study. The details of this issue and the implications of this exploratory study for the main study are presented in next section.

7.6 Reflections and Implications

A major aim of this exploratory study is to improve the robustness of the theoretical basis and the research design of this research. From this point of view, the findings from this chapter have significant conceptual implications for the refinement of the research framework established in Chapter 4 and the improvement of the methodology proposed in Chapter 6.

7.6.1 Conceptual Implications for the Main Study

This exploratory study made two important conceptual implications for the main case study: the reconceptualisation of power source and the amendment of the original theoretical framework (Figure 4.5) with the addition of a new research topic. These two aspects will be described in more detail in the following subsections.

7.6.1.1 Reconceptualisation of the Power Source

In this exploratory study, the possession of resources (power-related resources) is viewed as the fundamental source of power (Scheer and Stern 1992) and it determines the case port/terminal operator's power pattern in relation to liner shipping companies. However, the exploratory study revealed a range of factors that affect the power pattern other than the power-related resources. Despite the implications of RBV for the identification of power-related resources as the fundamental source of power, the concept of power source lacks consensus in academia.

In addition to power-related resources, researchers have also viewed a range of other factors as the sources of power, including the volume of sale and the availability of alternatives (Cendon and Jarvenpaa 2001, Cox et al. 2002, Emerson 1962, Gaski 1996,

Kahkonen 2014, Ramsay 1994). In this chapter, this type of factor has been treated as environmental elements that influence rather than create power/dependence relationships.

The attempt to resolve the conceptual confusion of power sources has been witnessed in several recent studies that use RDT as the theoretical basis. As reviewed in Sections 3.3.1, 4.5.3.2 and 4.5.3.3, RDT recognises the importance of power-related resources as the fundamental source of power, while at the same time indicates that there are other factors (e.g. the availability of alternatives and the motivational investment) that affect the level of power/dependence in an inter-organisational relationship (Emerson 1976, Pfeffer 1981). On the basis of this understanding, Kahkonen (2014) referred to power sources as enablers for one party's possession of power. Finne et al. (2015) argued that environmental factors thus complement power-related resources and render the creation of power an integrated outcome. In addition, Pazirandeh and Norrman (2014) recognised different approaches towards the conceptualisation of power and defined power sources as factors that give rise to higher or lower power.

These updated conceptualisations of power sources embrace the fundamental factor that generates power (power-related resources) as well as the environmental factors that shape the power/dependence relationship. This comprehensive view tends to be beneficial for the study of power sources in light of the various standpoints and scopes towards the conceptualisation of power. Meanwhile, by incorporating environmental factors as one component of power sources, this concept tends to be more capable of being an indicator for a power pattern. Accordingly, the modified concept of power sources is adopted to guide the next stage of this study.

7.6.1.2 Addition of a New Power Topic—Power Strategies

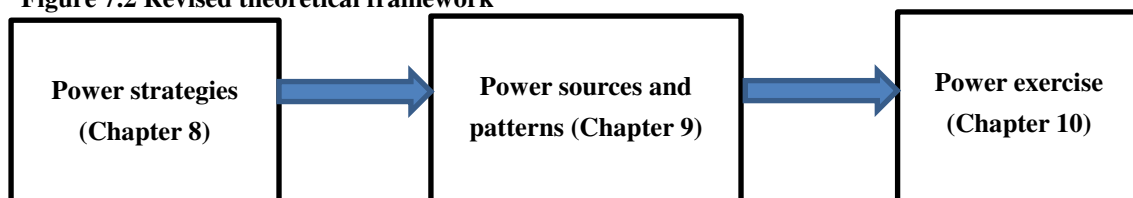
This exploratory study also has some implications for the original theoretical framework. This exploratory study takes a static approach towards the investigation of

power patterns and power sources, whereas the investigation of the topic of power exercise involves a longitudinal scope. The static approach is able to capture only a specific moment of the ongoing power relationship and to see how the relationship had evolved to this point—how it would evolve in the future is not considered (Terpend and Ashenbaum 2012). While the static approach has indeed contributed to the understanding of power issues in various supply chains (Terpend and Ashenbaum 2012), there is an inconstancy of longitudinal coverage between the study of the topics of power patterns and sources and power exercise.

To cope with the longitudinal concerns about the design of this research, the concept of power strategy is added to the original theoretical framework to address the evolving aspects of the patterns and sources of power. This concept is based on the idea of ‘power balancing operations’ that were addressed in the seminal work of Emerson (1962). In this thesis, it refers to the strategy used by port/terminal operators to manage their power sources and improve their power in relation to liner shipping companies (Borum 1995) (see Chapter 8 for further details).

The addition of the topic of power strategy calls for the amendment of the original theoretical framework. As can be seen in Figure 7.2, the topic of power pattern and power source is merged as one theoretical pillar because the investigation of the broadened concept of power source will serve as evidence for the identification of power patterns as complementing a key informant’s self-perception.

Figure 7.2 Revised theoretical framework



In terms of the structure of the following main study, the newly added topic (i.e. power strategy) will be examined in next chapter. The examination of this topic can potentially provide insights to the two central topics to the research framework, power sources and power patterns, which will be examined in Chapter 9. The issue of power

use/exercise as influenced by the other three research topics will be analysed in Chapter 10.

7.6.2 Methodological Implications for the Main Study

There are two main methodological implications of this exploratory study for the main study, which are the inclusion of liner shipping companies in the data collection process and the change of case selection. These aspects will be described in more detail in the following subsections.

7.6.2.1 Including Liner Shipping Companies in the Data Collection

The study of power issues in this chapter follows a methodologically unilateral approach in the sense that data was only collected from the seaport sector. This approach has a potential drawback, as witnessed in the finding about power exercise. The finding shows that the case port/terminal operator used solely the reward power to influence liner shipping companies. Considering that some power bases (e.g. coercive power) are often perceived as the ‘wrongful’ aspect of power (Morales 1997, Belaya and Hanf 2009), this finding can be biased because the power user (i.e. Rizhao Port Group) may be reluctant to reveal the information about the ‘dark side’ of its power use.

Although a range of power researchers (e.g. Frazier and Rody 1991, Benton and Maloni 2005, Zhao et al. 2008) have noticed the methodological limitation of the unilateral approach, this approach still has a wide application in IOP studies. An improvement can be seen in more recent studies, such as Handley and Benton Jr (2012b), Terpend and Ashenbaum (2012) and Kahkonen (2014). Even so, the study of power issues using bilateral data is still rare.

In view of the drawback of the unilateral approach, the main case study will collect data from both parties involved in the vested inter-organisational relationship. The inclusion of the liner shipping companies in the data collection process can not only

improve the quality of the research design and the robustness of the research findings, but also contribute to the emerging trend of methodological evolution in the field of power study.

7.6.2.2 Change of Case Selection

The last implication of this exploratory study for the research design is the change of case selection. Specifically, the purpose of this research is to study the power issues between port/terminal operators in China and liner shipping companies with regard to the international container trade. The original plan is to conduct a comparative multiple-case study that includes two hub seaports and two feeder seaports in China. In the case of Rizhao Port, few international liner routes directly serve this port. Although the port can participate in international trade as a feeder port, the extent to which the containerised cargo going through Rizhao Port are further transhipped onto carriers' trunk route liners in hub seaports is not clear. Since a power relationship involves at least two parties, whereas a port/terminal operator is one actor in the vested relationship, the uncertainty regarding the movements of import/export cargo flow means that it would be difficult to set a boundary for targeted liner shipping companies. This issue is particularly important in the main case study because the research data will be collected from both sides of the power relationship.

In addition, in this exploratory study interviewees were asked about how the design of this research can be improved. The following two areas emerged with regard to this issue: the collection of data from liner shipping companies and the switch of research focus to hub seaports. The necessity of collecting data from liner shipping companies has been discussed in Section 7.6.2.1. In terms of the shift of research focus to hub seaports, many of the interviewees believed that Rizhao Port is not a big port in terms of the international container trade, and thus would not be 'representative' enough for the research topic. This means that the insistence on tackling the proposed research questions by virtue of the original research design could have harmed the generalisability of the research findings. Therefore, a change was made to the targeted

research objects. More specifically, the main case study will now focus on port/terminal operators in Chinese hub seaports and their power relationships with global liner shipping companies operating on international container trade routes will be explored. This methodological choice tends to generate more insight about the vested research questions. Further details about the methodology adopted in the main study will be presented in Section 8.3.

7.7 Summary

Power is a context-embedded topic with many sub-dimensions that interact in both theory and practice. This exploratory study has attempted to find out how the port/terminal operator of Rizhao Port perceives its sources, patterns, and exercise of power in relation to liner shipping companies. Given that power has seldom been studied in the field of maritime research, this exploratory study was essential to deepen the understanding of the proposed research topics and improve the design of this study. Overall, this exploratory study has four implications for the next stage of study in this research, which are: the reconceptualisation of power source as factors that give rise to higher or lower power (Pazirandeh and Norrman 2014); the refinement of the original theoretical framework with the addition of a new research topic; the inclusion of liner shipping companies in the data collection process; and, the change of case selection to focus on port/terminal operators in Chinese hub seaports and their relationships with global liner shipping companies operating on the international container trade routes.

Based on the methodological and conceptual refinement of the research design, the three ORQs were refined and a new research question regarding port/terminal operators' power strategies (RQ1) was added to the investigation into power in Chinese hub seaports. In total, the main study focused on four research questions:

RQ1: How do Chinese port/terminal operators improve their power in relation to global liner shipping companies?

RQ2 (based on ORQ1): What are the sources of power for Chinese port/terminal operators and global liner shipping companies in relationship to each other?

RQ3 (based on ORQ2): How do Chinese port/terminal operators and global liner shipping companies perceive their power patterns in relation to each other?

RQ4 (based on ORQ3): How do Chinese port/terminal operators use their power to exercise control in relation to global liner shipping companies?

The refinement of the research questions, framework, and methodology made it necessary to conduct further theoretical discussion and to provide detailed descriptions about the methodological issues in the main case study. This is a key feature of the abductive approach to understand the issues of power. Consequently, the methodology adopted in the next stage of this research will be further described in the first chapter of the main study (i.e. Chapter 8) and the theoretical reinforcement of each selected research topic will be carried out throughout Chapters 8 to 10.

Chapter 8 Port/terminal Operators' Power Strategies

8.1 Chapter Overview

This chapter is the first chapter of the main study. The concept of power is characterised by interaction and dynamics. Consequently, to cope with the longitudinal concerns about the design of this research, the issue of power strategy was added to the original theoretical framework to address the evolving aspect of the concepts of power source and power pattern. This issue (i.e. power strategy) forms the enquiry about power in this chapter, in particular:

RQ1: How do Chinese port/terminal operators improve their power in relation to global liner shipping companies?

To answer this research question, this chapter is structured into six parts. This section presents the overview of the chapter. Then, the literature on power asymmetry and RDT is reviewed in Section 8.2 to establish a theoretical basis for the study of power strategy. Section 8.3 introduces the methodological issues in the main study as a complement to the methodology chapter. Section 8.4 presents and discusses the findings about the various power strategies adopted by port/terminal operators in Chinese hub seaports. After that, Section 8.5 further discusses the outcome of these strategies. This is followed by a summary of research findings and a discussion of research implications.

8.2 Theoretical Background

8.2.1 Power Asymmetry and Self-interest

The relative amount of power is an important dimension of the power relationship (Casciaro and Piskorski 2005). From this perspective, a power relationship can be either balanced or imbalanced. Whereas power imbalance implies a difference

between the amounts of power held by power-involved parties, power balance refers to a situation where these parties have an equal amount of power in relation to each other. The absolute balance of power is difficult to achieve in practice and the existence of asymmetric power relationships has been widely observed in empirical IOP studies (see e.g. Cox et al. 2004, Hingley 2005a, Kahkonen 2014, Maloni and Benton 2000, Nyaga et al. 2013, Pazirandeh and Norrman 2014, Touboulic et al. 2014).

The reason for the widely-witnessed power imbalance lies in the benefit of having power, which is the acquisition of surplus value (Casciaro and Piskorski 2005, Cox 2001b, Hingley 2005a). According to Cox (2001b), not all of the interest between contracting parties is mutual. In an imbalanced power relationship, the stronger party tends to control the weaker actor and gain benefit by exploiting its power, given that the business actors are 'rational' and profit-driven (Cox et al. 2002). Even though the powerful party may not exploit its advantageous position, the ability to obtain benefit from other supply chain actors is not a bad thing to have (Cox et al. 2002). Consequently, buyers prefer to operate in a buyer-dominated relationship, whereas suppliers favour the power pattern of supplier dominance (Cox 2001a). Given that supply chain members are primarily motivated by self-interest, and they strive for the acquisition and maintenance of surplus value (Cox 1999, Williamson 1975), the pursuit for power and a favourable power position is logically a primary pattern of organisational behaviour (Berthon et al. 2003, Cox et al. 2002).

8.2.2 Resource Dependence Theory and Power Strategy

Power strategy in this study refers to any strategy used by port/terminal operators to manage their power sources and improve their power in relation to liner shipping companies (Borum 1995). The conceptualisation of power strategy has been embedded in RDT (Emerson 1962, Pfeffer 1981, Cox et al. 2002). The idea that power stems resource dependence has had a wide application in power research (see

e.g. Ramsay 1994, Crook and Combs 2007, Ireland and Webb 2007, Petersen et al. 2008, Pazirandeh and Norrman 2014). In the context of a supply chain, firms are embedded in a network of exchange, seeking resources provided by other parties to survive. The desire for these resources generates dependence among supply chain members (Emerson 1976, Pfeffer 1981).

On the basis of RDT, the source of a firm's power resides fundamentally in other firms' dependence on resources controlled by this supply chain member (Stern and El-Ansary 1992). Due to the variation in the importance and availability of resources, the determinants of the amount of one supply chain actor's power are further related to the motivational investment (goals and investment in goal mediation) and the availability of alternatives (number of alternatives and switching cost) (El-Ansary 1975).

The identification of the source of power by RDT provides theoretical support for firms to improve their power by managing their resources and manipulating the power/dependence relationship. Emerson (1962) further suggests two ways for the power-disadvantage party to deal with the unbalanced power relationship. The first is cost reduction. The term 'cost' in Emerson's (1962) study refers to the cost to one actor of meeting the demands made by others. Examples of cost-reduction activities in an industrial setting include improving operational efficiency and utilising new technology. This approach involves the alteration of values to ease the pain incurred in fulfilling the demands of a powerful social actor through the optimisation of the use of a firm's resources (Emerson 1962).

The second remedy developed by Emerson (1962) is power balancing operations. The development of these operations is based on a power-imbalanced relationship, which is $P_{ab}=D_{ba} > P_{ba}=D_{ab}$ (see Table 4.8 and Section 3.3.1 for further information). In this model, the balance of the power relationship can be achieved by either increasing D_{ab} or decreasing D_{ba} . Specifically, the power relationship can be balanced 1) if B reduces motivational investment in goals mediated by A, 2) if B cultivates alternative

sources for gratification of those goals, 3) if A increases motivational investment in goals mediated B, and 4) if A is denied alternative sources for achieving those goals (Emerson 1962, p. 35).

Based on these notions, Emerson (1962) proposed four power balancing operations. The first is motivational withdrawal. In essence, this operation involves the shift of the less powerful actor's (B) interest to different areas under the power pressure and demands imposed by A. Therefore, this sort of 'escaping' is not recommended by Emerson (1962) while the other three operations are available.

The second balancing action is extending the power network. This approach involves B adding new players (C) to a dyadic power relationship (B-A). In the new power network (C-B-A), B's total dependence on A is diffused, which results in the decrease of A's power in relation to B. In a business exchange relationship, the extension of the network implies the adding of a new buyer/supplier to the existing dyadic exchange relationship.

The third balancing operation is labelled by Emerson (1962) as the emergence of status. It is developed based on the idea that the power-advantaged actor (A) increases motivational investment in the goals mediated by the less powerful actor (B). In this way, the status of B is increased in relation to A. However, since A is most likely to benefit from the unbalanced power relationship, it lacks incentive to proactively increase B's power.

The last balancing operation is coalition formation. Firms can balance the power relationship by forming groups against other actors in the power network. An example of this operation is the intra-industrial cooperation between competitors against the common strong supplier or buyer. Overall, Emerson's (1962) power balancing operations are not just applicable to the power-disadvantaged party. The power-advantaged actors can also conduct these operations to further improve or maintain their positions. Thus, it is more appropriate to term these actions power

strategies rather than power balancing operations.

Building on Emerson's (1962) seminal work, Pfeffer (1981) addressed how an organisation can take actions such as acquiring slack resources, increasing its irreplaceability, and engaging in inter-organisational collective actions in order to improve its power position. Petersen et al. (2008) further categorised Pfeffer's (1981) action plans for power acquisition into the following three groups: absorbing the environment, creating the environment, and negotiating the environment. This classification is based on the nature of the power strategies' outcomes and implies that supply chain actors' have different attitudes toward the asymmetrical power relationships.

In the context of supply chains, absorbing the environment (e.g. the acquisition of valuable resources) refers to the implementation of a power strategy that aims to reduce dependence on other firms. This strategy is similar to the 'cost reduction' operation suggested by Emerson's (1962), since they both imply an adaptive attitude to power asymmetry. In comparison, both creating the environment (e.g. the manipulation of relative and total dependence, the increase of irreplaceability) and negotiating the environment (e.g. collective inter-organisational actions) imply a proactive attitude towards the acquisition of power. The difference between them is that the former addresses the initiative of the firm to create a more favourable power environment, whereas the latter suggests firms to acquire power by increasing interdependence in their dyadic business relationships with other supply chain actors.

The examination of power strategy based on RDT also can be seen in the influential work of Cox et al. (2002). They suggest that firms should keep possession of the critical resources that are valued by the other parties to improve or maintain their power status. Effective management of the utility and scarcity of the resources guarantees the dependence of supply chain members on the resource holder. Furthermore, firms need to develop a secure system through natural monopoly, dedicated investments and/or collusion to maintain their favourable power positions

(Cox et al. 2002). Cox (2001a) also developed an action plan for firms to achieve their desired power status in the power matrix (Figure 4.4). For example, the supplier can increase its power in relation to the buyer by increasing its market share, finding more buyers, increasing the buyer's dependence, creating a joint-owned product, and locking-in high-quality buyers.

In addition to the above contributions (e.g. Emerson 1962, Pfeffer 1981, Cox et al. 2002, Petersen et al. 2008), researchers have identified a range of tactics that have been adopted by supply chain actors to acquire power. These power tactics include the formation of joint ventures (Pfeffer and Leong 1977), the improvement of mutual trust (Casciaro and Piskorski 2005), the management of *guanxi* (Zhao et al. 2008, Zhuang and Zhou 2004), and supply chain collaboration (Williams and Moore 2007, Nyaga et al. 2013). Theoretically, these power tactics are also guided by the principle of managing resources and manipulating the power/dependence relationship, as suggested by RDT. For example, the formation of a joint venture usually involves the sharing of skills and resources and, therefore, increases the mutual power/dependence between the contracting parties (Hill and Hellriegel 1994, Pfeffer and Leong 1977), and the management of *guanxi* implies the improvement of relational resource in Chinese society (see Section 5.2.2.1).

Overall, although researchers have contributed to the conceptualisation of power strategy from different angles, there is an overlapping understanding about this issue. In essence, the functioning of the power strategies reviewed in this section all seem to be based on the two fundamental principles suggested by RDT: resource management and dependence manipulation. In the modified theoretical framework (see Section 7.6.1.2), power strategy presents an essential approach towards the understanding of power source and power pattern from a dynamic point of view. Despite this topic's significance, empirical examination of this issue is surprisingly rare in IOP study. Thus, in addition to the consideration of examining the issues of power source and power pattern from a dyadic perspective, the investigation of power strategy in the

selected research context can also contribute to the development of the concept of power by adding empirical evidence to one of its key sub-topics. Accordingly, the issue of port/terminal operators' power strategies forms an important enquiry in this main study.

8.3 Research Methods in the Main Study

The collection of data for the main case study took place between April and July 2014. Seaports involved in the study are Xiamen Port, Shanghai Port, Qingdao Port and Ningbo Port. The main data collection method used was interviews. A summary of the application of this method can be seen in Table 8.1.

Table 8.1 Summary of interviews for the main case study

Case	Interview summary			Field work time (2014)
	Party involved		No. of interviewees (Code)	
Xiamen Port (XM)	P/TO1	1 intra-port terminal operator	7 (XM1-7)	April
	LSC1a		2 (XMM1-2)	
Shanghai Port (SH)	P/TO2	2 intra-port terminal operators	6 (SH1-6)	May
		Shanghai Port Group	2 (SH7-8)	
	LSC1b		1 (SHM1)	
	LSC2		1 (SHZ1)	
	LSC3		1 (SHE1)	
Qingdao Port (QD)	P/TO3	2 intra-port terminal operators	9 (QD1-9)	June
	LSC4		1 (QDA1)	
	LSC5		1 (QDH1)	
	LSC6		1 (QDM1)	
Ningbo Port (NB)	P/TO4	1 intra-port terminal operator	2 (NB1-2)	July
		Ningbo Port Group	3 (NB3-5)	
	LSC7		1 (NBC1)	
	LSC8		1 (NBCO1)	
Total	6 terminal operators, subsidiary departments and companies of 2 port groups, and 8 liner operators		39	

The participating firms are six terminal operating companies from four port groups in four Chinese hub container seaports and eight liner shipping companies. All of the terminal operating companies are specialised in container handling services and they

have established business relationships with a number of global liner shipping companies. In the case of Ningbo Port and Shanghai Port, key informants from the port group corporations were also approached for information.

The eight liner shipping companies in this study are Maersk (involved in two cases), Evergreen, Hapag-Lloyd, APL, MOL, COSCO, CMA-CGM, and Zim. Based on figures published in April 2013, seven of these liner operators are among the top ten liner shipping companies in the world with Zim ranked seventeenth, and together, these liner shipping companies accounted for a 44.6% share of the world liner fleet in TEU terms (Alphaliner 2013).

A total of 39 face-to-face interviews were conducted, ten with respondents from the shipping sector and the rest from the port sector. To guarantee the quality of data collected, interviewees had to be familiar with the operations of the terminal/liner shipping company and with the business relationships under study. Thus the directors and managers from the business, operations and/or container department of the participating port groups, intra-port terminal operating companies and liner shipping companies formed the main source of interviewees. Further information about these interviewees is provided in Appendix 6.

Concerns may arise because the profile of the interviewees leaned more towards the port/terminal operators than the liner shipping companies. In terms of the 39 interviewees, only ten of them came from the shipping sector. This can be explained from the perspective of data access. A description of the access to the case seaports has been presented in Section 6.3.5.2. Participating liners were required to have established business relationships with case seaports in the sense that each liner shipping company forms one side of the dyadic power relationship with the case port/terminal operator. The relevant key informants are thus expected to come from the local branch of the liner shipping companies in the case port cities so that they are familiar with their companies' operations and business relationships with the local port/terminal operator. This consideration is also important in view of the time and

expense constraints on this research.

In light of these considerations, access to participating liners was gained through the referral of the case port/terminal operators to ensure that the established power relationships between the two maritime actors were identified correctly in each case. Since the port/terminal operators were already familiar with the research topic and the recruiting requirement for the participants, the access to interviewees from the shipping sector through port/terminal operators' referral can also guarantee the quality of these key informants.

The use of referral for recruiting participants had a drawback since the access to only four liner shipping companies (i.e. Maersk, Hapag-Lloyd, Evergreen, CMA-CGM) was initially gained through this method. Consequently, the snowball sampling technique was adopted to deal with the insufficient number of participating liners. Snowball sampling usually accesses informants through the information provided by other participants (Noy 2008). It is one of the most widely used sampling techniques in qualitative research and is particularly applicable when the research involves some sensitive issues (e.g. in this research, port/terminal operator's power use) (Biernacki and Waldorf 1981).

The use of snowball sampling technique doubled the final number of participating liner operators to eight. Together, they represent almost half of the global liner capacity in TEU terms. Although in most participating liner companies only one key informant was successfully approached, the total number of ten participants from the shipping sector seems to be adequate for this study due to the following reasons.

The ideal number of interviews is largely determined by the nature of the targeted population in the sampling process (Saunders et al. 2012). Whereas 4–12 interviews are considered to be appropriate for a homogeneous population, 12–30 interviews are ideal for a heterogeneous population (Saunders et al. 2012). From this perspective, the two targeted sample groups in the main case study (i.e. port/terminal operators and

global liner shipping companies) have different features with reference to the power issues examined in this research.

For case seaports, their distinctive characteristics (e.g. hinterland coverage, level of port competition, and geographical locations) form the key content of the research context. Although they are all hub seaports in nature, these contextual features require an adequate sample size of interviewees that can separate their heterogeneity. This requirement is also important considering that the investigation of the newly-added research topic (i.e. port/terminal operator's power strategy) after the exploratory study is expected to heavily rely on the information provided by the key informants from the port sector rather than the shipping sector. Thus, the sample size of respondents from case port/terminal operators consisted of 29 interviewees, as suggested by Saunders et al. (2012).

In comparison to case port/terminal operators, the global liner operators targeted in this research are homogeneous in terms of their fleet (Semeijn 1995), container services (Wang and Meng 2014) and strategic business orientation (Panayides and Cullinane 2002). This homogeneity might be enhanced by the various cooperative activities adopted by liner operators such as operating joint services, chartering vessels, arranging slot, sharing terminals, and pooling containers (Stopford 2009). Therefore, the researcher treated the sampling population of liner shipping companies as homogeneous, and ten interviews were conducted in this group of participating firms, which fits within the sample size of 4–12 interviews as suggested by Saunders et al. (2012).

The sample of case liners covered all of the major global liner alliances (i.e. 2M, Ocean Three, G6 and CKYHE) at the time that the data was collected. These alliances include the 15 top liners in the world. In view of the extensive cooperation within each strategic alliance, the interviewees from the case liner shipping companies tended to have a general understanding about their alliance's business in the case seaport.

Each participating liner operator had established business relationships with all case seaports. In light of this, the respondents from the participating liners are informative regarding their own company's business with not only the local port/terminal operators but also the other three case port/terminal operators. Thus, during the interview process, the interviewees from the shipping sector were approached for information about the vested power issues in all four case seaports (when applicable).

These two methods (i.e. the sampling of liners covering all major strategic alliances and the asking of questions about power issues in all case seaports) have amplified the information gained from the shipping sector and can be used to cope with the possible drawback of having relatively fewer respondents from the shipping sector.

8.4 Chinese Port/terminal Operators' Power Strategies

This section presents and discusses the findings about the power strategies adopted by the port/terminal operators in case hub seaports. Based on the theoretical review of power strategies in the literature, research findings are grouped into the following four categories: cost reduction, exclusive control of power operations, network expansion, and integrated and harmonised business relationship management. These four themes, together with their descriptions, can be seen in Table 8.2.

Table 8.2 Categories of port/terminal operators' power strategy

Category	Description
Cost reduction	Port/terminal operators' actions that optimise the use of firm resources and reduce the cost of or ease pain of meeting liner operators' demand.
Exclusive control of terminal operations	Port/terminal operators' actions that maintain or acquire a monopolistic status in container terminal operations.
Network expansion	Port/terminal operators' tactics that expand the collection/distribution network for containerised cargo.
Integrated and harmonised business relationship management	Port/terminal operators' actions that establish joint ventures and keep harmonious business relationships with liner operators.

8.4.1 Cost Reduction

The first power strategy identified in case hub seaports is cost reduction. It analyses the port/terminal operators' actions that optimise the use of their resources and reduce the cost of or ease the pain of meeting the demands of the liner operators. Based on the data collected using the interview strategy, the main elements of this type of power strategy and the illustrative quotations elicited from the transcripts can be seen in Table 8.3.

Three groups of power tactics were identified in all four cases (see Table 8.3). These power tactics are labelled service quality improvement and cost saving, improvement of operational efficiency, and technology innovation. In general, they are all related to the idea of 'cost reduction' in Emerson's (1962) conceptualisation of power strategy.

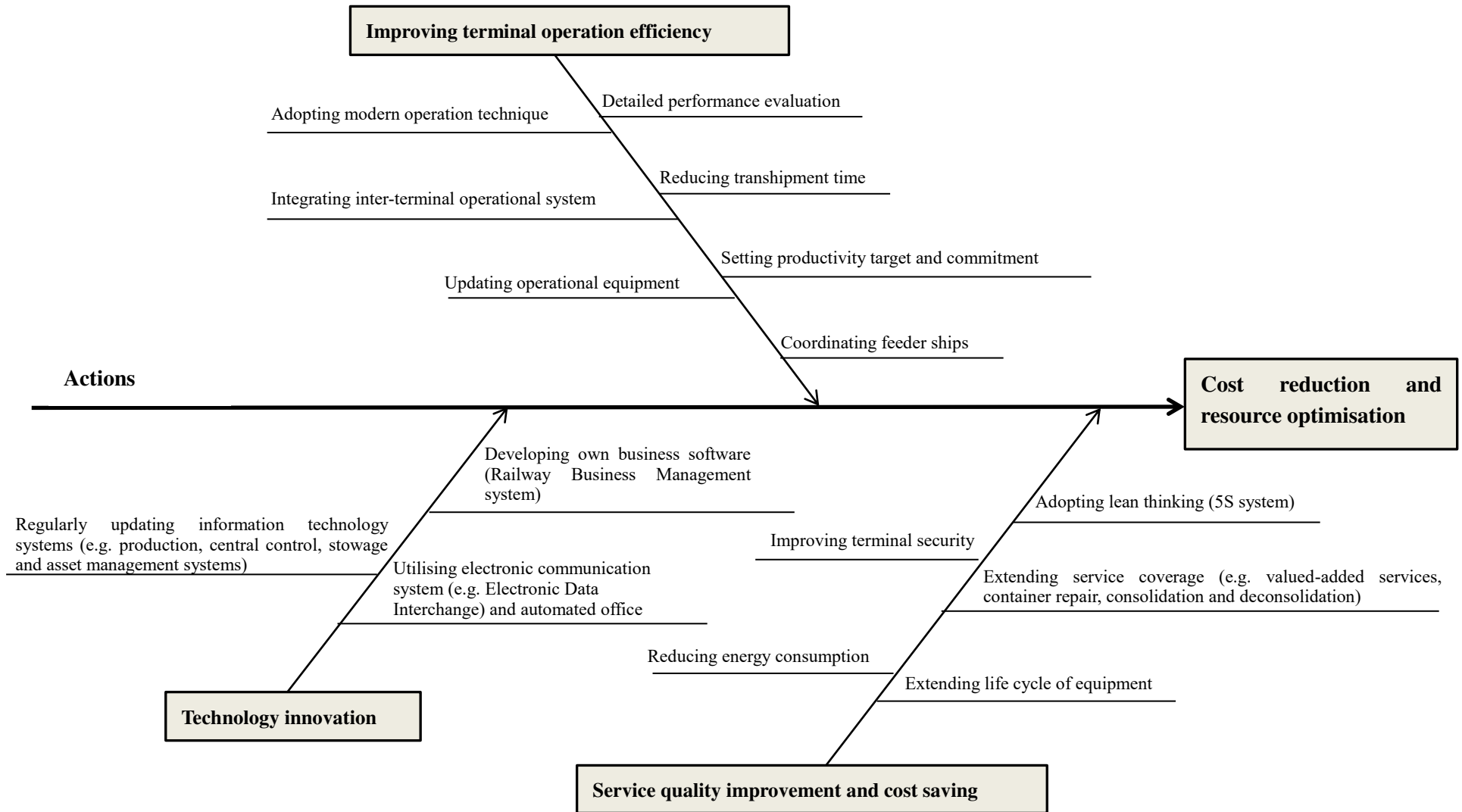
In addition to the power tactics extracted from interview findings, evidence about port/terminal operators' cost reduction actions in the year 2014 was also collected from documentary materials (as seen in Appendix 7) in order to capture the latest developments in these four hub seaports. This evidence gives further details of the three categories of cost reduction actions that are presented in Table 8.3.

On the basis of the interview findings and documentary data, an Ishikawa diagram is presented in Figure 8.1 to summarise the observed methods of cost reduction and resource optimisation that were implemented by the case port/terminal operators. Although each category of cost reduction tactics was evidenced across all of the case seaports (Table 8.3), there is a variation in the specific actions conducted by case port/terminal operators to reduce costs and optimise resource usage due to the uniqueness of each participating firm (as seen in Figure 8.1 and Appendix 7).

Table 8.3 Case port/terminal operators' actions to reduce costs and optimise resource usage

Category	Case port/terminal operator				Illustrative quotation
	XM	SH	QD	NB	
Terminal operation efficiency improvement	•	•	•	•	<p>'Port/terminal operators accept the requests of liner shipping companies. They continuously improve their technology and efficiency.' [SH4]</p> <p>'We use performance evaluation (to improve efficiency). [...] We focus on planning. What is the output today? What level of efficiency are we going to achieve? [...] If the output is low, we need to analyse the reasons and improve the process accordingly.' [SH6]</p>
Technology innovation	•	•	•	•	<p>'Every year our production system and control system are updated. Last year, it was updating the version rather than patching.' [SH1]</p> <p>'As China is increasingly open, operational all-around information is more detailed and automated. Like EDI, they (liner shipping companies and port/terminal operators) increasingly rely on this kind of stuff.' [QDH1]</p>
Service quality improvement and cost saving	•	•	•	•	<p>'What is most important for us is cost control. [...] There are many related indicators. [...] The issue we are studying is quota management for cost.' [SH5]</p> <p>'We improve our services to attract liner shipping companies. Value-adding service, cost reduced service and efficiency improved service - these are the main aspects.' [XM2]</p>

Figure 8.1 Port/terminal operators' actions to reduce cost and optimise resource usage based on interview and documentary data collected in 2014



As claimed by Spence (1984), organisational actions that contribute to the reduction of cost can be diverse. In this study, for example, case port/terminal operators have conducted a wide range of activities (Figure 8.1), including the coordination of feeder liner and container trailers, the reduction of transshipment time, the update of operational equipment, the formation of sound performance evaluation system and the integration of inter-terminal operations system, in order to improve operation efficiency and ultimately reduce the cost/pain to mediate carriers' demands for port services.

In spite of the variation in the cost reduction actions that were observed in the case seaports, this issue is a long-term task that firms must perform to survive in a competitive business environment (Rust et al. 2002). This means that the relevant power strategy can be conducted all firms, regardless of the patterns of the power relationships that they are involved in. Therefore, the activities illustrated in Figure 8.1 offer a possible action plan for port/terminal operators to improve power through cost reduction.

8.4.2 Exclusive Control of Terminal Operations

The second power strategy adopted by the case port groups is the exclusive control of terminal operations. After the latest port reform in China, port group corporations now play a significant role in port management and operations. However, the findings from the field work show that the involvement of FDI in the seaport sector and the emergence of new market entrants have caused various challenges to the case port groups' control of the operations of intra-port terminals. This section presents and discusses the findings of the case port/terminal operators' tactics to cope with these challenges and improve their power in relation to liners through the maintenance/acquisition of a monopolistic status in the local port market.

8.4.2.1 Observed Challenges and Power Tactics

When the latest port reform in China started in 2004, all of the case port groups had the opportunity to inherit the monopoly status of the former port authorities in terms of port management and operations. Whereas the operator of Xiamen Port chose a market-oriented management philosophy to encourage competition among intra-port terminal operators, the port/terminal operators in the other three cases were keen to keep their strong control over the terminal operations.

Xiamen Port

The choice made by the operator of Xiamen Port led to strong intra-port competition and low port charges (60% discount of the regulated tariff in some cases), as was mentioned by one business director of TO1. Actions to curb vicious competition were taken by the local port authority, the SASAC of Xiamen City and the Xiamen Port Holding Group Co., and this resulted in the formation of the Xiamen Container Terminal Group (XCTG) in December 2013. XCTG is a cartel encompassing seven terminal operating companies in the Port of Xiamen that used to act on their own (XCTG Official Website 2015). These companies accounted for about 70% of the whole port's capacity in terms of container business in 2013 (Liu 2013).

The reform of port management in the case of Xiamen has thus revealed a power strategy regarding the exclusive/cartel control over the container handling business. In other words, the 'free market' policy was shown to be unfavourable, and the port/terminal operator chose instead to follow the management model that had been adopted in the other three hub seaports in order to recover power. In terms of the interview findings, all of the respondents in the case of Xiamen Port viewed the centralised management of the container business and the establishment of the new container terminal group (i.e. XCTG) as an essential action to improve the port/terminal operator's power in relation to the liner shipping companies.

In spite of the integration of operation capacity, the port/terminal operator had failed

to achieve an exclusive control of the intra-port terminals. In 2011, COSCO established the first automated container terminal in China (i.e. Xiamen Ocean Gate Container Terminal Operating Company) with two other state-owned companies in the Port of Xiamen (China Ports Yearbook 2013). Without the inclusion of the Xiamen Port Group, the operator of Ocean Gate Container Terminal acts as a competitor to XCTG.

Qingdao Port

In the case of Qingdao Port, the port/terminal operator's power strategy to cope with challenges to its monopoly status in the local port market can be seen in the well-known business conflict between Qingdao Port Group and CMHI. In all four case studies, there were interviewees who used this incident to illustrate the powerfulness of the port/terminal operators in China.

After the power reform in China, Qingdao Port Group remained the sole operator of Qingdao Port, and Qingdao Qianwan Container Terminal Company (QQCT, also referred to as the 'third phase' or 'north port' in the case of Qingdao Port) was the major terminal operator that handled containers involved in overseas shipments. The operation and management of QQCT is controlled by Qingdao Port Group, which gives the port/terminal operator a monopoly status in terms of the international container handling business.

A major change to the market structure occurred in 2005 when CMHI entered the port market in Qingdao (CMHI 2005). Supported by the local government, CMHI constructed a new container terminal (i.e. CM Qingdao) in Qingdao Port. These two terminals (i.e. QQCT and CM Qingdao) share the same fairway and are extremely close to each other. CM Qingdao's first berth came into operation in late-2006 and it posed a serious challenge to Qingdao Port Group's exclusive control over the container terminal business in the local port market.

To retrieve its monopoly power in relation to liners, Qingdao Port Group conducted a

series of actions. These power tactics involved the manipulation of cargo flows through the control of cargo forwarders, railway access, trucking companies and tugboats, as shown in the following quotations:

MSC went to CMHI's terminal, and Qingdao Port Group was furious. Then it informed cargo forwarders, 'If you dare arrange to send containers to CMHI's terminal, I won't let you in.' Then MSC was deeply troubled. (General manager of LSC7 calling at Ningbo Port)

The local police department would say, 'Your truck has many problems; it is, unlicensed (for example), so we will put your truck on the black list.' [...] For cargos going to CM Qingdao's terminal, before the departure, they (i.e. Qingdao Port Group) already had the information. [...] Then they would find you. 'You can't act like this (they would say); otherwise there will be trouble. (Operations director of LSC6 calling at Qingdao Port)

Basically, the railway was controlled. Because the railway in Qingdao Port connects QQCT rather than CM Qingdao's terminal, cargos gathered by rail can't go out after their arrival in QQCT. [...] So, MSC gave up all cargoes transported by rail at that time. [...] If your truck transports containers to CM Qingdao's terminal, you cannot enter QQCT. [...] No trucking company can exclusively serve CM Qingdao's terminal. [...] The tugboats also belong to the Qingdao Port Group. After the arrival of your customers [i.e. liners], there is no tugboat for you.' (Operations manager of LSC5 calling at Qingdao Port)

The power tactics adopted by Qingdao Port Group had caused huge financial losses to CM Qingdao. Other than MSC, no major liner shipping company formed a business relationship with CMHI's terminal in Qingdao Port, as mentioned by one deputy operations manager of TO4.

The business conflict ended at the end of 2009 after the merger of CM Qingdao and Qingdao Port Group's new terminal operating company (i.e. Qingdao New Qianwan


Container Terminal). For the joint venture (i.e. Qingdao Qianwan United Container Terminal Company), its operations and management were controlled by the Qingdao Port Group. Furthermore, CMHI signed non-competition covenants and agreed that CM Qingdao would not conduct a competitive container handling business in Shandong Province during the operating period of the Qingdao Qianwan United Container Terminal Company (CMHI 2010). Consequently, at the time that the data was collected, the management and operations of all container terminals in Qingdao Port were exclusively controlled by the local port group.

Shanghai Port

The development of port areas in Shanghai Port has gone through three phases: Wusong port area; Waigaoqiao port area; and, Yangshan port area. Table 8.4 presents a summary of this development. At the time that the data were collected, liners operating on international trade lanes were served by terminal operators in the port area of Waigaoqiao and Yangshan. However, before the opening of these two port districts, the international container business was handled by Shanghai Container Terminals Limited (SCT) in the port area of Wusong. SCT is a joint venture established by Shanghai Port Group and Hutchison Port. As the sole external investor in Wusong port area, Hutchison Port had great control over the management of SCT. Thus, at the early stage of the development of Shanghai Port, the port group found it difficult to control its international container handling business. As one manager from Shanghai Port Group described:

In the early days, Shanghai Port cooperated with Hutchison Port and established SCT. [...] Personnel and management staff were from Hong Kong. So, at that time, Shanghai Port was actually cramped by it [i.e. Hutchison Port]. [...] The opening of Waigaoqiao port area to get rid of its control is right.

Table 8.4 Container terminal development in Shanghai Port

Port area	Port development phases 							
	Wusong port area		Waigaoqiao port area				Yangshan port area	
Operators	SCT (Jungonglu Terminal)	SCT (Zhanghuabin Terminal)	Pudong Terminal	Zhendong Terminal	Hudong Terminal	Mingdong Terminal	Shengdong Terminal	Guandong Terminal
Water depth	10.5	10.5	10.5	13.2m	12.5	12.8	16m	17.5m
Designed capacity (ten thousands TEU)	95	85	135	250	180	70	430	500
No. of quay cranes	6	7	11	26	16	16	34	26
Main container flows handled in 2014	Domestic trade		International trade				International trade	
Involvement of external investors	Hutchison Port		COSCO Pacific, Hutchison Port	No	APM Terminals	Hutchison Port	No	No

Source: Shanghai Port Group Official Website (2015)

To retrieve the control of international container handling business, Shanghai Port Group has adopted two main power tactics: 1) diversifying the source of external investment when developing new terminals, and 2) developing new wholly-owned terminals with better hydrological conditions and operational capacity.

The application of the first power tactic can be seen in the development of the Waigaoqiao port area. In addition to Hutchison Port, Shanghai Port Group had attracted two other investors (i.e. APM Terminals and COSCO Pacific) to develop the terminal handling business in this port district (see Table 8.4). This has diluted the port/terminal operator's dependence on a single investor; in other words, it has increased Hutchison Port's power in relation to the port/terminal operator. When absorbing external funds, Shanghai Port Group acquired control over the management and operations of the joint-ventured terminal operating companies in Waigaoqiao Port by holding majority shares of the companies.

For the second power tactic, Shanghai Port Group established subsidiary companies to wholly own and operate the top three terminals (i.e. Zhendong Terminal, Shengdong Terminal and Guandong Terminal) in terms of water depth and handling capacity in Shanghai Port (see Table 8.4) when developing the port area of Waigaoqiao and Yangshan. Together, these three terminals accounted for about 75% of Shanghai Port's designed handling capacity for the international container business. Without the inclusion of external investors, the port group's exclusive control of terminal operations was further secured.

Ningbo Port

In the case of Ningbo Port, the inclusion of global terminal operators (e.g. Hutchison Port and CMHI) and liner shipping companies (e.g. CMA-CGM and COSCO Pacific) in the terminal handling business was widely witnessed. Among the six terminal operating companies in the port, only one of them is wholly owned by the port group (Ningbo Port Group Official Website 2015). Even so, Ningbo Port Group's exclusive

control over the port business has been largely consistent since the latest port reform in China.

The challenge to the monopoly status of the port group has only been mentioned by the general manager of LSC7, as follows:

When CHMI established the joint-ventured terminal (of Daxie) with the Ningbo Port Group, it attempted to intervene in the managerial issues. There was a disharmony between these two parties. Then the port group introduced the management philosophy of 'four integration' to maintain its control [over the intra-port terminal businesses].

The management philosophy of 'four integration' in above quotation refers to the integrated planning, construction, branding, and administration of all terminals in the Port of Ningbo-Zhoushan (Ningbo-Zhoushan Port Official Website 2015). Apart from this finding, there is little evidence regarding the tactic used by Ningbo Port Group to maintain its exclusive control over the terminal business. This may be because there were few or no challenges to the port/terminal operator's monopoly status, as shown in the following quotations:

Their [i.e. Xiamen Port Group] port management model is different from ours. They encountered some difficulties during development and took detours.
(Business manager of TO6 in the case of Ningbo Port)

The integration of Xiamen Port is lagging. [...] Ningbo Port is actually the most successful. (Deputy finance manager of TO1 in the case of Xiamen Port)

Overall, findings from the field work has shown that case port/terminal operators had encountered various challenges and developed corresponding tactics to deal with the threats to their exclusive control over the terminal businesses. A cross-case analysis of reported findings is presented in the next section.

8.4.2.2 Cross-case Analysis

Based on the findings reported in Section 8.4.2.1, a summary of case port/terminal operators' power tactics to maintain the exclusive control of terminal business and their encountered challenges is provided in Table 8.5. Whereas the overall power strategy regarding the exclusive control of terminal operations was implemented by all case port operators, they used different tactics to deal with the threats to their preferred market structure at the intra-port level.

A key difference between the Xiamen case and the other three cases lies in the inherited monopoly status following the latest port reform in China. Since the operator of Xiamen Port gave up the opportunity to inherit this status, it faced a strong challenge to retrieve the exclusive control of terminal business out of a free market. The power tactic used by the port operator was to set up a terminal operating cartel with the support of the local government. Although this measure has curbed competition within the cartel, 30% of the operation capacity in Xiamen Port was out of the control of the port group and a new market entrant (i.e. COSCO Pacific) was in competition with the cartel.

In comparison, the port/terminal operators in the other three cases have inherited the monopoly status of the former port authorities. Their main task is thus to maintain the monopoly market structure. Consequently, they have a relatively sound basis to achieve the exclusive control of terminal operations in comparison to the operator of Xiamen Port. The challenges to their monopoly status were manifested in different forms. In the case of Shanghai Port and Ningbo Port, external investors attempted to intervene in the management and operations of the joint-ventured terminals. To deal with this challenge, the operator of Shanghai Port diversified the sources of port finance and retained 100% ownership of the intra-port terminals that have superior hydrological condition and operational capacity during the process of port expansion, whereas its counterpart in Ningbo Port consolidated the control over the intra-port terminal operators through the central coordination of management philosophy.

Table 8.5 Summary of case port/terminal operators' challenges and power tactics to maintain exclusive control over the terminal business

Case port/terminal operator	Inherited monopoly after port reform	Observed challenge		Power tactic
		Degree	Causes	
Xiamen Port (P/TO1)	No	Strong	<ul style="list-style-type: none"> ● Pursued an open market policy after port reform ● External investors involved in the terminal operating business ● New market entrant (i.e. COSCO Pacific) 	<ul style="list-style-type: none"> ● Establishing a terminal operator cartel (i.e. XCTG) to coordinate intra-port terminal operations and control competition within the cartel
Shanghai Port (P/TO2)	Yes	Weak	<ul style="list-style-type: none"> ● External investor (i.e. Hutchison Port) involved in the terminal operating business 	<ul style="list-style-type: none"> ● Diversifying the sources of port finance when developing new terminals ● Developing new wholly-owned terminals with superior hydrological condition and operational capacity
Qingdao Port (P/TO3)	Yes	Moderate	<ul style="list-style-type: none"> ● New market entrant (i.e. CM Qingdao) 	<ul style="list-style-type: none"> ● Manipulation of cargo flows through the control of cargo forwarders, railway access, trucking companies and tugboats
Ningbo Port (P/TO4)	Yes	Weak	<ul style="list-style-type: none"> ● External investor (i.e. CHMI) involved in the terminal operating business 	<ul style="list-style-type: none"> ● Centralised coordination of management philosophy

In the case of Qingdao, the port operator faced a stronger challenge caused by the new market entrant (i.e. CM Qingdao) in comparison to the case of Shanghai Port and Ningbo Port since CM Qingdao acted as a pure competitor to the port group. Qingdao Port Group needs to defeat the new player to maintain its monopoly status in the local port market. The rationale behind the port group's power strategy is to manipulate the flows of container business going through the port to undermine its competitor's business and affect the liner shipping companies' choice of terminals. Under this guideline, the application of specific power tactics was based on the port group's control over other members in the port community, such as cargo forwarders and trucking companies. Through the control of container flows, Qingdao Port Group has defeated its competitor and retrieved its exclusive control of the intra-port terminal handling business.

In summary, all of the case port/terminal operators highly valued the ability to exclusively control their terminal business. Due to the contextual differences (e.g. management philosophy and encountered challenges) in these four cases, the case port/terminal operators used different measures to acquire this power. Despite the difference in specific power tactics adopted, they all contribute to the respective port group's control over the intra-port container handling business.

8.4.3 Network Expansion

The third power strategy refers to the port/terminal operators' tactics to expand the container collection/distribution network. The interview findings showed that they managed to develop such a network, both landward and seaward. The categories of each type of network expansion and relevant evidence are given in Table 8.6.

Table 8.6 Case port/terminal operators' actions to expand their container collection/distribution networks

Network expansion	Category	Case port/terminal operator				Illustrative quotation
		XM	SH	QD	NB	
Landward	Establishing ICDs	•		•	•	<p>‘(We have connections with ICDs in) Shandong province, Xian city, Taiyuan city, Xinjiang province. This (ICDs) network penetrates deep inland. [...] Through our efforts, (we) increase the hinterland cargo and provide guarantees to our customers [i.e. liner shipping companies].’ [QD6]</p> <p>‘Ningbo Port established ICDs in lots of places. Yiwu city, Jinhua city, Shaoxing city, Taizhou city and Jiangxi province all have our ICDs. We sent staff to three. This is one way of gaining power.’ [NB4]</p>
	Developing rail-sea intermodal transportation	•		•	•	<p>‘Sea-rail intermodal transportation is developed for the expansion of the hinterland. [...] We gather cargo from Jiangxi province to Xiamen.’ [XM7]</p> <p>‘For sea-rail transportation, our target this year is 100,000 TEUs. [...] The proportion of these containers (out of total throughput) is low. But, we highly value the development of sea-rail transportation.’ [NB5]</p>
	Developing river-sea intermodal transportation		•		•	<p>‘Along the Yangtze River basin, the Shanghai Port Group sent staff (to its invested river ports). Now they [i.e. river ports] (are served by) river feeder liners.’ [SH 7]</p> <p>‘Ningbo Port invested in Nanjing Port [located in Yangtze River basin]. These cargos (going through Nanjing Port) were originally transhipped in Shanghai Port.’ [SHE1]</p>
Seaward	Operating seaborne feeder liner services		•		•	<p>‘Shanghai Port Group operates liner services, [...] inland waterway liners and short sea liners. [...] Qingdao is gradually starting to conduct similar activities. [QD4]</p> <p>‘Our feeder service grows from nothing, and the cargo volume is increasing. [...] It is less developed than Shanghai Port.’ [NB3]</p>
	Controlling feeder seaports		•	•	•	<p>‘Ports like Weihai and Rizhao all have shares transferred to Qingdao Port. They yielded to the big port for its own development.’ [QDA1]</p> <p>‘After the establishment of the (port’s status as) a hub port, it designed its domestic feeder network. It needs to ‘go out’. [...] When we invested Jiaxing Port in 2008, the annual container throughput was less than 40,000 (TEUs); after a year, it had reached 100,000 (TEUs).’ [NB4]</p>

8.4.3.1 Landward Expansion

In terms of the landward network expansion, the establishment of ICDs and the development of sea-rail and/or sea-river intermodal transportation were identified as the key power tactics that were used by the case port/terminal operators (see Table 8.6).

ICDs and Sea-rail Intermodal Transportation

Theoretically there are three types of dry port or ICD: distant dry port, mid-range dry port, and close dry port (Roso et al. 2009). Whereas the former two types of ICD are justified by high cargo flows to and from their adjacent hinterlands, the close dry port mainly serves to buffer container flows going through a seaport (Rodrigue et al. 2010, Roso et al. 2009). Thus, distant and mid-range dry ports are more relevant for seaport operators to expand their cargo collection/distribution network.

Interview findings reveal that dry ports are highly valued by the port/terminal operators in the case of Xiamen Port, Qingdao Port and Ningbo Port (see Table 8.6). This preference may be due to the development model of Chinese dry ports in which a ICD is usually established as the joint venture by a seaport operator and the local government and/or enterprise (Beresford et al. 2012, Werikhe and Jin 2015). Accordingly, the majority of Chinese ICDs mainly serve the seaports involved in the joint ventures, whereas only 5 out of 42 dry ports in China serve multiple seaports (Zeng et al. 2013).

A summary of case port group invested ICDs is presented in Table 8.7. Whereas the operator of Qingdao Port, Xiamen Port and Ningbo Port all have ICDs invested in inland China, Shanghai Port Group does not rely on this tactic to expand its cargo collection/distribution network. For the first three cases, the ICDs listed in Table 8.7 target the funding port/terminal operators as their main customers (see Zeng et al. 2013). This means that the advantages of these dry ports for hinterland network

expansion can be obtained exclusively by the funding case port/terminal operators.

Table 8.7 Summary of case port/terminal operators invested ICDs

Case port/terminal operators	Invested dry ports
Xiamen	Ji'an, Longyan, Sanming, Wuyishan
Qingdao	Houma
Ningbo	Quzhou, Shangrao, Yingtan, Yuyao, Zhangjiakou
Shanghai	None

Source: based on interview findings and Zeng et al. (2013)

All of the ICDs in Table 8.7 are mid-range or distant dry ports. According to Zeng et al. (2013), most dry ports in China are of these two types. This geographical feature means that the utilisation of rail transportation is essential for the case port/terminal operators to take advantage of the expanded hinterland made possible by dry ports. Accordingly, in the case of Xiamen Port, Ningbo Port, and Qingdao Port, the development of sea-rail intermodal transportation was found to be valued by the port/terminal operators (see Table 8.6).

River-sea Intermodal Transportation

Shanghai Port has access to the national railway network, and thus a connection with ICDs. However, there was little evidence of the implementation of the relevant power strategies (i.e. establishing ICDs and developing rail-sea intermodal transportation) in this case, and the statistics from 2011 revealed that the containerised cargo gathered and distributed by rail accounted for only 0.1% of the total throughput of Shanghai Port (Wang 2012).

The interview findings show that, instead of relying on ICDs and railway transportation, Shanghai Port Group has focused on the development of the inland waterway network to expand its hinterland. The reason for this may be due to the unique geographical feature of Shanghai Port in comparison to the other three cases—it sits on the estuary of the largest river system in China. The Yangtze River basin covers about 19% of China's territory and accounts for 70% of the total length of the nation's navigable inland waterways (Changjiang Water Resources Commission

of the Ministry of Water Resources 2015).

By virtue of the excellent inland waterway access, the operator of Shanghai Port has mainly used the river-sea intermodal transportation network to deepen the penetration of the containerised cargo. The main power tactic adopted by Shanghai Port Group to achieve this purpose is the control of the operation of the river ports (e.g. Changsha Port, Jiujiang Port, Changsha Port, Yibin Port and Wuhan Port) along the Yangtze River through establishing joint ventures with the local river port operators. Furthermore, the port group also operates its own inland waterway fleet, and it runs a number of logistics parks and warehouses in the Yangtze River basin (Shanghai Port Group Official Website 2015).

Ningbo Port Group has also invested in a terminal (i.e. Nanjing Ming Zhou Terminal Co.) in the lower reaches of the Yangtze River. Given that the two hub ports (i.e. Ningbo Port and Shanghai Port) are in close proximity, the expansion of respective feeder port network inevitably overlaps. Therefore, the power strategy of the development of river-sea intermodal transportation was also witnessed in the case of Ningbo Port. Other than these two cases, the use of such strategy was not observed in the case studies of Qingdao Port and Xiamen Port.

8.4.3.2 Seaward Expansion

In terms of the seaward network expansion, the operation of seaborne feeder liner services and the control of feeder seaports were identified as the key power tactics used by case port/terminal operators (see Table 8.6).

Seaborne Feeder Liner Services

The operation of seaborne feeder liner services was observed in the case of Shanghai Port and Ningbo Port, whereas in the case of Xiamen Port and Qingdao Port, the port operator's involvement in liner shipping business was not reported (see Table 8.6). In the former two cases, both port groups have established subsidiary liner shipping

companies, viz. Shanghai Haihua Shipping Co. and Ningbo Ocean Shipping Co. These two companies are wholly owned by the respective port group and they operate liner services on domestic and short-sea international levels. For the two relevant port groups, a key incentive to operate a liner service is to expand the feeder network of containerised cargo. As found in the data gathered from the official website of these subsidiary liner operators, all of their trade routes are centred on their respective mother port group's seaport (Shanghai Haihua Shipping Co. Official Website 2015, Ningbo Ocean Shipping Co. Official Website 2015).

Feeder Seaports

The control of feeder seaports through establishing joint ventures with local seaport operators was observed as a power tactic to expand the seaward cargo collection/distribution network in the case of Qingdao Port, Shanghai Port and Ningbo Port (see Table 8.6). On the basis of data collected from interviews and documentary materials, it was found that: Qingdao Port Group has invested in the container operating business in Weihai Port and Rizhao Port; Ningbo Port Group operates container terminals in Taizhou Port, Wenzhou Port and Jiaxing Port; and Shanghai Port group engages in the terminal operating business in Taicang Port, Jiaxing Port, and Wenzhou Port.

The control of feeder seaports is important for the case seaports to stabilise their status as hub ports in their respective hub-and-spoke system and direct cargo flows accordingly since the feeder ports may not be satisfied with their status in the regional port system and may wish to develop their own trunk line routes. In addition to the supporting evidence from the exploratory study (see Section 7.4.2.2), the business manager of TO6 reported that,

Taking the Port of Ningbo as an example, it [i.e. the port group] has a share or even a majority share in Wenzhou [Port] and Jiaxing [Port]. They [i.e. the port operators of Wenzhou Port and Jiaxing Port] want to build a deep-water terminal

or seek to attract trunk route liners? I have the power (to make such a decision), then it is hard for them to build (the deep-water terminal).

Overall, the power strategy discussed in this whole Section 8.4.3 covers a range of activities conducted by case port/terminal operators to control transportation nodes (e.g. ICDs and feeder ports) and lines (e.g. river liner service and seaborne liner service). For the landward network expansion, the operators at Xiamen Port, Qingdao Port and Ningbo Port have established ICDs and developed sea-rail intermodal transportation, whereas Shanghai Port group has chosen to control river ports and boost sea-river intermodal transportation. Although the operation of a river port was also reported in the case of Ningbo Port, the amount of controlled ports is quite limited in comparison to that of Shanghai Port Group.

Xiamen Port Group has not adopted any relevant power tactics regarding the seaward network expansion. In the other three cases, the port/terminal operators had all stabilised their hub port status by becoming involved in the operation of their feeder seaports. Ningbo Port Group and Shanghai Port Group also ran their own liner services to increase the cargo flows going through their respective seaport. Overall, in spite of the port-level idiosyncrasies in terms of the power tactics adopted by case port/terminal operators, the tactics function through the control of transportation nodes and lines and they all contribute to the expansion of case hub seaports' cargo collection/distribution networks.

8.4.4 Integrated and Harmonised Business Relationship Management

The establishment of integrated and harmonised business relationships with the liner shipping companies is the last type of strategy used by case port/terminal operators to improve their power in relation to the liners. To achieve this purpose, the case port/terminal operators have mainly relied on two power tactics: the formation of joint-ventures and business communication. Details of these power tactics and the relevant evidence can be seen in Table 8.8.

Table 8.8 Case port/terminal operators' actions to establish integrated and harmonised business relationships with the liner shipping companies

Category	Case port/terminal operator				Illustrative quotation
	XM	SH	QD	NB	
Formation of joint-ventures	•	•	•	•	<p>‘Why are there so many joint ventures (in the Chinese seaport industry)? Other than the absorption of capital, the port groups have learned their [i.e. foreign terminal operators and/or liner shipping companies] management experiences. Up until the current stage, Chinese seaports neither need to draw capital nor need to import knowledge and know-how. But, they are still cooperating (with liner operators). It [i.e. port/terminal operator] wants nothing but a more stable relationship.’ [NB2]</p> <p>‘Qingdao Port Group invited the liner shipping companies to strengthen the cooperation. We are allowed to establish joint-ventured container freight stations. [...] They just hold out an olive branch.’ [QDM1]</p>
Business communication	•	•	•	•	<p>‘I have just visited a few shipping companies. We seldom went there before. Most liner shipping companies would come here, and we met every day. The port group said this year was the ‘service year’. You must go [...] and record what has been communicated and what the feedback is. [...] Generally, our guanxi is good. These liner shipping companies have ‘on-site departments’. We eat lunch together every day.’ [SH1]</p> <p>‘There are many levels of communication. At our level, we consider the operation. The upper level [...] targets the headquarters of liner shipping companies. This is strategic cooperation (between the Qingdao Port Group and its liner customers).’ [QD4]</p> <p>‘We have regular communication. We visit them during New Year and other festivals.’ [XM4]</p>

8.4.4.1 Formation of Joint-ventures

The establishment of joint-ventured terminal operating companies with carriers was reported as a power tactics used by all case port/terminal operators in this main study. Table 8.9 presents a list of the global carriers involved in the container handling business of the case hub seaports. From the perspective of the liner shipping companies, both COSCO and Maersk (APM Terminals) have terminals operating in all the four cases. The involvement of CMA-CGM, Evergreen, MSC, and APL in the case seaports' terminal business was also observed, albeit with a relatively limited scope.

Table 8.9 liner shipping companies' involvement in the container terminal operating business of four case hub ports

Case	Liner shipping companies involved in container terminal operating company	Wholly owned container terminal operating company
Xiamen	CMA-CGM , Maersk, COSCO	Yes
Shanghai	Maersk, COSCO	Yes
Ningbo	Evergreen, MSC, COSCO, Maersk	Yes
Qingdao	COSCO, Maersk, APL	No

Source: based on information gathered from the official web sites of four case hub ports, their subsidiary terminal operating companies and interview findings

From the perspective of the port operators, the terminal run by COSCO Pacific (i.e. Xiamen Ocean Gate Container Terminal Operating Company) acts as a competitor to XCTG in the case of Xiamen Port, as discussed in Section 8.4.2.1. Therefore, this involvement is not a power strategy adopted by the relevant port operator.

Although the involvement of liner shipping companies in the terminal business was widely witnessed in the case seaports, three of the port groups (i.e. Shanghai Port Group, Ningbo Port Group and Xiamen Port Group) possessed at least one wholly-owned container terminal operating company in their ports (see Table 8.9). However, this phenomenon was not observed in the case of Qingdao Port since all the container terminal operators in this port are joint ventures. According to the deputy operations manager of LSC4, this is due to the involvement of multiple shareholders

in the first terminal operating company (QQCT) and their agreement to act as one party for the establishment of new container terminal operating companies in Qingdao Port.

8.4.4.2 Business Communication

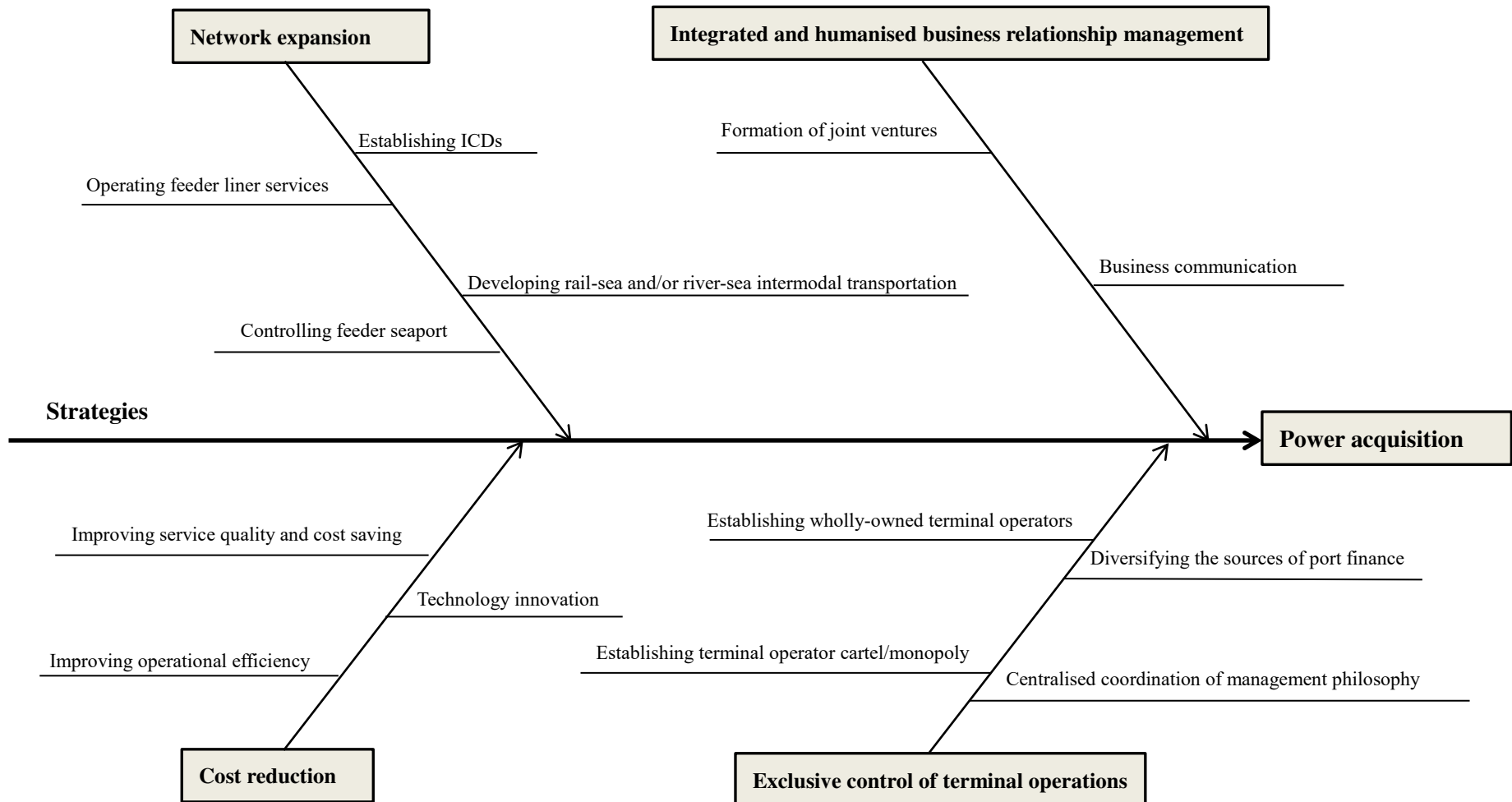
Regular business communication with liner operators is the last group of power tactics identified in the main case studies. The tactics were found to be implemented by all case port/terminal operators, and they have been conducted in many forms, such as customer visits and festival greetings (see Table 8.8). While the communication with liners can take place at different managerial levels, all of the case port groups have established a business department to systematically manage the business relationships.

The communication between case port operators and liners has been enhanced by the involvement of the shipping companies in the terminal operations business. As a shareholder of the joint-ventured terminal operating companies, liners often have port representatives to supervise the operations of the companies and maintain daily communication with case port groups. In addition, direct observations in the case seaports reveal that some liner shipping companies (e.g. MSC in the case of Xiamen Port and CMA-CGM in the case of Shanghai Port) have assigned on-site staff to coordinate the operations of their containers, although the liners may not retain any ownership of the terminal operating company. This has also facilitated the communication between port/terminal operators and liner operators.

8.5 Summary and Outcomes of the Port/terminal Operators' Power Strategies

On the basis of the presentation and analysis of the findings regarding case port/terminal operators' power strategies in relation to the liner shipping companies, this section summarises the findings (Figure 8.2) and discusses their implications.

Figure 8.2 Summary of case port/terminal operators' power strategies



8.5.1 Summary of the Port/terminal Operators' Power Strategies

An Ishikawa diagram has been presented in Figure 8.2 to summarise the observed power strategies implemented by the case port/terminal operators. In general, four categories of power strategy have been identified (see Table 8.2), with each evidenced in all of the case hub seaports. Under each category, the case port operators have developed various power tactics according to the features of their own corporations (e.g. geographical feature in the category of network expansion and market condition in the category of exclusive control of terminal operation).

The cross-case analysis of the variations in the application of power strategies and tactics by case port/terminal operators has been presented in Tables 8.3, 8.5, 8.6 and 8.8. In spite of these variations, all of the power strategies and tactics that were reported in Section 8.4 can be viewed as the case port operators' measures to acquire power and achieve their desired power relationships with the liner shipping companies. On the basis of the presentation and analysis of these findings, the next section discusses the implications of the case port/terminal operators' power strategies on the vested power relationships.

8.5.2 Outcomes of the Power Strategies

As suggested by RDT, power strategies can increase the implementer's power and reconfigure its power relationships with the other power-involved parties. On the basis of the theoretical examination of power strategies (see Section 8.2) and the reported findings, the potential impact of the case port/terminal operators' power strategies on their power relationships with the liners are shown in Table 8.10.

In terms of the content of Table 8.10, the first column lists the four categories of power strategy that were adopted by the case port/terminal operators. The second column specifies the attitudinal nature of each strategy towards the current power patterns between case port/terminal operators and liners. Its spectrum is subject to

Petersen et al.'s (2008) categorisation, which includes absorbing the environment, negotiating the environment, and creating the environment, as reviewed in Section 8.2.2. The third and fourth columns examine the implications of the observed power strategies on the reconfiguration of the power relationships. Whereas the former focuses on how they would affect the relative power/dependence between case port operators and liner operators, the latter further investigates this issue by specifying how they would direct the vested power patterns in Cox's (2001b) power matrix (see Figure 4.4).

Table 8.10 Function of case port/terminal operators' power strategies

Strategy	Port/terminal operators' attitude*	Dependence increased	Directive route#
Cost reduction	Absorbing/creating the environment	Liners on port/terminal operators	Supplier dominance
Exclusive control of terminal operations	Creating the environment	Liners on port/terminal operators	Supplier dominance
Network expansion	Creating the environment	Liners on port/terminal operators	Supplier dominance
Relationship management	Negotiating the environment	Both liners on port/terminal operators and port/terminal operators on liners	Interdependence, Supplier dominance

* Options are subject to Petersen et al.'s (2008) categorisation of the three outcomes of power strategies

Options are subject to Cox's (2001b) categorisation of the four types of power patterns

8.5.2.1 Cost Reduction

In Table 8.10, the power strategy of cost reduction does not necessarily change the balance or imbalance of the power relationship (Emerson 1962). Since this power strategy can be used to ease the pain of meeting the buyers' (akin to the liner shipping companies') demands (Emerson 1962), it implies theoretically an adaptive attitude towards the current status of power patterns. In addition, the findings from the fieldwork show that this power strategy also implies the case port/terminal operators' proactive attitude to create a favourable power pattern. Through cost reduction and resource optimisation, port/terminal operators perform a better role as the provider of container handling services. This improvement may attract more liner customers,

increase carriers' dependence on the port/terminal operators and move of the vested power patterns to the supplier (akin to the port/terminal operator) dominance matrix.

In terms of the impact of cost reduction on the acquisition of power, interview evidence reveals a concern about the diminishing effect of such power strategy in the selected empirical setting, as in the following example:

The key concern for the terminal industry is efficiency. If you [i.e. terminal operator] say you will increase your efficiency by a certain percentage, I would not believe it because this cannot be done in the short term. Any management practice has a ceiling. The crane driver has a ceiling and so has the operational system. [...] Your technique and equipment do not have much room to improve. [...] They [i.e. liners] are all quite clear about the local port efficiency. They would not believe your promise (about the increase of efficiency). (Business Manager of TO2)

The improvement of operational efficiency is an important power tactic adopted by case port/terminal operators under the category of cost reduction. In practice, Chinese hub ports are among the most efficient seaports in the world. According to a report on worldwide port productivity by the JOC Group (2014), 9 out of the top 13 most productive ports in terms of berth efficiency are Chinese hub ports. The four cases in this main study are among these nine Chinese seaports.

The already high performance of case port/terminal operators means that the factor of operational efficiency may not be used by liners to distinguish case seaports when they consider which port they should call at. Since the port operators in this main study have already played an outstanding role to provide their liner customers with efficient terminal handling services, any power strategy that further functions on this factor tends to have diminishing returns in terms of attracting more liner shipping companies and gaining more power. Even so, such power tactics are feasible for less efficient port operators in other regions of the world. For the case port/terminal

operators, they can focus on technological innovation and overall service quality improvement to acquire power in relation to their liner customers.

8.5.2.2 Exclusive Control of Terminal Operations

In terms of the second power strategy, case port/terminal operators sought to achieve or maintain the exclusive control of the terminal operating business within their seaports. On the basis of RDT, the establishment of a port monopoly increase the power of the port operator since it limits the availability of liners' alternative terminal calls within case seaports. Emerson (1962) has proposed that collusion/group forming is an important strategy for social actors to acquire power. In this study, the power strategy regarding the exclusive control of port business is achieved through forming or sustaining terminal operating groups. These groups have been manifested as port group corporations in the case of Shanghai Port, Qingdao Port and Ningbo Port, and a terminal operating cartel in the case of Xiamen Port.

By forming terminal operating groups, case port operators undermine the ability of liners to conduct terminal-hopping, aggregate the dependence of liners on each terminal and increase the power of the port groups in relation to the liners. Similar to the first power strategy, this power strategy directs the power relationship to the matrix of supplier dominance. The adoption of the second power strategy implies that the port/terminal operators have a proactive attitude to create the power environment and pursue or maintain the favourable power positions in relation to the liners (see Table8.10).

According to Cox et al. (2002), the establishment of a monopoly also develops a secure system for the possession of power. From this perspective, both the cost and the sustainability of this 'market closure system' determine the effectiveness of the second power strategy for the improvement of the strategy user's (i.e. port/terminal operator's) power (Cox et al. 2002). The implementation cost to achieve a terminal monopoly in general seems to be low in the context of the Chinese seaport sector

because the port groups had the opportunity to inherit the monopoly status of former port authorities when the latest port reform started.

In the case of Xiamen Port, the establishment of the terminal cartel (i.e. XCTG) after the end of an 'open market' policy is based on the cooperation of the local port authority, the SASAC of Xiamen City and the Xiamen Port Group. In comparison to the other three cases, the development of this 'market closure system' out of a largely free market seems to be more costly. For the case of Shanghai Port, Ningbo Port and Qingdao Port, the port operators inherited the monopoly status of respective port authority. Even so, the cost for the maintenance of their monopoly status in the local markets may vary due to the different challenges that they encountered.

8.5.2.3 Network Expansion

The adoption of the third power strategy, network expansion, reflects the case port/terminal operator's attitude to proactively raise the dependence of the liner customers on their seaports. Thus, it is categorised as 'creating the environment' in the second column of Table 8.10. Network expansion is an essential power strategy in the seminal work of Emerson (1962). However, in the empirical setting of this study, the strategy functioned differently in comparison to the original discourse.

According to Emerson (1962), network expansion involves a supplier's/buyer's (B) search for more buyers/suppliers (C), and it changes the one-to-one (B-A) exchange relationship to one-to-many (C-B-A). In the case seaports, the port/terminal operators (suppliers) have managed to expand the cargo distribution/collection network through the integration and cooperation with a range of logistics actors in the network. However, these actors, such as the operators of ICDs and feeder ports, are not the buyers of the port services. To some extent, they play the role of supplier in the sense that their involvement in the case seaports' logistics networks increases the cargo flows going through this transportation node.

Therefore, although the third power strategy tends to increase the dependence of liner shipping companies on the port/terminal operators, it does not function through the diffusion of the latter party's (supplier's) total dependence on the former (buyer). Instead, the function of the power strategy is based on the establishment of integrated logistics networks that centres on the case seaports. Through this measure, the port/terminal operators can boost the cargo flows going through the seaports and this increases their irreplaceability for liners when selecting a port of call. This measure has been identified by Pfeffer (1981) as an important strategy to improve power position.

8.5.2.4 Integrated and Harmonised Business Relationship Management

The fourth power strategy (i.e. integrated and harmonised business relationship management) is different from the other three strategies in terms of all of the aspects compared in Table 8.10. When the port/terminal operators adopt this fourth strategy, they aim to negotiate the power environment since it requires the cooperation of the carriers. The creation of joint ventures and the management of business relationships can lock in high-quality buyers and move the power relationships towards interdependence (Cox et al. 2002). In other words, the fourth power strategy can raise both the liners' dependence on the port operators and the port operators' dependence on the liners. Thus, the use of this strategy reflects the desire of the case port/terminal operators to establish highly interdependent relationships with their liner customers.

Based on RDT, the increase of interdependence means the growth of both power-involved parties' power in relation to each other. Despite the increase in the liner operators' power, the fourth power strategy seems to have a more positive impact on the improvement of the port/terminal operators' power when the second power strategy (i.e. exclusive control of terminal operations) is taken into consideration. Since the case port/terminal operators have largely managed to control the operation and management of the joint-ventured terminal operating companies, the ability of the liners to intervene in the terminal business is constricted. This weakens the impact of

the fourth power strategy on the increase of the liners' power. Thus, in the empirical setting of this study, the fourth power strategy also directs the vested power patterns towards supplier (port/terminal operator) dominance in addition to interdependence (see Table 8.10).

8.6 Summary and implications

8.6.1 Chapter Summary

On the basis of the review of literature on power asymmetry and RDT, this chapter has examined the strategies adopted by the case port/terminal operators to improve their power in relation to global liner shipping companies. The research findings identified four categories of power strategy: cost reduction, exclusive control of terminal operations, network expansion, and integrated and harmonised business relationship management. Under each category, the case port/terminal operators have developed a variety of power tactics according to the features of their own corporations.

In general, the first three power strategies and the relevant tactics tend to increase the dependence of liners on port operators, and result in an improvement in the latter party's power position and the movement of the power pattern towards the supplier-dominance (port/terminal operator-dominance) block in Cox's (2001a) power matrix. In comparison, the last power strategy can contribute to the establishment of interdependent relationships between case port/terminal operators and liners, and increase the power of both parties in relation to each other. However, due to the exclusive control of terminal operations, this power strategy seems to have a more positive impact on the increase of the port/terminal operators' power and shifts the vested power pattern towards supplier (port/terminal operator) dominance, in addition to interdependence.

8.6.2 Theoretical Implications and Contributions

The study of power strategy in this chapter makes important contributions to academia. In particular, it provides an account of how port/terminal operators have behaved to improve their power in relation to liners in the context of the Chinese hub seaport sector, and contributes empirical evidence to the overlooked sub-dimension of the concept of power (i.e. power strategy).

The examination of the identified power strategies harkens back to the conceptualisation of the ‘power balancing operations’ in the seminal work of Emerson (1962). Furthermore, this study has drawn on Pfeffer’s (1981) and Cox et al.’s (2002) influential studies on power strategies to leverage RDT’s insights into the power acquiring process. Conceptual strategies observed in the empirical setting have been re-examined based on the empirical evidence from the Chinese seaport sector. The results confirm the robustness of the explanatory power of RDT for the functioning of power strategies. While the implementation of various power strategies reflects the port/terminal operators’ different attitudes towards the current power patterns and/or power environment, they all contribute to the improvement of the implementers’ power positions in relation to the liners through the underlying mechanism embedded in the power-dependence discourse of RDT.

This study also deepens our understanding about of the element of ‘intention’ or ‘will’ embedded in the concept of power (e.g. Lukes 1986, Morriss 2002). Driven by self-interest, case port/terminal operators were motivated to direct their power patterns with liners to the supplier dominance (port/terminal operator dominance) block in Cox’s (2001b) power matrix. This finding agrees with Cox’s (2001a) and Cox et al.’s (2002) perception of the desired movement of suppliers in the power matrix.

However, it is also important to note that in addition to the power position of supplier dominance, the case port groups sought to establish an interdependent power

relationship with the liners. This finding extends the work of Cox (2001a) and Cox et al. (2002) by highlighting that the power dominance situation (i.e. supplier dominance or buyer dominance) may not be the only power pattern desired by the power-involved actors. Moreover, it supports the view of Martino and Morvillo (2008) who addressed that port/terminal are desired to create a high level of interdependence in their business relationships with carriers in order to improve port competitiveness.

8.6.3 Practical Implications

In terms of practical implications, the power strategies and tactics identified in the empirical setting of this study offer an action plan for port/terminal operators in other regions of the world to improve their power in relation to the liners. In addition, the outcome of the power strategy of integrated and harmonised relationship management implies that the common practice of supply chain integration may not suit all of the supply chain members. From the perspective of power study, the establishment of an integrated inter-organisational relationship can increase the power of both parties in the dyad. The case port/terminal operators have developed a secure system (i.e. exclusive control of terminal operations) to benefit from this strategy, while at the same time restraining its positive impact on the increase of the liners' power. For supply chain actors who are unable to establish such a system, there is a concern that integration activities may shift their power patterns in an unfavourable manner. Therefore, the application of the strategy of supply chain integration requires the supply chain actors to carefully consider both their desired power patterns and the impact of this strategy on the change of their relative power in relation to other supply chain members.

Chapter 9 Power Patterns and Power Sources

9.1. Chapter Overview

This chapter aims to deal with the following two research questions:

RQ2: What are the sources of power for Chinese port/terminal operators and global liner shipping companies in relationship to each other?

And,

RQ3: How do Chinese port/terminal operators and global liner shipping companies perceive their power patterns in relation to each other?

The rest of this chapter is structured as follows. Section 9.2 provides the theoretical background and establishes the analysis frameworks. Then, the presentation and discussion of the findings about power patterns and power sources involved in the vested inter-organisational relationships in the selected four Chinese hub seaports will be presented in Section 9.3 and Section 9.4, respectively. Based on these two sections, this chapter concludes with a summary of the research findings and a discussion of the implications of the topics studied.

9.2 Theoretical Background

9.2.1 Power Patterns

RDT argues that a firm's power resides in other firms' dependence on the resources controlled by the source firm (Emerson 1976, Pfeffer 1981). On the basis of this understanding, the following four possible power patterns (see Figure 4.4) in a buyer-supplier (A-B) relationship have been classified by Cox et al. (2002): Interdependence ($A=B$), Buyer Dominance ($A>B$), Supplier Dominance ($A<B$) and Independence ($A \neq B$) (see Section 4.5.3.4). This classification hinges on the relative

amount of power held by the parties involved in a dyadic power relationship: $A > B$ and $A < B$ refer to an imbalance in relative power, while $A = B$ and $A \approx B$ represent situations where A and B have largely equal amounts of power. The difference between $A = B$ and $A \approx B$ lies in the amount of mutual power held by the buyer and the supplier.

For the maritime industry, the interdependence between port/terminal operators (akin to the supplier) and liner shipping companies (akin to the buyer) is necessary and ubiquitous, as reported in the exploratory study. As adjacent actors in the logistics chain, these two supply chain actors provide critical transportation linked services that enable maritime trade. Shipping lines need a seaport to accommodate ships and load/unload cargos whereas port/terminal operators rely on the carriers' port call to fulfil their role in the logistics network, and their operational assets are largely designed specifically to serve carriers.

In addition to interdependence, the relative power held by port/terminal operators and liner shipping companies in relation to each other requires investigation in this main study. Therefore, the first consideration of this chapter is to examine the patterns of power between these two maritime actors on the basis of Cox's (2001b) power matrix. The examination of this issue draws on two aspects of evidence. The first one is the investigation of case port/terminal operators' and liner shipping companies' self-perception through interviews. In addition, since a firm's power theoretically stems from its power sources, the second aspect of evidence involves the comparison of the differences in each maritime actor's power sources in relation to the other.

9.2.2 Organisational Power Sources

Based on the findings from the exploratory study, power source in the rest of this research is defined as the factors that give rise to higher or lower power (Pazirandeh and Norrman 2014). In the context of supply chain management, a widely-cited conceptualisation about the source of power is contributed to by RDT (see e.g.

Ramsay 1994, Crook and Combs 2007, Pazirandeh and Norrman 2014).

The understanding of power source by RDT is embedded in an inter-organisational exchange relationship. Rather than being self-contained or self-sufficient, organisations possess both resources and resource needs (Pfeffer and Salancik 1978, Ramsay 1994, Coff 1999). As a result, the possession of valuable resources forms the dependence base in an exchange relationship (Pfeffer and Salancik 1978). On the basis of power dependence relations, RDT indicates that the source of a firm's power resides in other firms' dependence on resources controlled by other supply chain members (Stern and El-Ansary 1992).

RDT thus provides an essential theoretical basis for the examination of power source in a dyadic exchange relationship. The amount of power generated from resource dependence is contingent on two factors: the importance of resources and the availability of alternative sources of resources controlled by an organisation (Emerson 1962, Cox et al. 2002). This understating implies that the examination of the sources of power should be focussed on at two levels: at the organisational level and at the dyadic relationship level.

9.2.2.1 Organisational Level

A firm's resources can 'include all assets, capabilities, organisational processes, firm attributes, information, knowledge etc. controlled by a firm that enables the firm to conceive of and implements strategies that improve its efficiency and effectiveness' (Barney 1991, p. 101). The importance of this factor as the fundamental source of power at the organisational level has been reported in the exploratory study and it is widely accepted in previous power literature (see e.g. Brown et al. 1983, Stern and El-Ansary 1992, Berthon et al. 2003, Zhuang and Zhou 2004). In an exchange relationship, the relevance of resources to the possession of power is determined by the extent to which they can mediate the buyer's or supplier's goals (Cox et al. 2002).

The literature on inter-organisational power has identified a number of organisational resources that can generate power, such as size and capacity (Frazier and Summers 1986, Provan and Gassenheimer 1994, Quinn and Doherty 2000), expertise and know-how (Farrell and Schroder 1999, Moore et al. 2004, Zhuang and Zhou 2004, Byrne and Power 2014), legitimacy (French and Raven 1959, Scheer and Stern 1992, Doherty et al. 2014) and technology (Cox 2001b, Williams and Moore 2007). Such diversity provides support to the argument that as business context changes, what counts as critical resources may also change (Pfeffer and Salancik 1978). Therefore, the identification of organisational resources related to the possession of power (i.e. power-related resources) should arguably be grounded with regard to a specific exchange relationship.

9.2.2.2 Dyadic Relationship Level

RDT has suggested the availability of alternatives as another key factor that determines dependence (Emerson 1976, Pfeffer 1981). This factor reflects the difficulty of switching business partners and the extent to which firm A can achieve its goal outside A–B relationships and inversely related to the power of firm B over A (Emerson 1962, Cox et al. 2002). Based on this understanding, the second level of power source investigation is from the dyadic relationship level.

A dyadic power relationship has been a key scope for researchers to understand the issue of power in supply chains (see e.g. Frazier 1983, Skinner and Gultinan 1985, Kale 1986, Zhuang and Zhou 2004, Casciaro and Piskorski 2005, Handley and Benton Jr 2012). Factors that determine the level of power/dependence complement power-related resources and render the possession of power an integrated outcome (Finne et al. 2015). Those factors that may give rise to high or lower power should also be incorporated into the power source analysis (Pazirandeh and Norrman 2014).

In addition to the availability of alternatives, Frazier et al. (1989) summarises three approaches towards the indication of dependence in a dyadic business relationship,

which are: sales and profit approach, role performance approach and specific assets-offsetting investment approach. These three approaches are described in more detail below:

- The factor of sales and profit reflects the difficulty of replacing the buying organisation (Frazier et al. 1989). One organisation's dependence on another is proportional to the latter party's sale/profit contribution to the former (Etgar 1976, Kale 1986).
- The role performance approach suggests that how well an organisation can fulfil its roles (e.g. product quality, delivery time and cost) in an exchange relationship determines its attractiveness to the business partners and the difficulty of it being replaced (Pfeffer 1981, Frazier 1983, Skinner and Guiltinan 1985).
- The transaction-specific investments create a lock-in effect because these investments make the investor's switching of partners more costly and the investor is thus less motivated to search for alternative business partners (Handley and Benton Jr 2012). In contrast, offsetting investment refers to bonding behaviours such as enhancing personal relationship with business partner's personnel and dedicating assets to the supplying/buying organisations (Heide and John 1992). These actions can reduce the bonded organisations' incentive to switch business partners (Frazier et al. 1989).

9.2.2.3 Supply Chain Network Level

Whereas the organisational and dyadic scopes, as implied by RDT, both contribute to the understating of the source of power, Cox et al. (2002) suggest an extension to the supply chain level. An extended scope towards the examination of power source has also been embraced by structural power researchers such as Cendon and Jarvenpaa (2001), Kahkonen and Virolainen (2011) and Finn et al. (2015). At the supply chain network level, network researchers have argued that the source of power can stem from an organisation's position in the network (Bonacich 1987, Brass and Burkhardt 1993, Borgatti 2005). The rationale is that a centrally located organisation is an

indispensable part of a network since this node, by integrating discrete entities, makes it possible for the network to function (Astley and Sachdeva 1984). Holding of a central location in a supply chain network can, therefore, be viewed as one kind of organisational resource, which is manifested as system-wide dependence (Easley and Kleinberg 2010). The effect of this factor on the possession of power is enabled by the supply chain network's dependence on the nodal organisation (Cook et al. 1983, Easley and Kleinberg 2010).

A summary of the synthesis of an organisation's potential sources of power based on the above literature and the RDT is provided in Table 9.1. The identification of several power sources (i.e. resource, alternative/switching difficulty, sales and profit) are also supported by findings from the exploratory study (see Section 7.4.2). The conceptualisation of the sources of organisational power at three levels—that is, the organisational, the dyadic relationship and the supply chain network levels—is relatively novel in that most studies of the source of power, as noted above, examine the issue solely at one level, either the organisational or the dyadic level. A few authors have examined the sources of power through the three levels of organisation, dyadic relationship and supply chain network, notably Kahkonen and Virolainen (2011) and Finn et al. (2015); however, both have faced the problem of not developing a clear theoretical basis to guide their identification of power sources.

Hence, the second goal of this chapter is to examine what insights can be gleaned for the sources of power from the inter-organisational relationship involving port/terminal operators in Chinese hub seaports and global liners. In addition, evidence from the Chinese hub seaport can also test whether a theoretical underpinning to the 3-tier structure of identifying sources of power can be developed based on RDT.

Table 9.1 Theoretical sources of power based on the RDT

Level of power possession	Source of power based on RDT	Theoretical functions on the possession of power	Power literature
Organisational level	Resources	Power stems from the dependence on valuable resources controlled by other supply chain members.	Emerson (1962), Cox et al. (2002), Casciaro and Piskorski (2005), Ireland and Webb (2007), Pulles et al. (2014)
Dyadic relationship level	Alternative/switching difficulty	The extent to which a firm A can achieve its goal outside A-B relation and inversely related to the power of firm B over A.	Emerson (1962), Dickson (1983), Butaney and Wortzel (1988), Frazier and Rody (1991), Cox et al. (2001)
	Sales and profit	The contribution to supplier's sales and profit generate the buying firm's power.	Etgar (1976), Kale (1986), Cox (2001b)
	Role performance	How well a firm can fulfil its roles in an exchange relationship determines the amount of its power in relation to the business partners.	Frazier (1983), Skinner and Guiltinan (1985), Scheer and Stern (1992), Zhuang and Zhou (2004)
	Specific assets-offsetting investment	The investment in specific assets may increase the investing firm's power whereas bonding behaviours (offsetting-investment) may increase its power in relation to the invested firm.	Heide and John (1992), Lonsdale (2001), Handley and Benton Jr (2012)
Supply chain network level	Centrality/position in supply chain network (a proposed addition to RDT in this study)	Holding a central position in supply chain network can generate power.	Bonacich (1987), Brass and Burkhardt (1993), Wilkinson (1996), Cox et al. (2002), Easley and Kleinberg (2010)

Source: the categorisation of the level of power possession is based on Kahkonen and Virolainen (2011) and Finn et al. (2015).

9.3 The Patterns of Power in Case Hub Seaports

This section presents and discusses the findings of the power patterns observed in the selected empirical setting. The data collected from Chinese hub seaports was analysed with reference to Cox’s (2001b) power matrix which identifies four possible patterns of power in a buy-supplier relationship.

In general, two types of power pattern from Cox’s (2001b) original power classification were found to be most prevalent to the power relationships between case port/terminal operators (akin to the suppliers) and liner shipping companies (akin to the buyers). They are interdependence and port/terminal operator dominance, as highlighted in Figure 9.1. Interview evidence selected to support the existence of these two patterns of power in case hub seaports is provided in Table 9.2.

Figure 9.1 Port/terminal operator and liner operator’s power patterns in the context of Cox’s (2001b) power matrix

<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Liner power attributes relative to port/terminal operator </div>	High	Liner operator (buyer) dominance Liner operator > port/terminal operator Features: liner operators have relatively more power than port/terminal operators	Interdependence Liner operator = port/terminal operator Features: port/terminal operators and liner operators both have high power in relation to each other	
	Low	Independence Liner operator 0 port/terminal operator Features: port/terminal operators and liner operators both have low power in relation to each other	Port/terminal operator (supplier) dominance Port/terminal operator < Liner operator Features: port/terminal operators have relative more power than liner operators	
	Low	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> Port/terminal operator power attributes relative to liner </div>		High

Table 9.2 Dominant power patterns between case port/terminal operators and liner shipping companies

Power pattern	Case	Evidence
Interdependence	Xiamen Port	‘From the perspective of relationship, they [i.e. liner shipping companies and port/terminal operators] complement each other. [...] I feel it is more about mutual influence.’ [XM1] ‘I see more and more cooperation, and their relationships are some kind of coexistence.’ [XMM1]
	Shanghai Port	‘These two sectors are dedicated to reach other, so they must tie together.’ [SH2] ‘No party can survive without the other; it is mutual dependence.’ [SHE1]
	Qingdao Port	‘Liner shipping companies and terminal operators have integrated. They are close as fish and water.’ [QD2]
	Ningbo Port	‘Each party is an indispensable part of another. So they rely on each other and adjust themselves to fit the other party’s need.’ [NB2] ‘For the relationship, they depend on each other, though it [i.e. the power pattern] may manifest differently in different time periods.’ [NBCO1]
port/terminal operators dominance	Xiamen Port	‘In China, port/terminal operators all have the strong capability to influence liner shipping companies.’ [XM3] ‘If the liner does not call at the port group’s terminals, it has nowhere else to berth. So we have the advantageous position when we negotiate.’ [XM7]
	Shanghai Port	‘Liner shipping companies can only influence the liner market. They cannot influence terminal operators whereas terminal operators can affect them.’ [SH3] ‘Port/terminal operators in Shanghai Port are more powerful.’ ‘There is only one operator in this port. If they [i.e. liner shipping companies] want to berth, they have to listen to me.’ [SH7] ‘Coastal resources are scarce resources and are controlled by state-owned port/terminal operators. This tilts the scales to favour the port side.’ [SHM1]
	Qingdao Port	‘The port group is a monopoly. [...] We have no power to require the port/terminal operators to make any changes.’ [QDA1] ‘The port/terminal operator takes the significant (power) position for sure. It is a monopoly’ [QDH1]
	Ningbo Port	‘Speaking of the current stage, the port group is more powerful’ [NBC1] ‘No liner shipping companies can give up the market in Ningbo.’ [NB1]

9.3.1 Liner operator and Port/terminal Operator Interdependence

Perhaps unsurprisingly, interdependence was found to be a notable feature of the power relationships that existed between port/terminal operators and liner shipping companies. The liners covered in this study are top-ranked global carriers. To varying degrees, they have all established business relationships with the case Chinese hub ports. On the basis of the dependence discourse of power, this indicates the existence of an interdependent business relationship that stems from the mutual demand for the other party's resources.

Mutual dependence was further strengthened by the contractual form of business relationship between port/terminal operators and liner operators. Often renewed on an annual basis, the formation of a contractual relationship implies the existence of mutual interest (Cox et al. 2002) and has been regarded by previous power researchers as one indicator for mutual dependence (see e.g. Frazier 1983, Moore et al. 2004, Kasabov 2007). Supporting this idea, the interview evidence shows that the relationship between port/terminal operators and liner shipping companies was also perceived as 'cooperative' and 'integrated' (see Table 9.2). These types of business relationship, which can reduce uncertainty, improve efficiency and increase the possibility of business success, are also advocated by the dependence approach towards power discourses (Gundlach and Cadotte 1994, Crook and Combs 2007). From the perspective of power pattern, it adds additional evidence to the highly interdependent relationships between liner shipping companies and port/terminal operators. Such a relational feature means that these two parties' power in relation to each other is high. In contrast, the independence dimension of power pattern in Cox's (2001b) power matrix was not evidenced in this research.

9.3.2. Port/terminal Operator Dominance and Liner Shipping Company Dominance

The power relationship of interdependence that was identified in the case seaports did not mean that the power between port/terminal operators and liner shipping companies was always strictly balanced. In addition to interdependence, the existence of port/terminal operator dominance was reported in all four seaports. The interviewees offered a number of reasons for this perception. Noticeable factors that contributed to port/terminal operator dominance included the liners' lack of alternative hub port choice, the monopoly management structure of the port group and the scarcity of coastal resources controlled by port/terminal operators (see Table 9.2).

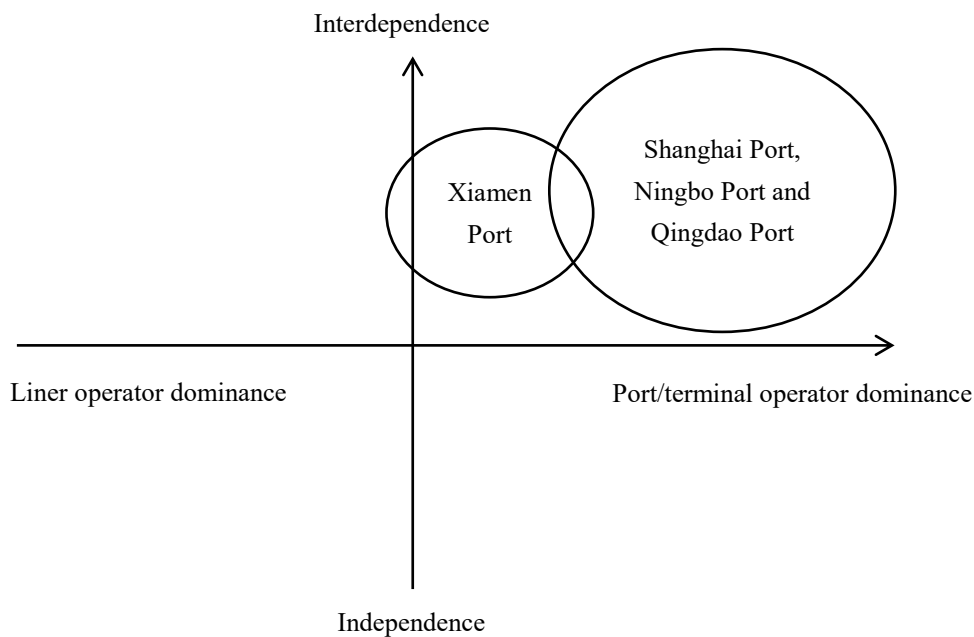
An exception to this consensus was reported in the case of Xiamen Port where LSC1a felt the port/terminal operator was 'a little weak', despite the interdependent relationship between these two parties. This was agreed by one of TO1's business directors who claimed that the liner shipping companies were more powerful because they are international corporations and were the 'through service provider' in the supply chain.

9.3.3 Mapping the Power Relationships in Chinese Hub Seaports

The analysis of power patterns enabled the mapping of the vested power relationships in the selected seaports. A revised version of Cox's (2001b) power matrix (Figure 9.2) was used to achieve this purpose. More specifically, the four power positions in the original power matrix (Figure 9.1) are theoretically exclusive. However, the evidence from the case studies indicated that there was a multidimensional perception of the vested power patterns. This meant that the power pattern in one case may be characterised by more than one type of the power positions that are shown in Figure 9.1. In order to address this feature, the mapping of power patterns in selected Chinese hub seaports is presented in a coordinate system which has been developed

from Cox's (2001b) power matrix. In Figure 9.2, the horizontal axis represents the change of power imbalance from liner shipping company (buyer) dominance to port/terminal operator (supplier) dominance and the vertical axis indicates the evolution of mutual dependence from liner shipping company–port/terminal operator independence to liner shipping company–port/terminal operator interdependence.

Figure 9.2 Power patterns in four Chinese hub seaports



The comparison of power patterns between port/terminal operators and liners is further illustrated in Table 9.3. In all of the cases the port/terminal operators and liner operators are highly interdependent but with the former being shown as taking a relatively stronger power position, with the exception of the case of Xiamen Port where a few respondents challenged the overall consensus and proposed that the liner shipping company was the more dominant player in the inter-organisational relationships. Thus, the overall related power pattern here was regarded as being characterised by moderate port/terminal operator dominance and minor liner dominance. Whereas the port/terminal operator of Xiamen Port was generally perceived as more powerful than liner operators, even though it had less power in comparison to its counterparts in the other three cases.

Table 9.3 Comparison of power patterns in four Chinese hub seaports

Cases	Summary observations and interview findings	Power pattern features
Xiamen port	<ul style="list-style-type: none"> ● P/TO1 is generally more powerful than their liner customers. ● Liners call at Xiamen Port was perceived as more powerful than P/TO1 by several respondents. ● P/TO1 and their liner customers are highly interdependent. ● No evidence of port/terminal operator-liner shipping company independence. 	<ul style="list-style-type: none"> ● Moderate port/terminal operator dominance ● Minor liner shipping company dominance ● High Interdependence
Shanghai Port, Qingdao Port and Ningbo Port	<ul style="list-style-type: none"> ● P/TO2-4 have strong power in relation to their liner customers. ● P/TO2-4 and their liner customers are highly interdependent. ● No evidence of liner shipping company dominance and port/terminal operator-liner operator independence. 	<ul style="list-style-type: none"> ● Major port/terminal operator dominance ● High Interdependence

9.4 The Sources of Power in Chinese Hub Seaports

This section presents and discusses findings about the sources of power observed in the selected research context. The order of presentation and discussion is consistent with the three levels of power sources categorised in Table 9.1.

9.4.1 Organisational Level

9.4.1.1 Port/terminal Operators' Power-related Resources

The findings from the interviews in the four Chinese hub ports reveal a range of power-related resources that were held by port/terminal operators and liner shipping companies in relation to each other. Here, the perspective of the port/terminal operator is taken and categorised into hinterland resources, intra-organisational resources, natural resources and political resources. Table 9.4 presents this categorisation supported by a description of each with supporting quotations. The number (N) and the percentage (%) refer to the interviewees who perceived the corresponding power resources as relevant for the vested power relationships.

Table 9.4 Case port/terminal operators' power-related resources at the organisational level

Resource	Content	Selected evidence from interview	N	%
Hinterland resources	Containerised cargo flows with a hinterland orientation	'For liner shipping companies, this region has a demand for shipping services. Then they open the line.[...] The number of liner shipping companies and the volume of lines are proportional to the amount of cargo flows.' [XM6]	39	100
	Collection/distribution network	'We have Inland Container Depots in central and west China. Without railway connections, it would be really inconvenient [to collect and distribute containerised cargos].' [QD5] 'With a sound hinterland and motorway connections, the liners have no reason not to come.' [XMM2]		
Intra-organisational resources	Physical capital resource (e.g. cranes, container trucks, geographical location)	'They [i.e. port/terminal operators] need to ask themselves about their competitiveness when trying to sell their services. You can say it is about hardware, such as the length of quay, the depth of navigation channel, and mechanical equipment. More importantly, it is the quality of your operations. This is the selling point.' [QDM1]	39	100
	Human capital resource (e.g. expertise, know-how, experience)	'For ports with similar [natural] conditions, the difference in liners' dependence [lies in the factor that] whether the port operator can provide additional services [...] [such as] the maturity of your operational system, the provision of operational information, and the quality of your employees.' [SH1]		
	Port management structure (hierarchical and exclusive)	'They [i.e. port/terminal operators] are all state-owned companies. The whole port is controlled by them.' [NBCO1] 'The original port authority has been transformed into an enterprise, but the managerial mode remains the same. They are all highly centralised.' [SHM1]		
Natural resources	Hydrological conditions	'Currently not many ports in China can accommodate Triple-E vessels.' [NBC1]	25	64
	Climatic conditions	'Hydrological condition is a significant factor. Whether the mother ship can call at the port is not determined by the price of the port services.' [NB2] 'Wind, fog, waves, and natural water depth: all of these are important. [These factors] directly affect port efficiency.' [QD4]		
Political resources	Government support/policy	'Shanghai is the international financial and shipping centre. The government has to keep it prosperous.' [SHE1] 'The policy of customs and Entry-Exit Inspection and Quarantine Bureau (EEIQB) determines the geographical gathering of certain cargos.[...] The cargoes of the 'three wastes' [i.e. waste paper, scrap metal, and waste plastic] are usually unloaded in the Port of Hong Kong. Theoretically, you can also ship these cargos to Xiamen Port. It has free trade port zones but lacks any real political support from the customs service.' [XM2]	19	49

Hinterland resources

The hinterland is the land-based area from which a seaport draws the majority of its business (Notteboom 2008). The findings from the field work show that the case seaports greatly rely on their hinterlands rather than transshipment services for their business success in terms of international container business. The amount of hinterland container traffic is crucial for port/terminal operators to attract liner shipping companies and it greatly shapes the condition of the seaport market in terms of the balance between the demand and the supply of port services. In the case seaports, a favourable market condition for the port/terminal operators in Shanghai Port, Ningbo Port, and Qingdao Port is evident, whereas in Xiamen Port there is an issue of overcapacity and strong intra-port competition because their unique hinterland is relatively small compared to the other three ports.

In addition to the hinterland-oriented volume of container traffic, the quality of seaports' collection/distribution networks (which could also include connecting short-sea shipments with neighbouring partner ports) plays an important role. This can be measured through the degree of efficiency and promptness of handling of containers to and from the port nodal point, which has a significant bearing on the performance of maritime logistics network (Caris et al. 2011). In the case seaports, port/terminal operators have established robust container collection/distribution networks by incorporating a number of transport modes (e.g. rail, motorways and feeder liners) and transportation nodes (e.g. ICDs and river ports) into their hinterland networks (see Section 8.4.3).

Intra-organisational Resources

Intra-organisational resources were another theme identified in all the interviews with regard to port/terminal operators' resources that grant them power in relation to liner shipping companies at the organisational level. Physical capital resource (e.g. cranes, container trucks, geographical location) and human capital resource (e.g. expertise,

know-how, experience) are important for port operations and affect the role performance of port/terminal operator. As the needs of modern container shipping have evolved (such as the transition to larger vessels), it has become essential that internal physical and human resources have anticipated the arising needs so that the ports have remained viable and capable to meet the needs of carriers and shippers. Currently, all of the case ports possess strong reputations to cater for modern container shipping demands.

Port management structure is the third intra-organisational resource that is found to be relevant as a power source. All of the case ports have strong governmental background, which adds to the legitimacy of their power in relation to other supply chain actors (Zhao et al. 2008). However, several differences were seen between the management structures of these four hub ports that affect their source of power. As discussed in Section 8.4.2, in the case of Shanghai Port, Qingdao Port and Ningbo Port, the port group corporations inherited the monopoly status of the former port authorities after the latest port reform in China. Each has since maintained an exclusive and hierarchal control over all aspects of port operations (see also Section 10.3).

In comparison, when the port group corporation was established, a market-oriented strategy was adopted by the operator of Xiamen Port. Subsequently, in December 2013, a change to the strategy occurred with the establishment of a container business cartel, Xiamen Container Terminal Group (XCTG). The container business cartel was reported as a newly-acquired power-resource of the port/terminal operator in Xiamen, but its effectiveness was negatively affected by intra-port competition as a monopoly control of all intra-port terminal operators had not been achieved.

Natural Resources

In terms of natural resources, hydrological and climate conditions were coded as relevant power resources for the case port/terminal operators. Hydrological conditions

are important due to the carriers' use of increasingly larger ships in their pursuit of economies of scale (Stopford 2009). Although the accommodation of the current biggest trunk route liner was feasible in all four hub ports, the cost for port/terminal operators of adapting the ports to be able to provide berths for large vessels was different. This was particularly evident in the case of Shanghai Port.

Shanghai Port is a tidal port located at the Yangtze River estuary. International container business used to be handled mainly at Waigaoqiao port area (see Table 8.4). However, even with dredging, the water draft in this port area is only between 10.5 m and 13.2 m (Shanghai Port Group Official Website 2015), which is inadequate for large vessels. To cope with the increasing size of the container ships, Yangshan Island was ceded from Zhejiang Province, where the Port of Ningbo is located, by the central government to support the development of deep-water terminals in Shanghai Port. With an average water depth of 17 m, Yangshan port area has solved the problem of its hydrological limitations. However, the cost of this construction was huge. This port area is about 30km away from the coastline and the construction of the bridge connecting the island and mainland (Donghai Bridge) alone cost about 70 billion Yuan.

Similar to the hydrological conditions, climate conditions also affect port operations (e.g. fog in the case of Qingdao Port and hurricanes in the case of Xiamen Port). In view of the scheduled nature of liner shipping services, climate conditions affect the port time of the liners as well as the quality of the service that the liner shipping companies can provide for the shippers.

Political Resources

The last category of port/terminal operators' power-related resources is related to political issues. The respondents used the phrase 'gateway environment' to describe this type of resource. Resources in this category are not controlled by the port/terminal operators. Strictly speaking, it is the access to these resources that

should be counted as one of port/terminal operators' power resources. Port operations of import/export cargos are under the supervision of customs and EEIQB in China. The policy of these government departments and the strength of their supervision are essential for the smooth collection and distribution of containerised cargos. This factor is particularly relevant when the issue of guanxi is taken into consideration. Good guanxi with these government institutions implies potential access to preferential treatment, and thus it can be regarded as one type of resource to attract cargo flows.

Financial support from the public sector is also an important power source of port/terminal operators. The Chinese government highly values port development. Port competition is, to some extent, transformed into competition between port cities (Cheung and Yip 2011). Case port/terminal operators and the local government make every effort to increase port throughput. For example, from the perspective of port operations, the handling of hatch covers and boxes for twist locks were counted as container throughput. From the perspective of the government, in the case of Shanghai Port, the local government's financial support was evidenced in the construction of Yangshan port area (Cullinane et al. 2005). In addition, the provision of financial rewards to liner shipping companies for the opening of a new trunk route line was witnessed in the case of Xiamen Port.

9.4.1.2 Liner Shipping Companies' Power-related Resources

The identification of liner shipping companies' power sources at the organisational level mainly came from the standpoint of their suppliers (i.e. port/terminal operators) in the maritime industry. The findings concerning this topic are presented in Table 9.5. The volume of containers going through the port was indicated to be one of the liners' power-related resources. This perception accords with the logic of the 'sales and profit' dependence analysis approach.

In the international maritime supply chain, the demand for shipping and port services

is contributed by shippers. The port/terminal operators and liner shipping companies work closely to fulfil the demand for transported cargoes. Since the frequency and coverage of lines services determine the connectivity of a port and the service quality that port/terminal operators can offer to shippers, this factor was also identified as the liner shipping companies' power-related resources. In addition, the knowledge about port operations was regarded as the liner shipping companies' power source to comprehend and potentially countervail the port/terminal operators' power.

Table 9.5 Liner shipping companies' power-related resources

Resource	Selected interview evidence	N	%
Volume of containers going through the port	<p>'What I can contribute to port/terminal operator's profit is the volume of my containers.' [QDM1]</p> <p>'This is (China's) national condition. Port operators highly value throughput [...] (and) pursue a world ranking.' [QDH1]</p> <p>'Container volume and price are two things that we value.' [NB4]</p> <p>'Container volume—this is our main concern. We don't care about the type of cargoes or the size of the ships.' [QD9]</p>	39	100
Frequency and coverage of lines	<p>'They [i.e. the port/terminal operator of Qingdao Port] always want us to increase the number of lines calling at their port.' [QDA1]</p> <p>'Ningbo Port uses some policies to attract more lines. This is the precondition for more transshipment operations.' [NBC1]</p> <p>'Planning shipping routes and container logistics in favour of the port is their [i.e. liner shipping companies'] reward to us.' [SH4]</p>	24	61
Knowledge about port operations	<p>'Carriers are experts. Many of their operational staffs come from the port sector. They know the details about port operations. [...] They can tell to what extent port resources are allocated to their vessels.' [SH2]</p> <p>'They [i.e. liner shipping companies] know the port enterprises. [...] They find ways to influence a port and know how to make a request, as they have port representatives here.' [XM7]</p> <p>'[LSC XX] has a vice-manager here. When its alliance's ships come, he usually supervises the operations.' [QD2]</p>	9	23

9.4.2 Dyadic Relationship Level

At the dyadic level, both the perspectives of the port/terminal operator and the liner shipping company are presented in the following subsections.

9.4.2.1 Alternative/Switching Difficulty

Switching difficulty and the availability of alternatives were identified as a power source that was mainly held by the port/terminal operators. At the inter-port level, the liner shipping companies have a number of choices for hub seaports. Even so, it is hard for liner shipping companies not calling at case hub seaports since they have established long-term strategic relationships with the port operators and the substantial amount of hinterland traffic going through these ports has increased the liner shipping company's switching difficulty, as reported by one interviewee:

I don't believe they won't come. [...] The cargo is here. No carriers can choose not to come. (One deputy general manager from the Ningbo Port Group).

The lack of alternative terminal service providers at the intra-port level was particularly evident in Shanghai Port, Qingdao Port and Ningbo Port due to the exclusive and hierarchical control of the service supply. In terms of Xiamen Port, intra-port competition is relatively higher since about 30% of total port capacity is beyond the control of the port/terminal operator. Accordingly, at the intra-port level, both port/terminal operators and liner shipping companies in Xiamen Port have relatively more alternatives in comparison to the other three cases.

9.4.2.2 Sales and Profit

The liner shipping companies' container volume going through the port has already been recognised as an essential power-related resource. From the perspective of the 'sales and profit' in a dyadic exchange relationship, the more container volume (profits) that the liner shipping companies can contribute, the more power they will have over the port/terminal operators. In addition to the evidence shown in Table 9.5, one deputy general manager from the Ningbo Port Group commented,

We rely on their containers. The income of terminal operators is the handling charge. Only because the container comes (to the Port of Ningbo, can we) charge

shipper these fees. [...] So we depend on the carriers' port calls.

An interesting finding about 'sales and profit' is that the supplier of port services (port/terminal operator) also possesses this power source. Previous discussions about port/terminal operators' power resources have indicated that the case seaports rely heavily on their hinterland-oriented traffic. Since the movement of import/export cargoes tends to go through the adjacent hub port in order to achieve economic efficiency, the geographical control of these cargoes has the potential to contribute to the carrier's profit and thus grant port/terminal operators power:

(For example) the container volume for international trade in Qingdao Port is two million TEUs. Even if the top three carriers all abandon this port, these two million TEUs still need to go through Qingdao Port. (Operations director of LSC6)

9.4.2.3 Role Performance

At the inter-organisational dyadic relationship level, role performance was identified as one of the port/terminal operators' power sources, as in the following example:

If the port can do better, it means they [i.e. liners] can provide a quality service to their customers. (Deputy general manager of P/TO3).

The interview findings show that, generally, role performance was perceived to be related to the overall quality of the port services. In addition to the efficiency of the port operations, the ability to consistently perform at a high level were identified as an essential element of the port/terminal operators' role performance by liner shipping companies. From this perspective, Chinese hub ports are among the most efficient seaports in the world. According to a report on worldwide port productivity by JOC Group (2014), the four cases in this main study are ranked within the top 13 most efficient ports in terms of berth efficiency in the world (based on container moves per-ship, per-hour on all vessel sizes). Their high performance implies high

dependence from liner shipping companies based on the notion of role performance.

The interview findings also reveal that the performance of port/terminal operators was significantly affected by how well the liner shipping companies fulfil their role as the port's customer. The port/terminal operators need information about incoming vessels, such as arrival time, draft, and pre-stowage plan, to organise production and allocate port resources. Thus, the accuracy and timeliness of this information, and how well liner shipping companies can act according to the exchanged information, affect the port/terminal operators' role performance. Even so, the role performance of liner shipping companies was not identified as a source of their power in relation to port/terminal operators and if they were not able to adhere to the schedule they in turn suffered themselves, as in the following example:

If you have a good record, our terminal would benefit. [...] If you are always late, our operational efficiency wouldn't be high. (One business director of P/TO1).

9.4.2.4 Specific Assets-offsetting Investment

'Specific assets-offsetting investment' is found to be a power source for both parties in the vested power relationships. The investments of liner shipping companies in the container handling business were widely witnessed in all case hub seaports. Due to this involvement, the mutual dependence between port/terminal operators and corresponding liner shipping companies is increased. Investment from liner shipping companies can increase port/terminal operators' power, for example, one of the interviewees said that:

Once the investment enters the company, my status in (shipping line X) increases because we are integrated. (One business director of P/TO1).

This is supported by the idea that the investment in transaction-specific assets can increase the invested firms' power in relation to the investing firm (Gibbons 2010).

By investing in terminal operator companies, the liner shipping companies have also

conducted bonding behaviours. As a shareholder of a joint-ventured terminal operator, the liner shipping company often has port representatives to supervise the operations of the terminal operator and coordinate the operations of its vessels. Such a dedicated post indicates a constraint to port/terminal operators' 'inappropriate' use of power at will and the ability of liner shipping companies to take corresponding actions to deal with this possibility.

9.4.3 Supply Chain Network Level

At the supply chain network level, both port/terminal operators and liner shipping companies possess essential positions in, and have strong control over, maritime supply chains. The liner shipping companies have long been recognised as the leader of the international intermodal channel and of the evolution of the maritime industry (Taylor and Jackson 2000, Woo et al. 2011). To ensure the quality of their service package, shipping lines have expanded their affiliation with various actors in the supply chain. Taking Maersk, the world's leading liner shipping company, as an illustration, the company has expanded its service from the traditional liner services to, for example, terminal operations, goods forwarding, warehousing and distribution, for example:

They [i.e. liner shipping companies] focus on the whole supply chain; other actors, such as forwarders, tally companies, and shipping agencies, all serve the carriers' local business. (Deputy business manager of P/TO3).

For seaports in the context of supply chains, a number of studies have revealed that international logistics activities tend to be increasingly centred on this node (see e.g. Theys et al. 2008, Rodrigue and Notteboom 2009). In accordance with the centralising position of seaports in the supply chain network, the port/terminal operators' control over supply chain actors was evident in the wide business coverage of all port groups covered in this study. Subsidiary companies had been established by all the case port/terminal operators in many aspects of their container business in the

port area, such as cargo freight forwarding, shipping agency, container freight station, inter-terminal barging and tallying, for example:

We are totally capable of determining other companies' [i.e. subsidiary and other companies in the port area] fate. (Deputy Operations Manager of P/TO2)

In addition, case port/terminal operators have adopted a range of network expansion strategies from both the landside and seaside to maintain their hub status. These strategies, which include establishing inland container depots, the investment in river/costal feeder ports, the boost of sea-rail intermodal transportation and the operation of feeder lines, were found to be useful tactics used by case port/terminal operators to increase their control over the maritime supply chain (see Sections 8.4.3 and 8.5.2.3).

9.4.4 Cross-case Comparison

On the basis of the presentation and discussion of the power sources held by port/terminal operators and liner shipping companies in Chinese hub seaports, this section will further compare the reported findings in each case (Table 9.6). Overall, theoretical power sources on all these levels identified based on RDT were all witnessed in the selected research context, as shown in Table 9.6.

Table 9.6 Comparison of sources of power in the case hub seaports

Sources of power	Xiamen Port		Shanghai Port		Qingdao Port		Ningbo Port	
	P/TO	LSC	P/TO	LSC	P/TO	LSC	P/TO	LSC
Organisational level								
Resources	•	•	•	•	•	•	•	•
Dyadic relationship level								
Alternative/switching difficulty	•	•	•		•		•	
Sales and profit	•	•	•	•	•	•	•	•
Role performance	•		•		•		•	
Specific assets-offsetting investment	•	•	•	•	•	•	•	•
Supply chain network level								
Centrality/position in supply chain network	•	•	•	•	•	•	•	•

In terms of the cross-case comparison of power sources held by port/terminal operators and liner shipping companies, the former party broadly possess more power sources than the latter party in all of the case hub seaports. This offers a possible explanation for the power pattern of supplier (port/terminal operator) dominance in these ports. The three levels of theorised power sources were reported on both sides of the power relationship at the organisational level and supply chain network level. The differences between port/terminal operators' and liner shipping companies' power sources were mainly seen at the dyadic relationship level, where the power sources regarding 'role performance' and 'alternative/switching difficulty' were largely held by case port/terminal operators rather than liners.

An exception was seen in the case of Xiamen Port, where both parties in the vested inter-organisational relationship possessed the power source of 'alternative/switching difficulty'. In addition, although the power source at the organisational level (i.e. power-related resources) was possessed by all case port/terminal operators, the power-related resources regarding the 'containerised cargo flows with a hinterland orientation' in the category of hinterland resources and the 'hierarchical and exclusive port management structure' in the category of intra-organisational resources are less advantageous in the case of Xiamen Port in comparison to other three port/terminal operators (see Section 9.4.1.1). These two pieces of evidence provide an explanation for the power pattern of buyer (liner shipping company) dominance identified only in the case of Xiamen Port.

9.5 Summary and implications

9.5.1 Chapter Summary

In summary, the findings from the fieldwork show that the power patterns in selected Chinese hub seaports are multidimensional. Whereas interdependence was witnessed in all cases, the port/terminal operator's dominance is another important pattern of the vested power relationship. In the case of Xiamen Port, liner shipping companies'

dominance was also reported. The reason for these power patterns has been explained through the investigation of various power sources on the basis of RDT.

An analysis framework that encompasses the theoretical power sources identified on the basis of RDT has been adopted to examine the sources of power involved in the inter-organisational relationship between port/terminal operators and liners. By virtue of this framework, the strengths and weaknesses of port/terminal operators' and liners' power sources have been demonstrated, and the identified power patterns have been further explained.

9.5.2 Theoretical Implications and Contributions

This study makes a number of theoretical contributions. By applying the RDT to the inter-organisational relationships between port/terminal operators and liner shipping companies, this chapter extends the RDT and the concepts of power source and power pattern to an overlooked research context, thereby contributing to new knowledge in both the power and maritime literatures.

9.5.2.1 Power Patterns

Drawing on the work of Cox (2001b), the investigation of power patterns in this chapter provides valuable insights into how power is configured in port/terminal operators' and liner shipping companies' business relationships in the context of the Chinese seaport sector.

Research findings have shown that power pattern in one case can be characterised by more than one type of power relationships in Cox's (2001b 2002) power matrix. This multidimensional feature has contributed to the refinement of the matrix. The revised framework can be further tested and potentially used to support and guide the investigations of inter-organisational power relationships in various research settings.

9.5.2.2 Power Sources

The examination of the inter-organisational business relationships between port/terminal operators and global liner shipping companies in Chinese hub seaports has revealed that all of the power sources identified on the basis of RDT are evidenced in this empirical setting. This validates the RDT approach in examining the sources of power between two parties in a dyadic relationship in a supply chain. The supply chain network has been added as a potentially extra level of resource. This contributed to the findings and was found to be a useful addition to the comprehension of sources of power for actors operating in supply chains. Clearly, this will need to be further investigated in future research. The framework using RDT provided a simplified and workable tool to examine sources of power. This builds on the work of Kahkonen and Virolainen (2011), who originally conceived of the idea of using a 3-tier framework to understand power sources, validating their approach and adding a theoretical component to their research study. In addition, by applying the framework to a new sector, this study demonstrated the generic use of this approach.

The study in this chapter also provided considerable insight into the sources of power for maritime supply chain actors (i.e. port/terminal operators and liner shipping companies). This was the first study that has examined the source of power in this area on the basis of power theory. For the port/terminal operator compared to previous research in the sector, which had traditionally taken a narrower view of resource identification, this research identified port resources from a much broader spectrum based on RDT. As such, this study joins together the findings from previous research, especially: port and maritime focused research such as Lee et al. (2003), and Marlow and Paixao (2003), who focused on the port's operational resources such as cargo handling equipment, transportation and storage capacity, dredged channels and quays; and Chang et al.'s (2008) study, which found that liner shipping companies' port (supplier) selection criteria centred on issues such as cargo volume and water draft.

For the power-related resources held by liner shipping companies, it is interesting to

see that the container business of each liner shipping company at the port level was viewed as essential. Since the throughput of case hub ports relies heavily on their hinterland economy, most of the container volume held by local liner shipping companies thus came from the hinterland traffic. In other words, the liner shipping company's power source (container volume) was essentially generated from the port/terminal operators' power-related resource (hinterland). The misperception of the control of hinterland-oriented containerised cargos also offers explanation to the finding that, at the dyadic relationship level, the sale and profit approach apply to both parties involved in the selected business relationship.

These findings feed into an important generic issue as the study has underlined the importance of the contextual circumstance of the research domain in understanding power source in supply chains, supporting the findings of Kim (2000), Cox et al. (2004) and Kasabov (2007). While the framework of theoretical power sources, developed on the basis of RDT, has potential in providing a tool which can be tested and used in other supply chain scenarios, the results obtained from applying the framework could invariably be very different and contingent on the nature and environment of the particular dyadic business relationships focused upon.

An interaction among power sources was also identified at different levels of analysis, which adds evidence to the findings of Finne et al. (2015), who originally put forward this idea. For example, the possession of, and the ability to utilise, organisational power-related resources affects port/terminal operators' role performance, and sound hinterland resources gives liner shipping companies less incentive to switch partners. At the dyadic relationship level, the power stemming from the investment in specific assets increases the liner's switching difficulty. At the supply chain level, the expansion of port/terminal operators' cargo collection/distribution network improves their hinterland resources. This interaction may happen because the identification of port/terminal operators' and liner operators' power sources are all essentially based on RDT and they all represent the same variable—power/dependence. Although to what

extent power sources do interact requires further examination, there always seems to be some unique aspect of power/dependence that is explained by each power source element. When studying power sources based on RDT, their interaction and unique representativeness for power should be considered by future researchers to achieve a comprehensive understanding of this issue.

Whereas both parties examined in this study possess various power sources in relation to each other, the differences between port/terminal operators' and liner shipping companies' power sources are mainly seen at the dyadic relationship level in terms of their role performance and alternative/switching difficulty because these two power sources were mainly held by port/terminal operators. In the case of Xiamen Port, both liner operators rather than port/terminal operators held the power source regarding 'alternative/switching difficulty', which is in contrast to the other three cases. The implication of these findings are that port/terminal operators of Chinese hub seaports are generally more powerful than global liner shipping companies and the port/terminal operator of Xiamen Port possesses a less favourable power position in comparison to its counterparts in the other three seaports. Therefore, this framework provides additional support to the identified power patterns in the case seaports on the basis of the respondent's self-perception. This can be used in other research contexts to study the same topic and it can potentially be used as a tool to access the patterns of power in various power relationships.

9.5.3 Practical Implications

In terms of practical implications, given that firms tend to act actively seeking to achieve a favourable power position (Cox et al. 2002), the study of power patterns can help both port/terminal operators and liner shipping companies to clarify the degree of power they possess and help shape their desired strategy around their power relationships with each other.

The examination of power sources in this chapter has provided a framework which

can be used by organisational leaders to comprehensively understand the sources of power. In the specific setting of this research, the port/terminal operators in Chinese hub seaports highly value the liner shipping companies' container volumes going through their ports. Both of these parties view this factor as one of the key elements of the liners' power resources. This finding is interesting since the throughput of these hub ports relies heavily on their hinterland, and a large proportion of the container volume held by local liner operators is thus generated by port/terminal operators' power-related resources. These findings call for the managers in the seaport sector to re-examine their source of power in relation to the liner shipping companies and, therefore, amend their business strategies accordingly.

Chapter 10 Port/terminal Operators' Power Use

10.1 Chapter Overview

This is the last chapter of the main case study. On the basis of the examination of the strategies, patterns and sources of power in the context of Chinese hub seaports, this chapter investigates the use of port/terminal operators' power in the empirical setting and deals with the following research question:

RQ4: How do Chinese port/terminal operators use their power to exercise control in relation to global liner shipping companies?

To answer this research question, the rest of this chapter is structured into four sections. Following an abductive approach, the next section strengthens the theoretical basis for the investigation of power use on the basis of a detailed examination of the power bases approach (French and Raven 1959). The findings about power patterns reported in last chapter, social exchange theory and the Chinese culture of guanxi are further reviewed in Section 10.2 to understand the port/terminal operators' power use in the vested business relationship from a theoretical perspective. The findings about the research topic under study are then presented and discussed in Section 10.3. A further analysis about the implications of port/terminal operators' power exercise is conducted in Section 10.4. The last section summarises and discusses the implications of this whole chapter.

10.2 Theoretical Background

10.2.1 Power Bases and the Exercise of Power

The study of power use in the inter-organisational domain has drawn heavily on French and Raven's (1959) seminal work of power bases (see e.g. El-Ansary and Stern 1972, Hunt and Nevin 1974, Frazier et al. 1989, Farrell and Schroder 1999,

Doherty and Alexander 2006, Nyaga et al. 2013) which categorises power into five groups: coercive power, reward power, legitimate power, expert power and referent power. In addition to the findings from the exploratory study, these five power bases are further explained in the context of an inter-organisational buyer-supplier relationship in Table 10.1.

Table 10.1 Descriptions and examples of the five power bases *

Power base	Description	Example
Reward power	A has the ability to mediate rewards to B.	A has the ability to provide rewards that are attractive to the B, for example, A can offer B wider gross margins, promotional allowances and better credit terms.
Coercive power	A has the ability to mediate punishment to B.	A has the ability to mediate sanctions that are detrimental to B, for example, A can slow down shipments and refuse to serve B while the alternative source of supply for B is difficult to find.
Legitimate power (traditional legitimate and legal legitimate)	B believes A naturally or legally retains the right to influence it.	B believes that A has the right to request its products to be purchased according to terms set by B.
Referent power	B desires to be closely associated with A or values identification with A.	The establishment of the business relationship with A is regarded by B as an honourable practice, for example, B prides itself on having A's brand involved in the manufacturing process.
Expert power	A has knowledge, expertise or skills desired by B.	A clearly knows what B wants or has the knowledge and expertise to specially design, manufacture and distribute the product for B.

*In this table, A refers to a supplying firm (e.g. port/terminal operator) and B refers to a buying firm (e.g. liner shipping company).

Source: French and Raven (1959), Brown et al. (1983), Maloni and Benton (2000)

As can be seen in Table 10.1, coercive and reward power are derived from the ability to mediate punishment and dividends, whereas expert and referent power often take the form of assistance and support activities (Stern and Reve 1980, Doherty and Alexander 2006). In addition, legitimate power is based on the target's belief in the legitimacy of the source's right to prescribe its behaviour (French and Raven 1959). It consists of two components: traditional legitimate and legal legitimate. The former component refers to institutionalised behaviour that becomes accepted role and the

latter component involves the contractual agreement of one supply chain actor to dictate to another (Kasulis and Spekman 1980, Stern and El-Ansary 1977, cited in Brown et al. 1983).

On the basis of the different characteristics of five power bases, researchers have developed a range of dichotomies to facilitate the study of power (Johnson et al. 1993, Maloni and Benton 2000). Two influential dichotomies of power bases are coercive versus noncoercive (see e.g. El-Ansary and Stern 1972, Hunt and Nevin 1974, Wilkinson 1981) and mediated versus nonmediated (see e.g. Handley and Benton Jr, 2012a, Benton and Maloni 2005, Terpend and Ashenbaum 2012).

On the one hand, the separation of coercive power with noncoercive power (i.e. reward power, legitimate power, referent power and expert power) happens because the former implies the target firm's begrudging compliance due to the source firm's use of potential punishment, whereas the latter involves the target firm's willingness to accept the exercised influence (El-Ansary and Stern 1972, Hunt and Nevin 1974, Brown et al. 1983, Gaski and Nevin 1985, Geyskens and Steenkamp 2000). Consequently, these two types of power have different impact on business relationship. A general agreement about this issue is that while the use of coercive power has the potential to cause conflict and reduce business satisfaction, the exercise of noncoercive power is likely to facilitate business relationships (Gaski 1984, Morales 1997, Belaya and Hanf 2009).

On the other hand, the mediated versus nonmediated dichotomisation is based on the source firm's different intention to bring about changes to the target firm's behaviours (Kasulis and Spekman 1980). Specifically, the exercise of mediated power (i.e. reward power, coercive power and legal legitimate power) involves actions that are deliberately conducted to influence the behaviours of other supply chain actors (Brown et al. 1995). In comparison, non-mediated power (i.e. expert power, referent power, and traditional legitimate power) does not involve the intention from the source. It influences the target's behaviours in a subtle manner and, therefore, implies

an indirect control. Consequently, power-involved parties may not realise the existence of the non-mediated power bases (Benton and Maloni 2005).

10.2.1 The Context of Power Use in this Study

The diversity of power bases together with the variation in their implicit intentions and implications on business relationship make power use a complex topic to study. This complexity has been enhanced by the contextual feature of the concept of power where power patterns and national culture play an important role in guiding power exercise (Johnson et al. 1993, Provan and Gassenheimer 1994, Kim 2000, Lee 2001). This section examines the implications of these two influencing factors (i.e. the pattern of power and the nation culture of guanxi in China) with reference to the findings in previous chapters and the SET

10.2.1.1 Power Pattern and Power Use

The pattern of power shapes the context for the evaluation of business practices in the inter-organisational dyads (Cook and Yamagishi 1992). In IOP studies, the impact of power patterns on the use of power has been widely recognised (see e.g. Dickson 1983, Lusch and Brown 1996, Handley and Benton Jr 2012a, Hoppner et al. 2014).

On the one hand, an interdependent power relationship is usually associated with a harmonised business environment, which is beneficial for the development of supply chain coordination and relational exchange (Cox et al. 2001b). The high magnitude of mutual dependence can reduce tensions and foster an atmosphere of cooperation (Belaya and Hanf 2009, Hill et al. 1992, Grandori and Soda 1995). Thus, this power pattern (i.e. interdependence) provides an environment that curbs the use of the negative power bases (e.g. coercive power) that harm business relationship, while fosters the exercise of the positive power types (e.g. reward power and referent power) that improve business satisfaction (Frazier and Summers 1984, Gundlach and Cadotte 1994, Kumar et al. 1998).

On the other hand, the situation of power asymmetry implies the dominance of one supply chain actor over another (see Section 9.2.1). Since this pattern of power facilitates the power-advantaged party to exploit its superior position, there is broad concern that the powerful firm may act in its own self-interest and abuse the power it possesses, regardless of the potential negative impact on business relationships (Wilkinson and Kipnis 1978, Stern and Reve 1980, Frazier and Rody 1991, Taylor and Jackson 2000).

Findings reported in Chapter 9 have shown that the patterns of power between case port/terminal operators and liners have two general features: interdependence and power imbalance (i.e. port/terminal operator dominance). Based on above discussion, these features imply that the case port/terminal operators may rely heavily on the positive power bases (e.g. reward power) to influence their liner customers, while at the same time, they are also moderately motivated to use negative power bases (e.g. coercive power) to bring about changes to the liners' behaviours.

10.2.1.2 Social Exchange Theory, Guanxi, and Power Use

In addition to the issue of power pattern, national culture has been identified as another important factor that shapes the context of power use (see e.g. Johnson et al. 1993, Kim 2000, Lee 2001). The significance of the guanxi culture for the study of power in Chinese society been examined in detail in Section 5.2.2. Since the issue of national culture is particular relevant to the topic of power use, this section draws on SET (see Section 4.5.3.3) to further examine the implications of guanxi culture, especially the embedded norm of reciprocity, for the understanding of power exercise from a theoretical perspective.

A social exchange refers to 'voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others' (Blau 1964, p. 91). It is characterised by repeated interactions in which the conduct of one social actor provides the rewards or punishments for the actions of another social

actor (and vice versa) (Muthusamy and White 2005, cited in Pulles et al. 2014). A social exchange relationship develops over time into loyal, trusting, and mutual commitments due to the 'rules' of exchange embedded in this relationship (Cropanzano and Mitchell 2005). These rules of exchange, developed on the basis of the norms adopted by the parties in an exchange relationship, serve as the guideline of the exchange processes (Emerson 1976, Cropanzano and Mitchell 2005).

Central to the rules of social exchanges is the norm of reciprocity (Blau 1964, Schaufeli et al. 1996). This norm, 'in its universal form, makes two interrelated, minimal demands: (1) people should help those who have helped them, and (2) people should not injure those who have helped them' (Gouldner 1960, p. 171). The norm of reciprocity is strongly associated with the Chinese culture of *guanxi*, as examined in Section 5.2. Furthermore, it may be conceived of as a dimension to be found in all value systems and as a theoretical perspective with strong explanatory power to interpret relationship development universally (Blau 1964, Gouldner 1960, Shore et al. 2009). Guided by the reciprocal rule of social exchanges, firms involved in this type of relationship offer each other favours (e.g. the preferential treatment in business transition and guaranteed access to valuable resources) and reciprocate the receipt of favours (Settoon et al. 1996, Wayne et al. 1997).

SET exerts important implications on the study of power use (Blau 1964, Cook and Emerson 1978). A major premise of SET is that firms interact to achieve desired relationships, and the basic motivation for interaction is to seek reward and avoid punishment (Emerson 1976). In view of the diversity of power bases, SET suggests that the firms should carefully use their power and consider the implications of the different power bases on their business relationships and interactions (Anderson and Narus 1984, Provan and Gassenheimer 1994).

A social exchange relationship advocates positive business interactions in which firms adjust their behaviours and actions toward each other based on expected rewards (Emerson 1976, Lambe et al. 2001, Hoppner et al. 2014, Pulles et al. 2014). Thus,

SET, especially the rule of reciprocity that guides social exchanges, encourages firms to use their reward power, irrespective of existing power imbalance, to exert influence on the behaviours of other power-involved parties (Nyaga et al. 2013).

Contingency is central to the reciprocal rule of social exchange (Keohane 1986). Specifically, the offer of reward in social exchanges results in social ‘indebtedness’ (Nyaga et al. 2013). In response, the receiving parties are obliged to evaluate the rewards received and reciprocally return favours to the giving party (Nyaga et al. 2013). Consequently, the more rewards that a firm gives out, the more it is likely to receive in future business interactions. Conversely, while firms tend to repay rewards with rewards, they are also likely to respond to punishment with coercion (Keohane 1986). Therefore, SET discourages the use of coercive power and potentially other power types with negative impact on business relationships by addressing the possible revenging actions in an on-going business relationship.

The implications of SET for the examination of power use is particularly relevant to this study. First, the reciprocal rule of social exchanges has also been examined as an essential characteristic of the *guanxi* culture in China. This culture has been pervasive in every aspect of personal relationships and business conducts in Chinese society (Xin and Pearce 1996, Park and Luo 2001), and it significantly affects the dynamics of power in inter-organisational business relationships (e.g. port/terminal operators versus liner shipping companies) (Zhuang and Zhou 2004, Zhao et al. 2008). Second, the interdependence between port/terminal operators and liner shipping companies has been identified as an important dimension of power patterns in all case seaports. This power pattern implies a cooperative and coordinated business relationship that fosters social exchanges (Johnson 1977, Deane et al. 1991, Hakansson and Snehota 1995, Cox et al. 2001b, Lui and Ngo 2005).

Overall, based on the examination of SET and the Chinese culture of *guanxi*, it is expected that case port/terminal operators would mainly rely on their positive power bases, especially reward power, to achieve the desired influence on the liners’

behaviours while at the same time limiting the use of negative power types (e.g. coercive power). While this expectation is inconsistent with the implications of the identified power pattern of interdependence (see Section 10.2.1.1), the notable power imbalance in the vested inter-organisational relationships theoretically also motivates the case port/terminal operators to make use of available power bases to control liners' behaviours regardless of the potential negative impact on the relationships.

An investigation into power use is critical in developing an understanding of the concept of power and of the business practices of power-involved actors. Based on the examination of the power bases approach and the context of power use in this study, a theoretical understanding of the dynamics of power use in the Chinese seaport sector has been established. However, the empirical investigation of this issue has been greatly overlooked by both power and maritime researchers. Hence, this chapter takes the perspective of the port/terminal operators and examines how they use their power to exercise control in relation to the liner shipping companies in the selected Chinese hub seaports.

10.3 The Port/terminal Operators' Power Use

This section presents and discusses the findings of the case port/terminal operators' power use in relation to the global liners. Based on the field work in the selected Chinese hub seaports, three themes have been identified. These themes are categorised according to the decision areas where the port/terminal operators' power use were observed, including power exercise through port pricing, through terminal operations, and through port market control.

10.3.1 Power Exercise through Port Pricing

Port pricing is the first decision area where the case port/terminal operators' power exercise was observed.

10.3.1.1 Unified Price Setting and the Ability to Determine Port Charges

The ability to control price has been identified previously as a key feature of business power (Cox et al. 2002, Byrne and Power 2014). In all case hub seaports, one of the port/terminal operators' methods of controlling the global liners was through their ability to set prices and their consequent use of a pricing strategy.

Case hub seaports have more than one terminal operating company in their port areas that serves global carriers who operate on different liner trade routes. Although global liners were widely involved in the container handling business of these seaports through direct investment, the management and operation of the joint-ventured are centrally controlled by the port groups in the case of Qingdao Port, Ningbo Port and Shanghai Port (see Section 8.4.2). This gives these port/terminal operators the ability to curb intra-port competition and negotiate with their liner customers as one business unit. Consequently, they are able to constrain intra-port price competition by setting unified benchmark prices for terminal services while the liners lack the ability to bargain with them, as shown in the following quotations:

Whatever price the port/terminal operator offers, they [i.e. liner shipping companies] have to accept. [...] (Only if) we are competing with other terminals, can they negotiate with us. (Business director of P/TO3)

Shanghai Port Group is a trust. The group sets a uniform price (for terminal services) rather than liner shipping companies. (one deputy operations manager of P/TO3)

Ningbo Port has a management strategy: unified price setting. [...] The port group usually determines the price when signing the contract. (General manager of LSC7)

Whereas port/terminal operators in Qingdao Port, Ningbo Port, and Shanghai Port have managed to develop and exercise a strong influence in the decision area of port

pricing, failure to constrict price competition was reported in the case of Xiamen Port:

In the past few decades, the competition between terminal operators in Xiamen Port has been fierce. In order to attract cargos and (liners from a specific) trade lane, we often have to lower our price. A price war, as you know. (One business director of P/TO1)

A comparison of pricing to exert power between P/TO1 and P/TO2-4 is presented in Table 10.2. The reason for the observed difference between Xiamen Port and the other three cases may lie in the variations in the port management model adopted by case port/terminal operators after the port reform in 2004. As reported in Section 8.4.2.1, whereas the operator of Xiamen Port chose a market-oriented management philosophy, the port/terminal operators in the other three cases have generally kept their strong control over terminal operations.

Table 10.2 Case port/terminal operators' power use in setting unified port price and determining port charges

Case		XM Port	SH,QD and NB Port
Power exercise though pricing	Unified price setting	P/TO1 has failed to develop the ability to set a unified price for port charges.	P/TO2-4 are capable to unify port price setting.
	Ability to determine port charges	Liner shipping companies calling at Xiamen Port have reasonable power to negotiate port charges with P/TO1.	Liner shipping companies lack the ability to bargain with P/TO2-4.
Type of power, if used		Nil	Legitimate power

The choice made by the operator of Xiamen Port led to strong intra-port competition and low terminal charges (60% discount of central government regulated port charges in some cases according to interview findings). However, the recent development of the establishment of the terminal operator cartel (XCTG) showed the port/terminal operator's desire to once again take back control of terminal competition. As one business director of P/TO1 commented, a key measure planned by the XCTG is to control price competition within Xiamen Port by unifying price setting. The acquiring of such power though the hierarchical control of intra-port terminal business thus

implies the legitimate nature of this type of power.

10.3.1.2 Differential Pricing Strategies

Unifying the price setting of the port services does not mean that the port/terminal operators charge all liner customers the same price for the same port services in all terminals. The use of differential pricing strategies emerged over time for the case port/terminal operators as a crucial element of their use of power. Sliding scales that correlate the potential rewards with a performance scale are used by all of the case port/terminal operators. The performance of the liner shipping companies is often assessed by their container volume going through the port, and the reward is manifested in the form of a discount based on the benchmark price set by the central government in the Regulations on the Collection of Port Charges of China.

For example, the business coordinator of P/TO3 and the operations manager of LSC5 said in the interview, respectively:

Shanghai Port Group promises liner shipping companies a discount price. (Depending on) how many containers they [i.e. liner shipping companies] can bring us, I [i.e. the port group] offer them a discount accordingly.

And,

The price [i.e. terminal handling charge] is different for different liner shipping companies, but they [i.e. Qingdao Port Group] have a uniform basis for pricing. There is a policy. The more I bring, the higher the discount will be.

While the volume of containers were used by port/terminal operators as a reason to grant reward to liner shipping companies, ‘foot-loose’ container flows, generated by overlapping hinterland and transshipment, was found to attract even more favourable treatment in terms of port charges. The findings showed that this kind of reward could be manifested in different forms, including direct subsidy, the offer of free service or

the charge of a favourable price. From the perspective of power theory, these measures are examples of port/terminal operators' use of their reward power.

The exercise of reward power discussed in this section is thus contingent upon the liner operators' contribution to port/terminal operators' throughput and profit. The liner shipping companies are informed explicitly, often in the form of an official contract, about the impact of their performance on the degree of reward offered by the port/terminal operators. The motivation for such power use is to influence the target to comply with a performance goal (Ramaseshan et al. 2006). Even so, whether and to what extent the reward will be granted is determined by case port/terminal operators. This implies their strong control over the decision area of port pricing.

10.3.2 Power Exercise through Terminal Operations

In addition to the pricing issues, the case port/terminal operators' use of power was also extensively witnessed in the decision area regarding the terminal operations. After the establishment of a business relationship, a range of activities (e.g. loading/unloading, berthing/un-berthing and berth allocation) repeatedly occur in the seashore interface. These activities require the joint input of both the port/terminal operators and the liner shipping companies. As key aspects of the port operation, these are essential areas where the port/terminal operators' power use was manifested.

10.3.2.1 The Allocation of Terminal and Operational Resources

In the cases of Qingdao Port, Shanghai Port and Ningbo Port, where an exclusive control of intra-port terminal operations has been established, the port/terminal operators used their power to determine the sequence of port entry and the allocation of the terminals, as shown in the following quotations:

The port group determines at which terminal a vessel will berth [...] but if the liner shipping company has a special request, the port group will consider it.
(One deputy operations manager of P/TO2)

When a liner shipping company comes to Qingdao Port, the right to determine which terminal it will berth at is controlled by the port group rather than by the liner shipping company. (Deputy business manager of P/TO3)

Our capability to choose terminals is minor. We prefer the XX Terminal. [...] In practice, it [i.e. the allocation of terminals] is determined by the business department of Ningbo Port Group. [...] We can express our preference; whether it is considered or not depends on the port side. [...] When the port is congested, there may be rules about 'first come, first served'. But the actual operations do not follow this rule. (Operations director of LSC8)

In the case of Xiamen port, the acquisition of such power was reported as a desirable outcome of the future operation of the newly-established container terminal cartel (i.e. XCTG):

When the terminal is allocated (by the port/terminal operators), they [i.e. liner shipping companies] have little choice. We now have a plan (to control the allocation of terminals). (Deputy finance manager of P/TO1)

In those cases where the power to allocate terminals was manifested, the exercise of this power was viewed as the port/terminal operators' 'right' by both parties involved in the vested business relationships. Consequently, the respondents perceived the nature of such power use as legitimate.

After the vessels have berthed, port/terminal operators need to input a range of resources such as quay cranes and container trailers to meet the liner shipping companies' demand for terminal services. The allocation of these resources was observed to be another decision area where all case port/terminal operators used their power.

For example, in the case of Xiamen Port, one business director of P/TO1 reported that:

They [i.e. liner shipping companies] told me they liked the new supplier (in Xiamen Port), although its equipment is not premium. When they make requests, for example, for the chasing ship schedule, [...] the terminal operator offers extra resources.

And in the case of Shanghai Port, the business coordinator of P/TO3 said that:

We offer customised services. [...] For the 'best quality' service [which is offered to important contracted customers], we make use of our resources to guarantee their schedules[...]and provide efficient services.

The allocation of ample operational resources can guarantee the liner shipping companies' schedule, and reduce their port time and ship turnaround time, which further helps them to improve service quality and cut operational cost. Consequently, the case port/terminal operators' power use in the decision area of operational resources allocation can be regarded as a manifestation of their reward power in relation to the liner shipping companies.

10.3.2.2 Contingent Factors that Affect the Port/terminal Operators' Power Use in Terminal Operations

In the decision area of port pricing (see Section 10.3.1.2), the use of reward power by case port/terminal operators to offer price discount to liner shipping companies was found to be contingent on the latter party's contribution to port throughput. Similar to this finding, contingent factors that affect case port/terminal operators' power exercise were also reported in the decision area of terminal operations. In general, the interview findings from the four hub seaports made it possible to classify these contingent factors into the following three categories: port/terminal operator's self-interest, liner shipping company's throughput contribution and investment in terminals, and guanxi and reciprocity. The contextualised descriptions of these factors can be seen in Table 10.3.

Table 10.3 Contingent factors that affect case port/terminal operators' use of power in terminal operations

Contingent factor	Contextualised description
Port/terminal operator's self-interest	<ul style="list-style-type: none"> ● Port/terminal operator's wholly owned terminals or those with more port/terminal operator's shares are allocated with more business. ● Port/terminal operators use their ability to control terminal allocation to support the development of new terminals. ● Priority may be given to port/terminal operators' own vessels in port operations.
Liner's throughput contribution and investment in terminals	<ul style="list-style-type: none"> ● Port/terminal operators may offer operational privilege to liner shipping companies according to their contributions to port throughput. ● Liner shipping company's vessels are given priority in berth allocation in terminals that involve its investment.
Guanxi and reciprocity	<ul style="list-style-type: none"> ● Liner shipping companies who have good guanxi with port/terminal operators can get favourable treatment in terminal operations. ● Port/terminal operators and liner shipping companies may offer favours to each other resulting in social 'indebtedness' (Nyaga et al. 2013) and should seek an opportunity to reciprocate this action.

Self-interest

The pursuit of self-interest is the first factor that affects case port/terminal operators' power use in the decision area of terminal allocation. In view of the wide involvement of the domestic and foreign investment in the terminal operating companies of the case seaports (see e.g. Sections 5.3.2.3, 8.4.4.1, 9.4.2.4), for case port groups there is a difference in the financial return for the same amount of workload handled by their intra-port terminal operators with different share structures. The port/terminal operators in those cases where the use of 'terminal allocation power' was observed have used this power to allocate more business to their wholly-owned terminals, such as in the cases of Shanghai Port and Ningbo Port or to those terminals in which the port group has a relatively greater share, such as in the case of Qingdao Port.

In addition, the power to control terminal allocation was also exercised by case port/terminal operators to support their geographical port development. This was seen in the cases of Shanghai Port and Ningbo Port, where the port/terminal operators arranged vessels from a specific trade route to their respective newly-operated port

areas—that is, Yangshan port area and Meishan port area—as shown in the following quotations:

It cost the shipper extra 100 Yuan/TEU to call at Yangshan port area. At first, we were all reluctant to call at Yangshan port area. After all, it is far away [compared to the Waigaoqiao port area]. (Operations manager of LSC3 in the case of Shanghai Port)

When it [i.e. Meishan port area] came into operation, nobody wanted to go there. It is too far. Then our business department allocated all vessels serving the Korean route to the terminals (in the Meishan port area), because Ningbo Port has an overall development plan. (One deputy general manager from P/TO4)

Another possible use of power was reported in the case of Ningbo port. Since the port/terminal operator runs its own liner service, their vessels were given more support in terms of port operations, sometime to the disadvantage of other liner shipping companies. As mentioned by the general manager of LSC6 in the case of Ningbo Port,

For their [i.e. Ningbo Port Group] own vessels, the port group uses its own KPI, maximum 6 hours (of port time). So if a ship (at berth) is in conflict with their schedules, it would be pulled out (from the quay to let Ningbo Port Group's vessel berth).

The logic of the contingent use of power discussed in this subsection can be explained by the motivation of the port/terminal operators' leadership to acquire more profit and achieve their desired business goals. Their ability to control of terminal allocation serves as the precondition for this power use. Thus, the exercised control in relation to liners bears the feature of legitimate power. Since the port/terminal operator of Xiamen Port had not managed to establish a centralised and exclusive control over terminal allocation, it was not able to use this kind of legitimate power at the time the data was collected.

Liner's Throughput Contribution and Investment in Terminals

The second factor that affects the port/terminal operators' power use in the decision area of terminal operations is the liner operators' throughput contribution and investment in terminals. These two factors have been identified as the sources of case liner shipping companies' power in relation to the port/terminal operators (see e.g. Sections 9.4.1.2 and Section 9.4.2.4). These factors can thus contribute to the amount of countervailing power (Gaski 1996) held by the liner shipping companies to affect the patterns of case port/terminal operators' power use.

First, research findings show that the liners' ability to contribute to port throughput can determine the amount of operational privilege that they can obtain from all case port/terminal operators. Those with a high demand for container handling services or with plans to open new trade routes are treated as valued customers. In addition to discounted port charges, case port/terminal operators may offer them priority in berth allocation and sufficient operational resources. This reward is particularly important for the liners when their ships are under pressure to meet a sailing schedule.

Second, the formation of joint-ventured terminal operating companies by port/terminal operators and liner shipping companies was widely observed in case seaports. As a shareholder of the joint venture, the liner often assigns port representatives to supervise the operations of the company. This leads to a constraint on the port/terminal operators' inappropriate use of power at will and the ability of liner operators to take corresponding actions to deal with this possibility (see also Section 9.4.2.4).

Another key benefit of investing in terminals is guaranteed port access (Haralambides et al. 2002), as in reported by one of the interviewees:

The priority of berthing is deserved by those who have a share (in the terminal operating companies). (One deputy operations manager of P/TO2)

Although liners can get priority in berth allocation due to their involvement in the terminal handling businesses, the benefit that they can gain from investing terminals is constricted. The case port/terminal operators often allocate terminals by trade lanes rather than by liner shipping companies. This means that not all liners' containers are handled by their invested terminal operating companies in case seaports. Therefore, the countervailing power that liner operators obtain from the 'offsetting investment' is conversely offset by the port/terminal operators' power use in the decision area of terminal allocation in the case of Shanghai Port, Qingdao Port and Ningbo Port.

Guanxi and Reciprocity

The last factor (Table 10.3) is related to the reciprocal rule of social exchanges, which is also a key feature of the guanxi culture in China (see Section 10.2.1.2). The offer of favours in a reciprocal relationship generates social indebtedness, which results in the receiver parties' willingness to make relationship-specific adaptations in future transactions (Nyaga et al. 2013).

In the case seaports, the norm of reciprocity has a considerable impact on the port/terminal operators' power use due to the Chinese culture of guanxi. A good business and personal guanxi with the port/terminal operators and their decision makers can help liners obtain rewards in the decision area of terminal operations. In the empirical setting, liners are able to establish a good guanxi with the port/terminal operators mainly by offering them foot-loose container business and helping them achieve targeted throughput, as shown in the following examples:

When the port group desires throughput, we [i.e. liner shipping companies] try to offer help [...] (by) offering inter-ship container handling business and empty container handling business. Of course, when we face difficulties, we want priority in berth allocation, [...] they [i.e. port/terminal operators] will also consider (to accept our requests). (Operations director of LSC8)

The key (to establish a good guanxi with port/terminal operators) is to offer

favours in some operations. For example, vessels sometimes need to switch trade lanes, [...] the containers on this ship need to be moved to the other. [...] They are incremental throughput and are not generated from the local market of Shanghai Port. They [i.e. liner shipping companies] can do this (type of operation) in Shanghai, Ningbo, or Qingdao. If the liner shipping company is willing to do such operation in Shanghai Port, it makes a good impression on the leadership. (Operations manager of LSC3)

The offer of inter-ship and/or empty container handling business to the port/terminal operator can be viewed as a reward from the liner shipping companies since these operations can be conducted in a number of alternative hub seaports. When liners allocate the relevant business to a specific hub port, they are doing the port operator a favour to help it increase port throughput and business revenue. In China's guanxi culture, the rewarded port/terminal operator is thus in debt of renqing and so should seek an opportunity to reciprocate this action. One method of repayment that was observed in the empirical setting is to provide operational convenience to the liners.

10.3.3 Power Exercise through Port Market Control

In addition to the decisions areas of port pricing and terminal operations, the interview findings reveal that several case port/terminal operators have used their power in the area of port market control.

10.3.3.1 Control of the Liner Shipping Companies' Port and Shipping Agency Choice

Case port/terminal operators' power use through port market control was manifested in their behaviours to control liners' port and shipping agency choice. These findings were mainly reported by the liner shipping companies in the case of Qingdao Port, Shanghai Port and Ningbo Port, as seen in the following quotations:

It [i.e. the port/terminal operator of Shanghai Port] comes to XX liner shipping

company and says, 'I know you have business in XX Port. From now on, you move all your transshipment business to Shanghai Port. Don't go to XX Port.' Sometimes they do not just attract you using price; they can use political threats. (Operations manager of LSC3)

We don't get to choose the terminal. Sometimes, we cannot choose the shipping agency either. [...] Ningbo Port market is still not fully open. (General Manager of LSC7)

There are some coercive policies. [...] For example, [the Qingdao Port Group would say], you better not call at XX Port, [...] or your container transshipment volume in XX Port better not exceed a certain amount. [...] Due to their strength, [...] we cannot do anything about such request. (Deputy Operations manager of LSC4)

These interview quotations reflect the coercive use of the port/terminal operators' power over decision areas that are embedded in the liners' operations. Unlike the issues of port pricing and terminal operations, liner operators have the liberty to decide whether to comply with port/terminal operators' request or threat, although the failure to comply implies punishment from the latter party.

10.3.3.2 Factors that Affect the Port/terminal Operators' Power Use in Port Market Control

Other than the instances presented in the preceding quotations (Section 10.3.3.1), case port/terminal operators' exercise of coercive power was rarely reported, especially in the case of Xiamen Port. In addition to this port/terminal operator's relative lack of power in comparison to the other three port/terminal operators, the reason for the lower use of coercive power in all cases than what could have been possible may lie in the interdependent business relationships between liner shipping companies and port/terminal operators. As one business director of P/TO1 claimed:

If they [i.e. liner shipping companies] cannot achieve the (targeted container) volume, we understand. We also lose money. We cannot punish them.

This implies that the abuse of coercive power at the cost of liner shipping company's benefit may eventually harm port/terminal operators' own interests. Theoretically, the power pattern of interdependence curbs the use of coercive power (Frazier and Summers 1984, Gundlach and Cadotte 1994, Kumar et al. 1998). In the empirical setting, the highly interdependent relationships between port/terminal operators and liner shipping companies have thus reduced the former party's motivation to use their coercive power to control liners.

The extensive business communion between case port/terminal operators and liner operators characterised by the guanxi culture is another reason for the former party's lack of incentive to use coercive power. Since the formal legal system in China is poorly developed, a guanxi network offers an informal system to guide business exchanges (Lee et al. 2001, Zhuang and Zhou 2004, Zhao et al. 2008). Due to this culture, communication is central to the establishment of a close business relationship and good guanxi in China (Wong and Chan 1999). In all the case hub seaports, business communication has been reported as one of port/terminal operators' power tactics to improve their interdependence with liner customers (see Section 8.4.4.2 and Section 8.5.2.4). Regarding its impact on power use, it turns out to be an effective mechanism to coordinate the different interests the maritime actors under study. As the business manager of P/TO4 claimed,

They [i.e. the liner shipping companies] have their interests and we have ours. After communication, we form a common goal.

The coordinated business interests through communication can reduce potential conflict and improve trust, which may further reduce port/terminal operators' motivation to use coercive power (Kim 2000). Furthermore, in terms of conflicting interests, the outcome of communication is already a result of the power game

between case port/terminal operators and liner operators. One business director of P/TO1 commented that only when the outcome of communication was unsatisfactory, and port/terminal operators still insist on pursuing the desired goals, would they be motivated to use their power, most likely in the form of coercion.

10.4 A Summary and Implications of the Port/terminal Operators' Power Use

This section summarises the findings regarding case port/terminal operators' power use in relation to liner operators and it will discuss their implications.

10.4.1 A Summary of the Port/terminal Operators' Power Use

The findings reported in Section 10.3 have revealed that case port/terminal operators have used their power differently. A cross-case comparison of this issue is summarised in Table 10.4. The finding about power patterns in Section 9.3.3 has shown that the port/terminal operator of Xiamen Port was less powerful in relation to the liners in comparison to the port/terminal operators in Shanghai Port, Qingdao Port and Ningbo Port. In accordance with this finding, it has observed that the operator of Xiamen Port has mainly used reward power in the decision areas that reside on the port's side, viz. differential price setting and the allocation of terminal resources. Whereas this pattern of power use was also observed in the other three cases, the operators of Shanghai Port, Qingdao Port and Ningbo Port have managed to control liner operators through the setting of unified price for port services, the control of intra-port terminal competition and allocation, and the control of liner shipping company's port and shipping agency choice. Thus, the use of three types of power (i.e. reward power, legitimate power and coercive power) by port/terminal operators was evidenced in these three cases.

Table 10.4 Comparison of power use in case seaports

Cases		XM Port (P/TO1)	SH,QD and NB Port (P/TO2-4)
Means and areas of power use	Reward power	<ul style="list-style-type: none"> ● Differential pricing strategies ● Allocation of operational resources 	<ul style="list-style-type: none"> ● Differential pricing strategies ● Allocation of operational resources
	Legitimate power	Nil	<ul style="list-style-type: none"> ● Unified price setting ● Restraining intra-port competition and bargaining with liner shipping companies as one business group ● Control over terminal allocation
	Coercive power	Nil	<ul style="list-style-type: none"> ● Control over liner shipping company's port and shipping agency choice

10.4.2 Implications of Port/terminal Operators' Power Use

10.4.2.1 Reward Power

Reward power is usually associated with the 'good' aspect of power. However, in the decision area of port pricing, one deputy operations manager of P/TO3 expressed concerns about the use of the pricing strategy to reward liners' throughput contribution because it can reduce the number of port/terminal operators' alternative business partners and increase the power of the overly rewarded liner shipping company:

This year, I gave them [i.e. liner shipping companies] such a low price. They may drive other liner shipping companies away next year. [...] You can only do business with them then. No matter how ridiculous their requests are, you have to accept them. Right? [...] I don't view (differential) pricing as a suitable strategy.

In addition, interviewees from the case of Xiamen Port and Shanghai Port also questioned the appropriateness of the use of reward power by the respective port/terminal operator:

The hinterland determines that these cargoes have to go through my port. Why

should I give you a reward, unless you can offer me more transshipment operations. (One business director of P/TO1)

The preferential service has a problem. [...] The shippers are there. They may choose different carriers, but they have to go through Shanghai Port. (Business manager of P/TO2)

Both documentary and interview data show that the throughput of case seaports relies heavily on their primary hinterland rather than transshipment operations in terms of international liner trade. Case port/terminal operators all have a sound infrastructure and well-established cargo distribution/collection network (see Section 8.4.3). Thus, the cargo flows generated by these seaports' hinterlands are unlikely to switch to other hub seaports given the economic selection of transportation routes and the path dependence of containerised cargos (Notteboom 2010). This means that offering the liner shipping companies a discounted price and operational convenience based on their throughput contribution is largely unnecessary since such business volume is mainly generated by tied-in shippers rather than liner shipping companies.

10.4.2.2 Legitimate Power and Coercive Power

The use of legitimate power was also witnessed in the decision area of power pricing and port operations. This type of power use was observed in three cases (see Table 10.4). Theoretically, legitimate power involves two dimensions: legal-legitimate and traditional-legitimate (see Section 10.2.1). With reference to the criteria of this categorisation (e.g. Kasulis and Spekman 1980, Brown et al. 1983), case port/terminal operators' legitimate-power exercise has little connection with the contractual agreement of one firm to dictate to another. Instead, it is arguably based on the liner shipping companies' acceptance of port/terminal operators' institutional background and monopoly/cartel status in port operations. Thus, the observed power exercise is more closely related to the traditional dimension rather than the legal dimension of legitimate power.

Concerns about the negative impact of the observed legitimate-power exercise on the vested business relationships were reported in all four case studies. In the cases of Shanghai Port and Ningbo Port, the liner shipping companies were reluctant to berth at the newly-developed terminals that were assigned by the port/terminal operators. In the Port of Qingdao, the operations director of LSC6 felt that the port/terminal operator's 'irregular' terminal operations had reduced the carrier's desire to form a long-term strategic business relationship with the port group. Meanwhile, the respondents from P/TO1 had already perceived their liner customers' dissatisfaction about the formation of the terminal cartel (XCTG) in Xiamen Port, although the new company had barely used its potential legitimate power at the time that the data was collected.

In terms of coercion, this type of power was used by port/terminal operators to control liner shipping companies' operational decisions, such as port choice and the selection of shipping agency. Similar to legitimate power, the port/terminal operators' use of coercive power has exerted a negative impact on the vested business relationships since it harmed the business autonomy of the liner shipping companies, as shown by the quotations in Section 10.3.3.1.

Despite the concerns about the negative impact of case port/terminal operators' use of legitimate and coercive power, they have not affected the liner shipping companies' willingness to maintain the continuity of the vested business relationships. The reasons for this may lie in the case liner shipping companies' lack of available alternatives (Frazie and Rody 1991) and the values of the guanxi culture in China (e.g. maintaining business harmony and consensus) (Ramaseshan et al. 2006). These factors seem to make the liners more tolerant of the business dissatisfaction arising from the case port/terminal operators' use of coercive and legitimate power.

10.5 Summary and Implications

10.5.1 Chapter Summary

This chapter has investigated the use of the port/terminal operators' power in relation to the liner shipping companies. The findings revealed a range of practices that were conducted by case port/terminal operators to achieve their control/influence over the liner shipping companies. In general, the use of case port/terminal operators' power was observed in three key decision areas: port pricing, terminal operations and port market control. In each area, there are contingent factors (e.g. the liner operators' performance in the decision area of port pricing and the norm of reciprocity in the decision area of terminal operations) that affect the patterns of case port/terminal operators' power use.

A differentiated pattern of power exercise by port/terminal operators was found between the case of Xiamen Port and the other three cases. In the former case, the operator mainly relied on the reward power to bring about changes to the liners' behaviours in limited decision areas, whereas the port/terminal operators of Shanghai Port, Qingdao Port and Ningbo Port were able to use a combination of reward, legitimate and coercive powers across a wider spectrum of activities.

10.5.2 Theoretical Implications and Contributions

The study in this chapter extends the influential power bases approach (French and Raven 1959) to the overlooked inter-organisational relationships between port/terminal operators and liner shipping companies, and it makes a number of contributions to power theory and SET. In general, the examination of case port/terminal operators' power use adds empirical evidence to the behavioural aspect of the concept of power and contributes to the knowledge of their business practices in relation to the global liner shipping companies.

10.5.2.1 Power Bases and their Dichotomies

The first theoretical contribution is to the seminal power bases approach (e.g. French and Raven 1959). In particular, the research findings provide an in-depth understanding of the five power bases and their dichotomies. French and Raven (1959) categorised power into five types. In addition to reward, legitimate and coercive power, port/terminal operators' use of expert and referent power was not reported in the empirical setting. The reason for this may lie in the focus of this study on the exercised dimension of the functioning of power, while expert power and referent power are non-mediated power types whose existence and functioning may not be realised by power-involved parties (Benton and Maloni 2005).

The mediated-nonmediated dichotomisation divides the legitimate power into legitimate-legal (categorised as mediated power) and legitimate-traditional (categorised as nonmediated power). This two-dimensional feature can be partly supported by the findings since case port/terminal operator's use of legitimate power is strongly related to the traditional dimension of this power type. However, traditional-legitimate power has been categorised as one type of nonmediated power. In contradiction to the criteria of the mediated versus nonmediated dichotomisation (see Section 10.2.1), the use of traditional-legitimate power in this study involves the case port/terminal operator's perceivable intention to influence liner shipping company's behaviours. This interesting finding may be due to the governmental background of the case port group corporations, which adds legal feature to their legitimate power, whereas the institutional characteristic of power-involved parties was not considered in Kasulis and Spekman's (1980) seminal work about the traditional-legal dichotomisation of the legitimate power base developed in Western supply chains. This finding about the legitimate power echoes Lee's (2001) work, which found that the bureaucratic power may be regarded as the legal element of legitimate power and it converges with the traditional element of this concept, making the legitimate-legal and legitimate-traditional one category of power in the Chinese

marketplace.

Overall, the findings about five power bases in the Chinese seaport sector partly agrees with the mediated-nonmediated classification of power bases as perceived by Kasulis and Spekman (1980), Brown et al. (1995), and Benton and Maloni (2005). While the referent power and expert power can continue to be studied as nonmediated power, the complexity of the legitimate power should be recognised and the two dimensions of this power tends to merge as one type of mediated power in the Chinese marketplace.

Research findings also contribute to the understanding of the coercive-noncoercive dichotomisation of power bases which separates coercive power with other power types (e.g. reward power and legitimate power) based on the target's attitude towards influence attempts (El-Ansary and Stern 1972). In this research, liner shipping companies are begrudging to comply with port/terminal operators' coercive control over port market, whereas there is no evidence of the liner shipping company's dissatisfaction about the use of reward power by case port/terminal operators. This finding agrees with the coercive-noncoercive dichotomisation of power bases as advocated by El-Ansary and Stern (1972), Hunt and Nevin (1974), Brown et al. (1983), Gaski and Nevin (1985), and Geyskens and Steenkamp (2000).

In addition to the reward power and coercive power, the findings in this chapter again raised some concerns about the understanding of the legitimate power, especially its implications on business relationships, with reference to the coercive-noncoercive dichotomisation. In previous power literature that focus on Western supply chains, whereas legitimate power, as one type of noncoercive power, has often been regarded as harmless to business relationships (Lusch 1976, Gaski 1984, Morales 1997, Johnson et al 1990, Belaya and Hanf 2009), Maloni and Benton (2000) found a negative impact of the legal dimension this power upon inter-organisational exchange relationships in the US automotive industry. In the context of the Chinese marketplace, the empirical investigations about legitimate power's implications on business

relationships also lack agreement. While Lee (2001) reported a positive impact of legitimate power on business relationship in the supplier-distributors relationships, which is in consistent with main-stream findings from Western supply chains, Zhao et al. (2008) found that this power statistically neither harms nor improves the manufacturers-buyers business relationships. In this study, the observed use of traditional-legitimate power by case port/terminal operators has a potentially negative impact on the business relationships under study. Given that in the selected research setting this element of legitimate power is characterised by both political and legal legitimacy, the research finding adds support to Maloni and Benton's (2000) understanding about legitimate power in the US supply chain. It also provides new insight into the implications of legitimate power in the Chinese marketplace involving a power user with strong political background.

10.5.2.2 Social Exchange Theory, Power Patterns and Power Use

The second theoretical contribution is to the SET. In particular, research findings provide considerable insights into the reciprocal practices in the Chinese seaport sector and validate the SET in explaining the use of reward power in inter-organisational business relationships governed by *guanxi*. In general, case port/terminal operators' exercise of reward power was found to be contingent on the reward offered by liner shipping company (i.e. container handling business). On the one hand, the rule of reciprocity was manifested in regular business exchanges. The liner shipping companies were rewarded financially and operationally according to their contribution to port throughput. This manner of repaying liner shipping companies' rewards was often regulated by contract so that the obligations to return were ensured legally. Based on reciprocal agreements, liner shipping companies were informed of the specifics about their future returns. By doing so, port/terminal operators expect liner shipping companies to bring more business (rewards) to their port.

On the other hand, the Chinese culture of *guanxi* adds relational features to the

reciprocal exchanges in focus. State-owned port/terminal operators in China value the political importance of port throughput due to the GDP-oriented economic development in this nation (Wang et al. 2012, Xue et al. 2010). For case seaports, while the container flows generated from their hinterlands are not likely to switch to other ports (see Sections 9.4.1.1 and 9.4.2.1), the foot-loose container handling businesses (e.g. inter-ship and empty container operations) were more valued by port/terminal operators to generate incremental throughput. When the liner shipping companies assign these businesses to a specific port, they do the port/terminal operator a favour by helping them to achieve targeted throughput in addition to the handling of tied-in containers. In the Chinese culture of *guanxi*, the port/terminal operators are thus in debt of *renqing* and they are obliged to seek an opportunity to return. The return of *renqing* was manifested in the selected research setting as case port/terminal operators' use of reward power to offer operational privilege to relevant liner shipping companies.

The research findings in this chapter also extend the SET by examining the exploratory power of this theory for the patterns of power exercise under different power configurations. Using data collected from four Chinese hub seaports, it was found that case port/terminal operators have used their power differently. Compared with the validity of the SET in explaining the observed dynamics of reward power, this theory has not adequately explained the variations of power use under different power patterns identified in case hub seaports. The research findings analysed in Section 9.3.3 have revealed a difference of power patterns in the four main cases. From the perspective of power balance/imbalance, the power between port/terminal operators and liner shipping companies was found to be relatively balanced in the case of Xiamen Port in comparison to the rest cases (i.e. Shanghai Port, Ningbo Port and Qingdao Port) where port/terminal operators were notably more powerful than liners. With reference to this finding, the study in this chapter found that the operator of Xiamen Port solely used the reward power, whereas its counterparts in the cases of Shanghai Port, Ningbo Port and Qingdao Port have also used legitimate power and

coercive power in their respective business interactions with the liners.

In this chapter, the legitimate power and the coercive power were used by relevant port/terminal operators to achieve their desired business goals (e.g. facilitating port development and controlling port market). Since the exercise of these two power bases was reported as harmful to the business relationships under focus, the findings about the variations of power use in different cases echo the findings of Wilkinson and Kipnis (1978), Kale (1986), Frazier et al. (1989), Frazier and Rody (1991), Dant and Schul (1992), and Taylor and Jackson (2000) who reported that the powerful firm may act in its own self-interest and abuse the power it possesses regardless of the potential negative impact on business relationships.

Reflecting upon the SET, the finding about power exercise in a largely balanced power relationship (i.e. Xiamen case) agrees with this theory's implications on the pattern of power use as perceived by Emerson (1976), Lambe et al. (2001), Hoppner et al. (2014), Pulles et al. (2014). In comparison, SET has failed to explain the widely-witnessed exercise of negative power bases (i.e. legitimate power and coercive power) in those cases (i.e. Shanghai Port, Ningbo Port and Qingdao Port) characterised by noticeable power asymmetry.

As an explanation to this finding, SET discourages firms from using negative power bases due to the potential revenging actions caused by the reciprocal rule of social exchanges. This concern may not bother the relevant case port/terminal operators for two reasons. First, firms doing business in China are more tolerant of business dissatisfaction due to the national culture of *guanxi* to maintain harmony and consensus (Ramaseshan et al. 2006). Hence, although the liners were not satisfied with the port/terminal operators' use of legitimate and coercive power, they may not express this feeling with the attempts to retaliate. More importantly, Frazier and Rody (1991) explain the firms' high tolerance for the use of coercion due to their lack of alternatives. In this study, the liners in the case of Shanghai Port, Ningbo Port and Qingdao Port lack alternative port and terminal choices (see Sections 9.4.2.1 and

9.4.4). Thus, they have to endure the use of legitimate and coercive power by port/terminal operators in order to sustain their business in these three ports. Responding with punishment may lead to a vicious circle of conflict and will eventually harm the liners' own business interests.

10.5.3 Practical Implications

In terms of managerial implications, the specific use of power in each case seaport has been shown to be a complex issue since it is contingent on a range of factors. When dealing with port/terminal operators in China, the liner shipping companies can make use of the findings to seek reward and avoid punishment.

For case port/terminal operators, they need to re-examine their use of reward power in relation to the liners. The hub seaports involved in this study rely heavily on their hinterland-oriented cargo, and the derived container handling business is not likely to switch to other hub seaports given the economic selection of transportation routes and the path dependence of containerised cargos (Notteboom 2010). This means that the offer to liner shipping companies of a discounted price and operational convenience based on their total throughput contribution is largely unnecessary since a large proportion of the business volume is generated mainly by tied-in shippers rather than by liner shipping companies. In practice, price and service differentiation are common strategies that are used by terminal operators all over the world to maximise profit (Tongzon 1993, Meersman et al. 2015). When using such business strategy, the terminal operators are suggested to design the reward scale according to the nature of container flows. One general principle would be to reduce or remove their reward for the tied-in container throughput while increasing that for the foot-loose handling businesses.

Several port/terminal operators have also chosen to use legitimate and coercive power to bring about changes to the liner operators' behaviours. Although the use of these two types of power can cause the latter party's dissatisfaction, this negative influence

has not affected the continuity of the vested business relationships. This means that the relevant port/terminal operators can continue to rely on these two types of power to mediate their influence, while at the same time consider carefully their desired business relationships with the liners in the long run.

Chapter 11 Discussion and Conclusion

11.1 Chapter Overview

The first task of this chapter is to discuss the value of the contextual issues for the understanding of the concept of power in this thesis. Then, Section 11.3 summarises and synthesises the research findings. The theoretical contributions and practical implications of this study are highlighted in Section 11.4. Finally, Section 11.5 points out the research limitations and suggests areas for future research.

11.2 Discussion of the Contextual Issues

The concept of power is context specific (see Sections 3.2.3 and 3.2.4). This research has dealt with power enquires in the context of the Chinese seaport sector. Two characteristics of this empirical setting (i.e. *guanxi* and governance issues) have been given particular attention and were found to be important for the examination of the four power topics under study (i.e. power strategy, power source, power pattern, and power exercise). Based on the reported findings, this section discusses the significance of the issues of context in this study.

11.2.1 Guanxi

The importance of *guanxi* for the study of power in the Chinese marketplace has been explained from two aspects: *guanxi* as a business and political resource and *guanxi* as a relational governance mechanism (see Section 5.2.2). Both characteristics have been shown to be significant for the understanding of the concept of power in this study.

The first aspect (i.e. *guanxi* as a business and political resource) is mainly related to the topics of power strategy and power source. Specifically, case port/terminal operators implemented the power strategy of ‘integrated and harmonised relationship management’ to strengthen the interdependent power relationships with liner

operators. Good guanxi can improve the inter-organisational connections among Chinese firms (Bond 1991, cited in Gu et al. 2008). The establishment of good guanxi based on business and festival visits was found to play an important role for case port/terminal operators to establish their desired power relationships with the liners (see Table 7.8).

Guanxi with the government has been recognised by many researchers as a political resource of firms in Chinese society (e.g. Su and Littlefield 2001, Faccio 2006, Li and Zhang 2007, Sheng et al. 2011). This characteristic of guanxi formed one aspect of the case port/terminal operators' power sources. Specifically, government institutions (i.e. customs and EEIQB) are important actors in the port community (Hayuth 1980, Beresford and Dubey 1990). The policies of these institutions and the strength of their supervision were found to be essential for the proper function of the case seaports (see Sections 7.4.2.1 and 9.4.1.1). The establishment of good guanxi with these government agencies can help the port/terminal operators obtain favourable treatment in terms of cargo import/export clearance. It further improves their 'role performance' because the favourable treatment is important for liners to maintain the smooth and efficient operation of their container movements.

The second feature of guanxi as a relational governance mechanism is related to the topic of power exercise. This issue has been examined in detail in Chapter 10. In general, the extensive use of reward power by the port/terminal operators has been reported in all of the case seaports. This finding agrees with Zhao et al. (2008), who reported that the guanxi network presents a relational mechanism that fosters the use of reward power.

The norm of reciprocity is central to the concept of guanxi. Guided by this norm, firms involved in a guanxi relationship offer each other favours and reciprocate the receipt of favours (Settoon et al. 1996, Wayne et al. 1997). In the case seaports, the liners can establish good guanxi with the port/terminal operators by bringing them foot-loose container handling businesses (e.g. inter-ship and empty container

operations) and helping them to achieve their targeted throughput. These favours were greatly valued by the case port/terminal operators. The reason for this is that, in general, the port group corporations in China have a strong governmental background and the issue of port throughput is politically important due to the GDP-oriented economic development in this nation. Foot-loose container handling businesses generate incremental throughput that is not tied to the port/terminal operators' primary hinterland. In the Chinese culture of *guanxi*, the port/terminal operators who receive the favours from liners are thus in debt of *renqing* and they are obliged to seek an opportunity to return the favour. The return of *renqing* was manifested in this study as the port/terminal operators' use of reward power to offer operational privilege to relevant liner shipping companies.

The use of legitimate power and coercive power by the port/terminal operator was also reported in the case seaports. These two types of power harmed the liners' business satisfaction but had not decreased their willingness to maintain the exchange relationships with the port/terminal operators in the short run. One reason for this may lie in the norms of maintaining business harmony and consensus embedded in the *guanxi* culture. Due to these norms, firms doing business in China are more tolerant of business dissatisfaction (Ramaseshan et al. 2006).

11.2.2 Governance Issues

While the issue of *guanxi* provides a relational mechanism that governs organisational behaviour and power uses, the wider concept of governance plays a significant role in the activities of ports and in the wider maritime marketplace (Roe 2013, 2016). The complex issues of port governance formed the second characteristic of the selected empirical setting.

A review of the wide concept of port governance has been conducted in Section 2.6. To set the context for the case studies in this research, Section 5.3 has further examined the governance issues in the Chinese port sector. On the basis of these two

sections and of the reported findings in Chapters 8 to 10, this section discusses the significance of the concept of governance for the understanding of the four power issues under study from two aspects: the inter-organisational level (i.e. port/terminal operators versus liner operators) and the organisational level (i.e. case seaports and their operators).

11.2.2.1 Power and Governance Issues between the Port/terminal Operators and the Liner Operators

Using data collected from the Chinese hub seaport sector, the concept of governance has been shown to be important for the understanding of the business interactions and power dynamics in the inter-organisational business relationships between case port/terminal operators and liner operators. This issue can be explained with reference to the key modes of governance (i.e. hierarchies, market and network) examined in Section 2.6.1. In general, two governance models were shown to be relevant to the business relationships under study, which were market and network.

The business interactions and power dynamics between case port/terminal operators and liners were first governed by the market. The latest port reform in China was characterised by the corporatisation of port authorities. Port/terminal operators and liner operators in the current Chinese port industry are autonomous and commercially-driven market players (Notteboom and Yang in press). These two parties have established supplier-buyer relationships based on contractual agreements. Prices are used as one medium of exchange and power exercise. As reported in Section 10.3.1.2, case port/terminal operators have used the differential pricing strategy to influence liners. This strategy involves sliding scales that correlate the potential rewards with a performance scale. The performance of liner shipping companies was often assessed by their container volumes going through the port, and the reward was manifested in the form of a discount based on the benchmark price set by the central government in the Regulations on the Collection of Port Charges of China. After haggling, the obligations of the port/terminal operators to contingently

reward liners based on the agreed sliding scales were bound by contracts.

Second, the functioning of the network was also witnessed in the empirical setting. More specifically, the Chinese culture of *guanxi* provided a relational governance mechanism for the reciprocal business interactions between case port/terminal operators and liners. In addition, the two maritime actors have the mutual interests of serving shippers and maintaining the proper function of logistics chains. Based on these shared interests, their business interactions involve long-term recurrent exchanges. A range of activities (e.g. loading/unloading, berthing/un-berthing and berth allocation) occur repeatedly in the seashore interface. These activities require the joint input of the two maritime actors' resources. Overall, the norm of reciprocity, the patterns of long-term and recurrent exchange, the existence of mutual interest and resource interdependence are all features of the network model of governance (Jones et al. 1997, Torfing 2012, Kjær 2004).

The mode of network governance has a number of theoretical implications on the four power topics examined in this study. A brief summary of these implications and relevant research findings are presented in Table 11.1. However, in a broader sense, the significance of the concept of network governance for the study of power is not limited to those issues listed in Table 11.1. The wider concept of network governance covers all aspects of inter-firm coordination and collaboration (Jones et al. 1997). As argued by Johanson and Mattson (1987), Hakansson (1987), Forsgren and Johanson (1992), and Hagg and Johanson (1992), 'the production systems as a whole as well as the activities of all actors within them, should be viewed from a network perspective' (Roe 2013, p.64). A network perspective to the examination of power issues thus covers the scope of this study. In addition, this perspective is also adopted by the two important theories (i.e. RDT and SET) used in this thesis (see Section 4.5.3.3). Consequently, all of the reported research findings are more or less related to the issue of governance in networks.

Table 11.1 Theoretical power dynamics in networks and reported findings

Theme	Theoretical power dynamics in the network	Contextualised findings in the main study
Power strategy (Chapter 8)	<ul style="list-style-type: none"> ● Network members interact to form an interdependent relationship (Kjær 2004, Larson 1992). ● Network actors can improve their power through network expansion (Emerson 1962, Pfeiffer, 1981, Jones et al. 1997). 	<ul style="list-style-type: none"> ● Case port/terminal operators formed joint-ventured terminal operating companies and conduct regular business communication to maintain integrated and harmonised business relationships with liners. ● Case port/terminal operators expanded the container collection/distribution network both landward and seaward in order to improve their power in relation to liners.
Power pattern and sources (Chapter 9)	<ul style="list-style-type: none"> ● Actors within the network are interdependent (Kjær 2004). The patterns of power among them are more or less asymmetrical (Provan and Kenis 2008). ● The distribution of resources and power are subjected to constant change within the network. Power may not be equally distributed among the network members due to the asymmetric state of resource dependency (Carlsson and Sandström 2008). ● The source of power can stem from an organisation's strategic position in the network (Bonacich 1987, Brass and Burkhardt 1993, Borgatti 2005). 	<ul style="list-style-type: none"> ● The power pattern of interdependence was reported in all case seaports. ● While case port/terminal operators were generally more powerful than liners, the operator of Xiamen Port had less power in comparison to its counterparts in other three cases. This general finding about power patterns was explained by the variation in the sources of power held by these parties. ● Both port/terminal operators and liner operators possessed essential positions in the maritime supply chains. Holding these positions formed one aspect of their power sources and contributed to their relative amount of power in relation to each other.
Power exercise (Chapter 10)	<ul style="list-style-type: none"> ● The mode of network governance is characterised by the culture of reciprocity (Jones et al. 1997, Kjær 2004). It encourages the use of reward power, while discourages the use of coercive power and other power types with negative impact on business relationships (Lee et al. 2001, Zhao et al. 2008, Yang and Wang 2011). ● Power may be abused by the parties who control key resources in the network (Provan and Kenis 2008). 	<ul style="list-style-type: none"> ● In all of the case seaports, the extensive use of reward power by port/terminal operators was observed. ● The use of negative power types (i.e. coercive power and legitimate power) was only found in those cases where the port group corporations controlled the power-related resource regarding the 'hierarchical and exclusive port management structure'.

11.2.2.2 Power and Governance Issues for Case Seaports and their Operators

The complex concept of governance plays an important role in a wide range of port activities (e.g. port reform, administration, ownership structure, regulation, financing, cooperation and network development). These activities formed an essential part of the characteristics of the empirical setting. The issues of port governance and their port-level idiosyncrasies were found to be significant for explaining the general research results, as well as the differential findings at the cross-case level.

The current port governance model in China has been greatly influenced by the latest national port reform in 2004. Prior to the reform, seaports in China were managed and operated by the local port authorities. The market structure at the individual port level was a monopoly. The PLC promoted the commercialisation of port operations, and port authorities were transformed into port group corporations. When the transformation started, the port/terminal operators in Chinese ports had the opportunity to inherit the monopoly status of the former port authorities in terms of port management and operations. Different choices were made by case port/terminal operators. Whereas the operators of Xiamen Port chose a market-oriented management philosophy to encourage competition among intra-port terminal operators, the port/terminal operators in the other three cases were keen to keep their hierarchical and exclusive control over the port operations.

At the time that the data was collected, Xiamen Port Group had just revised its management philosophy. Consequently, the four port operators in the main cases all desired to establish the centralised and hierarchical control of their intra-port terminal operating companies. This port management structure is based on the culture of subordination. Intra-port terminal operators follow the commands of the port group corporation and mainly carry out operational duties, whereas other port functions (e.g. port pricing, the allocation of terminal calls, port construction and port marketing) are undertaken by the corporation and its sub-departments. Based on this management model, the case port/terminal operators attempted to monopolise respective port

businesses.

Nonetheless, the port group corporations and their intra-port terminal operators are not solely owned by the public sector (i.e. the local government and the municipal SASAC). The latest port reform has encouraged the economic organisations and individuals at home and abroad to invest in port construction and operations. Consequently, FDI has become an important source of port financing, and global liner shipping companies and terminal operators are widely involved in the terminal operating business of the case seaports. On the one hand, this change in port ownership and financing exerted influence on the two maritime actors' sources of power (see Sections 8.4.4.1 and 9.4.2.4) and strengthened the power pattern of interdependence in the dyad. On the other hand, the change created challenges for the case port operators' exclusive control of port business. Accordingly, they had to implement relevant power strategies to deal with the challenges and maintain their power in relation to liners.

The philosophy of hierarchical governance and its consequent port management model were found to be one essential source of case port/terminal operators' power. They subsequently used this power to influence liners through unified port pricing and centralised coordination of terminal allocations. However, the case of Xiamen Port is different from the other three cases (i.e. Shanghai Port, Qingdao Port and Ningbo Port) because the former have not achieved a monopoly status in the local port market. This difference contributed to the cross-case variations in the findings about power pattern, power source and power exercise (see e.g. Sections 9.3.3, 9.4.4 and 10.4.1).

The government still plays an important role in the port sector in spite of the trend of port corporatisation in China. The desire of the port/terminal operator as a market player to increase profit is largely consistent with both the central and local government's political interests to increase port throughput. The financial and regulatory support of the government to case seaports was evidenced in many instances (e.g. the construction of Yangshan port area in the case of Shanghai Port and

the coordination of intra-port terminal operators in the case of Xiamen Port). Government support formed one aspect of case port/terminal operators' power sources (see Section 9.4.1.1).

However, the commercial interest of port/terminal operators may not always agree with the will of the government. In the case of Qingdao Port, the local government advocated the mode of market governance and encouraged terminal competition within the port. CM Qingdao was thus established and operated as a competitor to the local port group corporation. The open market policy was in conflict with Qingdao Port Group's interest to exclusively control the local seaport, and the port operator had to implement corresponding power tactics to deal with the challenge to their preferred monopoly market structure caused by the new market entrant. Thus, the failure to achieve adequate coordination between the local government and port/terminal operator added cost to the latter party's business operations and caused problems for effective governance.

The complexity of port governance modelling was enhanced by the case port/terminal operators' power strategy of network expansion. The networking behaviours involved the port integration and cooperation with feeder liners, river ports, feeder seaports and dry ports (see Section 8.5.2.3). Consequently, the role of the case port groups has, to some extent, evolved from the operator of a logistics platform (i.e. hub seaport) to the operator of a logistics network. Although these changes are examples of maritime postmodernism in practice (see e.g. Roe 2013, 2016), they have not yet seemed to be fully considered by the policy makers in China.

Indeed, port governance modelling in China has gained a certain credibility after the latest port reform (Wang et al. 2004, Cullinane and Wang 2007, Notteboom and Yang in press). The examination of the research context using the governance approach has revealed a fast changing ports sector in China, which requires the policy makers' continuous attention. Roe (2013), in his comprehensive work about maritime governance, concluded that the questions of whether the current maritime governance

system is optimal and whether things might need to change are more important than the specific changes in the port and the wider maritime sector. Therefore, at least from Roe's (2013) standpoint, the research findings showed that the current port governance system in China still needs to be improved.

Overall, this section (i.e. Section 11.2.2) has discussed the findings about port governance and its significance for the understanding of the four power issues under study from two aspects: the inter-organisational level (i.e. port/terminal operators versus liner operators) and the organisational level (i.e. case seaports and their operators). In addition, the feature of *guanxi* as a relational governance mechanism (see Section 11.2.1) adds another level to the issue of port governance in this study from the cultural aspect.

The examination of the context of this study with the governance approach has drawn heavily on Roe's (2013) comprehensive work about maritime governance, as well as a range of port governance literature that focus on the Chinese port sector (e.g. Cullinane et al. 2004, Wang et al. 2004, Wang and Slack 2004, Cullinane and Wang 2007, Qiu 2008, Lam et al. 2013 and Notteboom and Yang in press). Although the research focus of this study is not on governance issues, the field data has contributed to the knowledge about the current characteristics of port governance in China.

More importantly, the complex issues of port governance and the Chinese culture of *guanxi* are essential characteristics of the empirical setting. The discussion of these two issues in this whole Section 11.2 has shown that the contextual issues interact to varying degrees with the four power topics under study and they have important implications on the understanding of the overall research results, as well as the variations in the power dynamics at the cross-case level. Overall, the validation of the significance of the contextual issues in this study agrees with the findings of Johnson et al. (1993), Provan and Gassenheimer (1994), Kasabov (2007), Kim (2000), Stannack (1996), Kim (2000), Lee (2001), Zhuang and Zhou (2004), and Zhao et al. (2008), who all reported that the issues of context were significant for the

understanding of the concept of power and/or its sub-topics (e.g. power pattern, power source, power exercise).

11.3 Summary and Synthesis of the Research Findings

Based on the discussion of the issues of context, this section summarises the research findings and answers the four research questions in this thesis. The main aim of this study is to understand the concept of power in terminal operators' and liner shipping companies' business relationships in the current era of maritime development. To achieve this purpose, four specific research topics were created based on the key dimensions of the concept of power, which are power source, power pattern, power strategy, and power exercise. These topics relate, respectively, to the origin of power, the configuration (balance/imbalance) of power, strategies to improve power, and the use of power. Four research questions were formed, refined, and answered with regard to each topic.

11.3.1 Power Strategy

Chapter 8 dealt with the topic of power strategy and answers the first research question:

RQ1: How do Chinese port/terminal operators improve their power in relation to global liner shipping companies?

The investigation of the research topic was based on RDT, especially the issue of 'power balancing operations' addressed in the seminal work of Emerson (1962).

By answering RQ1, the strategies used by port/terminal operators in Chinese hub seaports to manage their power sources and improve their power positions in relation to liners were explored. The findings revealed that case port/terminal operators adopted four main categories of power strategy: cost reduction, exclusive control of terminal operations, network expansion, and integrated and harmonised business

relationship management. Under each category, a series of power tactics were identified.

The first power strategy (i.e. cost reduction) referred to the port/terminal operators' actions to optimise the use of firm resources and reduce the cost of meeting liner shipping companies' demand. The results showed that the case port/terminal operators had used a range measures to improve overall service quality and operational efficiency, to save operational cost and to advance the innovative use of information technology. All of these measures were related to the broad idea of 'cost reduction' in Emerson's (1962) conceptualisation of power strategy.

The case port/terminal operators were found to be keen to achieve a monopoly status in container terminal operations. The relevant business practices formed the second category of their power strategy. This study found that the involvement of FDI and the emergence of new market entrants in case seaports caused differential challenges to case port groups' hierarchical and exclusive port management structure. To cope with these challenges, the case port/terminal operators had implemented various power tactics (e.g. the diversification of the source of external investment and the centralised coordination of management philosophy). These tactics all contributed to the increase of the power of the case port groups in relation to the liners.

The third power strategy (i.e. network expansion) referred to the port/terminal operators' tactics to expand their cargo collection/distribution network. The findings revealed that they managed to develop this network, both landward and seaward. Whereas the former type of network expansion involved the establishment of ICDs and the development of sea-rail or sea-river intermodal transportation, the latter involved the control of feeder seaports and the direct operation of seaborne feeder liner services. In essence, the power strategy of network expansion functioned through the collaboration of the logistics network. This strategy helped the case port/terminal operators to boost the cargo flows going through their respective seaport and increase their importance for liners when selecting a port of call.

The establishment of an integrated and harmonised business relationship with the liner shipping companies was identified as the last type of power strategy. To achieve this purpose, the case port/terminal operators mainly relied on two power tactics, which are the formation of joint-ventures and the regular business communication with liners.

Overall, the four categories of power strategy were evidenced in all of the case hub seaports. However, there is a variation in the specific power tactics adopted by case port/terminal operators. The idiosyncrasies of research findings at the individual case level were compared in Tables 8.3, 8.5, 8.6 and 8.8. In spite of these idiosyncrasies, all of the power strategies had a positive impact on the improvement of port/terminal operators' power positions in relation to their liner customers. Meanwhile, the fourth power strategy (i.e. the integrated and harmonised business relationship management) also increased the power of liner operators. However, the potential power acquired by liner shipping companies was constricted by port/terminal operators' exclusive control over the intra-port terminal handling businesses. Thus, in addition to interdependence, this fourth power strategy mainly directed the two maritime actors' power patterns toward port/terminal operator dominance.

11.3.2 Power Source and Power Pattern

The issues of power source and power pattern were central to the understanding of the concept of power in this study. The former topic was studied in Chapter 9 via the second research question:

RQ2: What are the sources of power for Chinese port/terminal operators and global liner shipping companies in relation to each other?

By answering RQ2, the origin of the case port/terminal operators' and liner operators' power in relation to each other was explored. On the basis of the RDT, their relative power sources were categorised at the organisational, dyadic relationship and supply

chain network levels.

At the organisational level, a range of power-related resources were identified as the two maritime actors' sources of power. On the one hand, four types of resources were identified as port/terminal operators' power source, which were hinterland resources, intra-organisational resources, natural resources, and political resources (see Table 9.4). On the other hand, the sources of liner shipping companies' power at the organisational level included the volume of containers going through the port, the frequency and coverage of the liners, and the knowledge about the port operations (see Table 9.5).

At the dyadic relationship level, four potential power sources were identified on the basis of RDT, which were alternative/switching difficulty, role performance, sales and profit and specific assets-offsetting investment. The findings revealed that the first two types of power source were largely held by case port/terminal operators rather than liner shipping companies, whereas both maritime actors possessed the latter two power sources in relation to each other.

At the supply chain level, the case port/terminal operators and liner shipping companies held central positions in and have strong control over maritime supply chains. Therefore, the factor of 'centrality/position in supply chain network' was identified as the power source of both parties.

Overall, the findings revealed that all of theoretical power sources identified on the basis of RDT were evidenced in the empirical setting of this study. The cross-case comparison showed that, in general, the port/terminal operators possessed more power sources than liner shipping companies in all of the case hub seaports. Meanwhile, the operator of Xiamen Port had relatively fewer power sources in comparison to its counterparts in the other three cases (i.e. Shanghai Port, Qingdao Port and Ningbo Port).

The issue of power pattern is the second research topic examined in Chapter 9. This

issue deals with the third research question:

RQ3: How do Chinese port/terminal operators and global liner shipping companies perceive their power patterns in relation to each other?

By answering RQ3, the configurations of the power relationships under study were investigated and which party was more powerful in the inter-organisational business relationships involving port/terminal operators and liner shipping companies was identified. The examination of power patterns in the empirical setting drew on Cox's (2001b) power matrix, which categorised the buyer-supplier power relationships into four types (i.e. interdependence, buyer dominance, supplier dominance and independence). The results revealed that the power patterns between case port/terminal operators and liner shipping companies were multidimensional and involved more than one type of power relationship in Cox's (2001b) power matrix. Whereas port/terminal operators and liner shipping companies were found to be highly interdependent, the former party generally took a more powerful position (i.e. port/terminal operator dominance). In the case of Xiamen Port, the power pattern of 'liner shipping company dominance' was also reported. This implies that the power relationship between the operator of Xiamen Port and its liner customers was relatively balanced and this port operator had less power in comparison to its counterparts in the other three cases.

11.3.3 Power Exercise

Chapter 10 answered the fourth research question:

RQ4: How do Chinese port/terminal operators use their power to exercise control in relation to global liner shipping companies?

In this chapter, the actual conduct of the case port/terminal operators' power to control/influence the liner operators' behaviours was investigated on the basis of French and Raven's (1959) influential power bases approach. The implications of the

observed power patterns, the SET and the Chinese culture of *guanxi* on the general patterns of power use were examined in order to deepen the understanding of case port/terminal operators' power exercise from a theoretical perspective.

The research findings revealed three decision areas where the case port/terminal operators used their power, which were port pricing, terminal operations and port market control. In the first decision area, the operators of the case seaports managed to control their liner customers through unified pricing setting and the ability to determine port charges. Furthermore, the use of differential pricing strategies was identified as a crucial element of case port/terminal operators' power use. In the second decision area, the power users were found to exercise their influence to determine the sequence of port entry and the allocation of intra-port terminals and operational resources. Finally, the control of liner shipping companies' port and shipping agency choice was identified as the third aspect of case port/terminal operators' power use. In each of these decision areas, there were contingent factors (e.g. the liner shipping companies' performance in the decision area of port pricing and the norm of reciprocity in the decision area of terminal operations) that affected the patterns of port/terminal operators power use in a specific situation.

The case port/terminal operators' power exercise was analysed on the basis of the power bases approach. From this perspective, three types of power (i.e. reward power, legitimate power and coercive power) were evidenced in the case studies and a variation in the port/terminal operators' power use was reported between Xiamen Port and the other three ports under consideration. The operator of Xiamen Port mainly used reward power in the decision areas that reside on the port's side; that is, differential price setting and the allocation of terminal resources. While this pattern of power exercise was also reported in the other three cases, the operators of Shanghai Port, Qingdao Port and Ningbo Port managed to use a combination of reward, and legitimate and coercive power to control liners in all three decision areas identified.

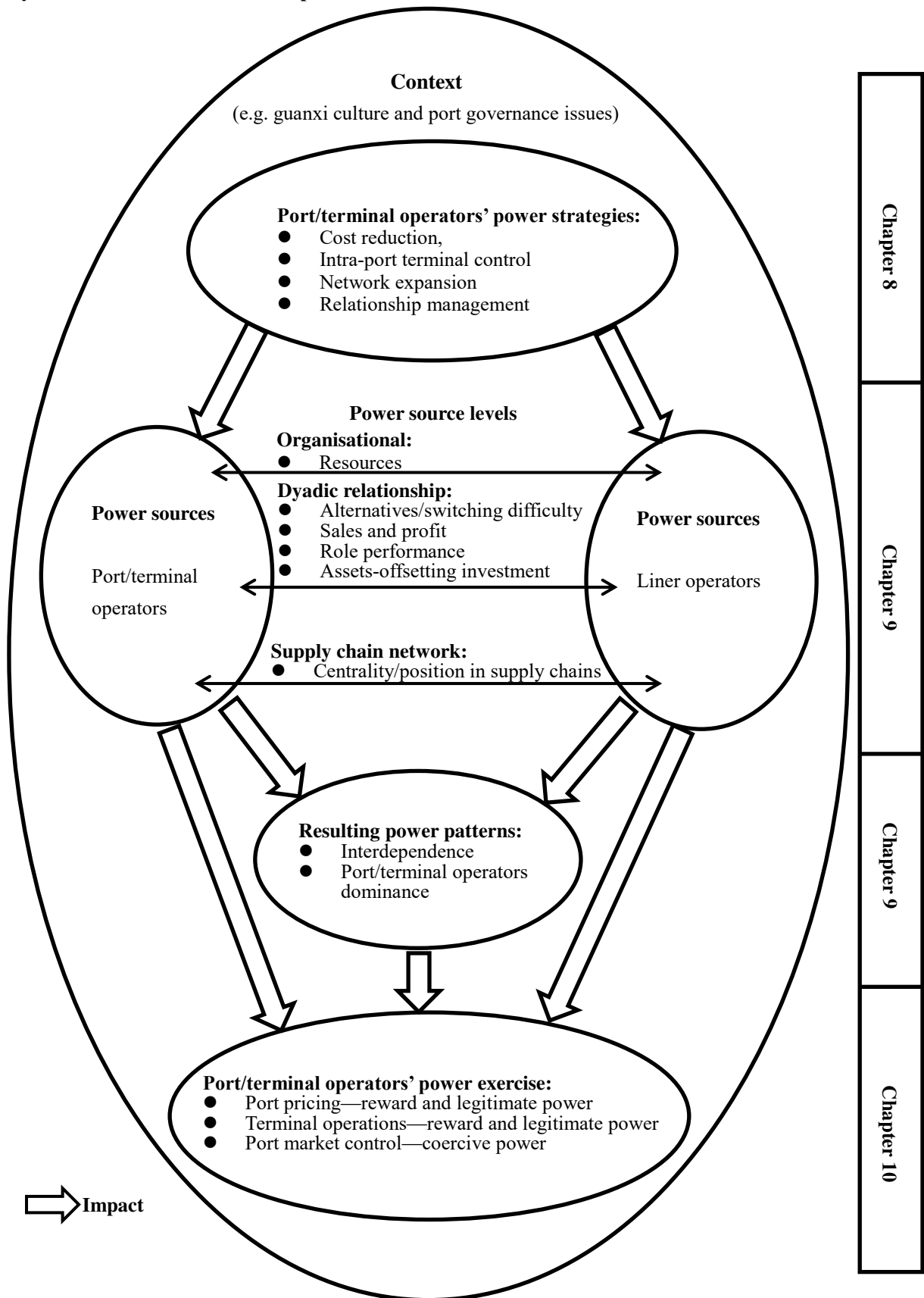
11.3.4 A Synthesis of the Research Findings

The research framework in this study was established on the basis of the four fundamental pillars of the concept of power (i.e. power strategy, power source, power pattern and power exercise). Each pillar has been examined through a dedicated research question in order to achieve a comprehensive understanding of the concept of power in port/terminal operators' and liner shipping companies' business relationships. Answering these research questions enables the synthesis of the overall findings and the update of the theoretical framework (see Figure 11.1).

The four power topics in this thesis were found to be closely related. First, the examination of case port/terminal operators' power strategies (i.e. cost reduction, network expansion, exclusive control of terminal operations, and integrated and harmonised business relationship management) offered insights about how they have managed the sources of power and established the desired power patterns in relation to liner shipping companies.

The case port/terminal operators conducted a series of actions (see Figure 8.1) to optimise the use of the firm's resources and reduce the cost of meeting the liner shipping companies' demands. These 'cost reduction' actions contributed to port/terminal operators' power sources at the organisational level and improved their 'role performance' as the provider of port services in relation to liners. The power strategy of 'network expansion' was implemented to develop hinterland resources, to integrate the logistics network and to boost the cargo flows going through their seaports. Therefore, it contributed to three aspects of case port/terminal operators' power sources; that is, power-related hinterland resources, centrality/position in supply chains, and sales and profit.

Figure 11.1 Validated and expanded theoretical framework of the port/terminal operators' power dynamics in relation to the liner operators



The power strategy of the ‘exclusive control of port operation’ and the ‘integrated and harmonised business relationship management’ functioned upon both port/terminal operators’ and liner operators’ power sources in relation to each other. The former strategy helped the port/terminal operators to establish a hierarchical and exclusive port management structure. Meanwhile, it constricted the liners’ ability to choose the terminal of call at the intra-port level, thus undermining their power source of ‘alternatives/switching difficulty’. On the other hand, the latter power strategy (i.e. integrated and harmonised business relationship management) required the joint-input of the two maritime actors’ relational and capital investment (e.g. guanxi, business communication and the formation of joint-ventured terminal operating companies). By implementing this strategy, both the port/terminal operators and the liner operators have gained the power source of ‘assets-offsetting investment’ in relation to each other.

Second, the two maritime actors’ power sources determined the patterns of power in the dyad. The theoretical sources of power at three different levels (i.e. organisational level, dyadic relationship level and supply chain network level) were in general reported on both sides of the power relationship. This finding indicates that the case port/terminal operators and the liners possessed a large amount of power in relation to each other, thus the observed power pattern of interdependence.

The differences between the case port/terminal operators’ and liner shipping companies’ power sources were mainly seen at the dyadic relationship level where the power sources of ‘role performance’ and ‘alternative/switching difficulty’ were largely held by case port/terminal operators rather than liner operators. With reference to this finding, the power pattern of ‘port/terminal operator dominance’ was reported in all of the case hub seaports, which means that port/terminal operators were, in general, more powerful than the liner operators in the empirical setting.

An exception was seen in the case of Xiamen Port, where both the port operator and its liner customers possessed the power source of ‘alternative/switching difficulty’. In

addition, the port/terminal operator's power-related resources regarding the 'containerised cargo flows with a hinterland orientation' and the 'hierarchical and exclusive port management structure' were less advantageous in the case of Xiamen Port in comparison to other three cases (see Section 9.4.1.1.). This evidence provided an explanation for the power pattern of minor 'liner shipping company dominance' that was only identified in the case of Xiamen Port.

Third, power use involves the transformation of power sources into the ability to control. In the case seaports, the port/terminal operators used their reward power in the decision areas of port pricing and port operations. The offer of a reward was manifested in the form of the discount of power charges and the preferential treatment in terminal operations. This type of power exercise required the input of the port/terminal operators' power sources at the organisational level (e.g. operational and financial resources, expertise and know-how).

Several case port/terminal operators managed to control liners through unified price setting, collective bargaining and centralised coordinated of terminal allocations (see Table 10.4). These types of legitimate-power exercise involved the transformation of the power source of 'hierarchical and exclusive port management structure' into the ability to control. This organisational-level power source also motivated relevant case port/terminal operators to use the coercive power in the decision area of port market control because it limited the liner operators' ability to pick intra-port terminals, and the lack of available alternatives makes supply chain actors more tolerant of the abuse of coercive power (Frazier and Rody 1991). Similarly, the possession of the power source regarding 'alternatives/switching difficulty' at the dyadic relationship level by port/terminal operators rather than liner operators (see Section 9.4.2.1) also contributed to their exercise of coercive power.

The port/terminal operators' power exercise was also found to be influenced by the liner shipping companies' power sources. This finding mainly related to the pattern of reward-power use in the case seaports. The offer of a reward by case port/terminal

operators was seen to be contingent on the liners' throughput contribution and the investment in the terminals (see Sections 10.3.1.2 and 10.3.2.2). These two factors have been identified as the liners' power sources at the organisational level and the dyadic relationship level, respectively (see Sections 9.4.1.2 and 9.4.2.4).

The case port/terminal operators involved in different power patterns have also used their power differently. The power pattern of interdependence was reported in all of the case seaports. This type of power configuration implies a largely balanced power relationship that encourages the power-involved parties to use power positively (Frazier and Summers 1984, Gundlach and Cadotte 1994, Kumar et al. 1998). Accordingly, all of the case port/terminal operators have relied greatly on the reward-power base to mediate their influence in relation to the liners. On the other hand, the situation of power asymmetry (i.e. buyer dominance or supplier dominance) provides the environment for the powerful firm to abuse the power it possesses, regardless of the potential negative impact on business relationships (Wilkinson and Kipnis 1978, Stern and Reve 1980, Frazier and Rody 1991, Taylor and Jackson 2000). In this study, legitimate power and coercive power were found to be harmful to the vested business relationships. The use of these two types of power by the port/terminal operator was only reported in those cases (i.e. Shanghai Port, Ningbo Port and Qingdao Port) where the imbalance of power (i.e. port/terminal operator dominance) was relatively noticeable.

Finally, the issue of research context plays a significant role in this study. The selected context has been characterised by the national culture of *guanxi* and a wide range of governance issues in the Chinese seaport sector. These two contextual factors were found to be crucial for the understanding of the four power issues under study and the overall concept of power in the business relationships between case port/terminal operators and liner shipping companies (see Section 11.2 for a detailed discussion).

Overall, the synthesis of the research findings has validated the interrelations among the four power constructs that were illustrated in the original research framework. The

examination of the power strategies has offered insights about how the case port/terminal operators managed the sources of power in relation to the liner shipping companies. The distribution of power sources in the dyad determined the patterns of power between these two maritime actors. The use of power by the port/terminal operators involved the transformation of their power sources into the ability to control and the patterns of power use were affected by the configurations of power in the vested business relationships.

The research findings have brought new insights to the dynamics of power in the business relationships under study. The functioning of the case port/terminal operators' power strategies influenced not only their own power sources but also the sources of liner operators' power. Whereas port/terminal operators' power sources served as the antecedent of their power use in relation to the liners, the latter party's power sources also exerted impact on the exercise of port/terminal operators' power. In addition, the issues of context had important implications on the overall power dynamics between the two maritime actors under study. These new insights enabled the expansion of the theoretical framework. The refined model for the understanding of the concept of power in the business relationships between port/terminal operators and liner operators has been presented in Figure 11.1.

11.4 Contributions and Implications

As far as the researcher is aware, this is the first study to systematically investigate power issues in the context of the maritime industry. Consequently, this study makes considerable contributions to both academia and practitioners.

11.4.1 Theoretical Contributions

Through the qualitative examination of the four fundamental pillars of the concept of power in the business relationships between port/terminal operators and global liner operators, this study extends the understanding of this concept to the overlooked

research setting of the Chinese seaport sector. Each power topic that was studied in this thesis makes a number of contributions to the overall body of literature. This issue has been discussed in detail in Sections 8.6.2, 9.5.2 and 10.5.2. Based on this work, this section highlights the core contributions of this study from the theoretical perspective.

First, this research contributes to RDT (e.g. Emerson 1962, Pfeffer and Salancik 1978 and Pfeffer 1981, Cox et al. 2002) by shedding light on the role of resource management and dependence manipulation in the process of power acquisition. The motivation to study the topic of power strategy in the empirical setting is to provide an account of the configuration of power and the source of power from a dynamic point of view. While the outcome of this consideration has illuminated the black box of the relations among these power issues (i.e. power strategy, power source and power pattern), it provides considerable insights into how port/terminal operators have acted to improve their power in relation to liner operators and contributes empirical evidence to the overlooked topic of ‘power balancing operations’ addressed in the seminal work of Emerson (1962).

Inspired by the work of Kahkonen and Virolainen (2011), a 3-tier framework to understand power sources was developed on the basis of RDT. As well as being novel in extending RDT by investigating the source of power at three different levels, this study reveals that all of the theoretical sources of IOP were evidenced in the empirical setting. This validates the RDT approach in examining the sources of power between actors in dyadic relationships. The framework of the theoretical power sources that has been presented has potential in providing a tool which can be tested and used in other supply chain scenarios. In addition, the study of power pattern extends RDT by highlighting the possible multidimensional characteristic of a power-dependence relationship in Cox’s (2001b) power matrix. The revised model of power patterns may be used to guide qualitative investigations of inter-organisational power relationships in various research settings.

Second, this study contributes to SET (e.g. Blau 1964, Cook and Emerson 1978) by investigating the explanatory power of this theory for the patterns of power exercise in the inter-organisational business relationships characterised by guanxi. The results confirm the robustness of the theory, especially the embedded norm of reciprocity, for interpreting the dynamics of reward power in the empirical setting. Given that the reciprocal rule of social exchanges may be conceived of as a dimension to be found in all value systems (Blau 1964, Gouldner 1960, Shore et al. 2009), the underlying mechanism of the use of reward power by the case port/terminal operators is arguably significant for the understanding of this topic in other nations with different cultures.

Nonetheless, my research findings show that port/terminal operators in those cases where power asymmetry (i.e. port/terminal operator dominance) was noticeable also relied on legitimate power and coercive power to mediate their control over the liners. The exercise of these two types of power exerted a negative influence on the vested business relationships. This finding questions the robustness of the SET to explain the patterns of power use by the power-advantaged actor in a power-imbalanced business relationship.

Third, this study contributes to the literature on power by systematically examining the four interrelated power constructs in one study. This approach to understand the complex concept of power is novel and it yielded considerable insights into the functioning of IOP in the context of the international supply chain. The research framework used in this thesis was initially developed based on the theoretical interrelations among the four power topics (e.g. Emerson 1962, Borum 1995, Gaski 1984, Wilkinson 1996, Handley and Benton Jr 2012a). This framework was later validated and expanded using empirical data collected from the Chinese hub seaport sector (see Figure 11.1). The issues of the context were reported as being significant for the examination of the power topics under study. The incorporation of this element into the theoretical framework arguably makes it flexible enough to guide the holistic examination of the power relationships between port/terminal operators and liner

operators in other regions of the world, and potentially between firms in the wider context of supply chains.

11.4.2 Practical Implications

The results of this study also have implications for managers and practitioners. The managerial implications of the four power issues examined in this study have been discussed in Sections 8.6.3, 9.5.3 and 10.5.3. Based on this work, this section describes the practical implications of the whole study.

The case port/terminal operators and liner operators are leading firms in the maritime industry. The study of their power relationships first brought some useful managerial implications to the participating companies and their peer firms. The research findings revealed that striving for power was a common practice among the case port/terminal operators. The strategies that they used to acquire power have been shown to be effective as the power pattern of port/terminal operator dominance was reported in all of the four cases. The identified power strategies provide a range of options to help the terminal operators in other regions of the world manage their power sources and improve their power in relation to liners.

In the empirical setting of this research, a misperception of the liner operators' power source and the consequent inappropriate use of reward power by case port/terminal operators were reported. Specifically, the case port/terminal operators highly valued the liners' container volumes going through their ports and they offered rewards (e.g. discounted price and preferential treatment in port operations) to the liners based on their total throughput contribution, although a large part of the former party's business was essentially derived from the locked-in shippers located in their primary hinterland. This finding suggests that the case port group corporations should amend their use of reward power. One solution would be to reduce or remove their reward for locked-in container throughput while increasing the reward for foot-loose handling businesses. Since price and service differentiation are common strategies that are used by terminal

operators all over the world to maximise profit (Tongzon 1993, Meersman et al. 2015), the managers in other ports are also advised to check the appropriateness of the way that their reward power is exercised and use this solution to deal with similar problems.

Emerson (1976) argues that the basic motivation for business interactions is to seek reward and avoid punishment. In the case seaports, the contingent use of the reward power, legitimate power and coercive power by port/terminal operators was reported. Liner managers should carefully consider the impact of the contingent factors reported on their own business interests and design a strategy that can optimise the outcome of their business interactions with the case port/terminal operators.

Second, the research results of this study have wider managerial implications to firms in the supply chain networks, given that power is at the centre of all business-to-business relationships (Cox 2001b). From this perspective, the popular supply chain integration practices maybe not suitable for all supply chain members. The research findings have revealed that the establishment of an integrated inter-organisational relationship could increase firm interdependence and thus the power of both parties in the dyad. The case port/terminal operators benefited from this power strategy and directed their power relationships with liner operators mainly toward the power matrix of port/terminal dominance because they largely managed to establish a secure system (i.e. the exclusive control of terminal operation) that reduced the power strategy's positive impact on the growth of the liners' power. Since this secure system may not be available to all of the supply chain members, merely pursuing the strategy of supply chain integration may result in the relative loss of a firm's power of another. When applying the business strategy, the managers need to carefully consider both their desired power configurations and the strategy's impact on the change of their relative power in relation to other supply chain actors.

The issue of power source was found to be central to the understanding and the management of the inter-organisational power relationships under study. Attempts to

shift power positions essentially worked on the sources of power. The sources configured power relations and served as the prerequisite for power use. As well as raising the managers' awareness about the importance of power sources, this study generates a framework that can be used by organisational leaders to comprehensively understand the origin of power in the dyadic business relationships and, hence, build an awareness of the key areas that they could work on to acquire a desirable power position in the revised power matrix. This could support organisations in their ability to develop corresponding business strategies to manage their business relationships rather than merely following the common practice in supply chains.

The study of power exercise in the empirical setting revealed that the use of legitimate and coercive power by port/terminal operators harmed the liners' business satisfaction. However, this had not affected the continuity of the business relationships under study. A key reason for the liner operators' tolerance of the two types of power use is their lack of alternatives. Potentially, other supply chain actors can also moderately use their negative power bases to control their business partners with limited alternatives. When exercising power that harms business relationships, the power users are suggested to carefully consider the 'bottom line' of the target firm's tolerance for business dissatisfaction, as well as their desired inter-organisational relationships in the long run. In addition, the cultural background of this study should also be taken into consideration. In comparison to other cultures, firms doing business in China may be more tolerant of business dissatisfaction due to the national culture of *guanxi*.

The overall outcome of this study is the creation of a theoretical framework for the holistic analysis of the power dynamics in the business relationship between the port/terminal operators and the liner operators (see Figure 11.1). While the specifics of the power constructs in the framework were illuminated using the contextualised findings of this research, the validated relations among the power variables have the potential to help managers in various industries to understand the basic functioning mechanism of IOP and form business strategies that help them to manage their

business relationships. This 'power approach' toward relationship management may start from the identification of the firm's actual and desired power positions in the inter-organisational dyad. Then, strategies to alter the pattern of power can be developed on the basis of the examination of the organisation's power sources using the 3-tier framework developed in this study. When exercising influence or control, the managers should make use of the organisation's power sources and power positions to optimise the outcome of business interactions. Meanwhile, they need to consider the impact of the power use on their desired business relationships with other supply chain actors in the long run.

11.5 Limitations and Suggestions for Future Research

Like any other study, this study has observed some limitations. First, this study examined four power topics in the business relationships between port/terminal operators and liner operators. Although both parties were involved in the data collection process, this study had a primary focus on the seaport sector. Future researchers can contribute to the understanding of the power dynamics in the vested business relationships by conducting a similar study, especially a study of the topics of power exercise and power strategy, from the perspective of the liner shipping companies.

Second, the understating of power sources and power patterns in this research took a static approach. This study was able to capture only a specific moment of the ongoing power relationship and to see how the relationship had evolved to this point: how it would evolve in the future was not considered, which is a common limitation of power related research that was also highlighted by Terpend and Ashenbaum (2012). In view of this consideration and the dynamic feature of the concept of power, future researchers can further contribute to the understating of these two issues and the other sub-topics of power (e.g. power use and power strategy) by continuously looking at the power relationships examined in this study.

Third, the concept of power is complex and contextual. When applying the research results to other contexts, the impact of the contextual issues in this study on the reported findings should be taken into consideration. In addition, the interrelations of the four power constructs in the theoretical framework were validated using qualitative data. However, the qualitative research approach is often accused of being incapable of testing the causal relationships between variables (Bryman and Bell 2011). Thus, how and to what extent the power constructs are related calls for further investigation, ideally using a combination of quantitative and qualitative research techniques.

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Appendix 2 Interview guide for the exploratory study

1. Company background

- a. History, business coverage
- b. Capacity and throughput, hinterland, key business partners
- c. Management structure

Kahkonen (2014) defined power as the ability to alter other's activities.

2. Power patterns

- a. How do you feel about the power of the P/TO in your port in relation to LSCs engaging in international trade when they are dealing with each other?
- b. Are these power relationships balanced? If not, which party is more powerful and why?

3. Power sources

- a. How do the P/TO in your port and LSCs depend on each other to fulfil each party's business needs?
- b. What resources does your port/company have that grant you the power in relation to LSCs? How? Why?
- c. In addition to resources, are there any other factors that affect your company's/port's power in relation to LSCs? How?

4. Power exercise

- a. What are the key decision areas between the P/TO in your port and LSCs regarding doing business?
- b. Who has more control of these decision areas?
- c. How has the P/TO used its power to control LSCs? When? In what form?

5. Other

- a. Is there anything else of importance we have not discussed in relation to the power relationship under study?
- b. How could this research be improved?

Appendix 3 Interview guide for the main study

Interview guide for port/terminal operators (P/TOs)

1. Company background

- a. History, business coverage, management structure
- b. Capacity and throughput, hinterland, key business partners (LSCs)
- c. Local seaport and liner shipping market condition

Kahkonen (2014) defined power as the ability to alter other's activities.

2. Power patterns

- a. How do you view the relationships between the P/TOs in Chinese hub seaports and global LSCs?
- b. How do you feel about the power of the P/TO in your port in relation to the global LSCs calling at your port/company when they are dealing with each other?
- c. Are these power relationships balanced? If not, which party is more powerful and why?
- d. Does it make a difference in other Chinese hub seaports? If so, how?

3. Power sources

3.1. General perceptions of the origin of mutual power/dependence

- a. How does your port/company and global LSCs decide to form a business relationship with each other? Why?
- b. Why do these two parties under study have the ability to alter each other's activities?

3.2. Power resources

- a. What are the resources that are valued by global LSCs in relation to your port/company? Why are they valued?
- b. What are the global LSCs' resources that are valued by the P/TO in your port? Why do they value them?
- c. How do these resources contribute to these two parties' power in relation to each other?

3.3. Other sources of power

- a. How has the power balance/imbalance between these two parties changed over time in your port? What factors have caused these changes?
- b. Are there any other factors that result in either of these parties having greater or less power in relation to the supply chain? To each other? How?
- c. Does the level of relative power make a difference between your port/company and the various global LSCs calling at your port/terminal? If yes, what are the factors that cause the difference in the level of relative power? How?
- d. How powerful is the P/TO in your port in comparison to its counterparts in other Chinese hub seaports in relation to global LSCs? Why is one more powerful (or less/equally powerful) compared to the others?

4. P/TOs' Power strategies

4.1. Content of power strategies

- a. How has the P/TO in your port attracted and kept the custom of global LSCs? Can you give me some examples?
- b. In relation to the P/TO's resources that are valued by global LSCs, what are the P/TO's strategies for managing them in your port?
- c. How has the P/TO in your port managed those factors that can affect its power in relation to global LSCs?
- d. What other activities have been carried out by the P/TO in your port to maintain/improve its power position in relation to global LSCs?

4.2. Causes and outcomes

- a. Why have these activities/strategies been carried out?
- b. How have these activities/strategies affected the P/TO's power in relation to global LSCs?
- c. What learning can you derive from the experience?

5. P/TOs' Power exercise

5.1. Content of power exercise

- a. What are the key decision areas between the P/TO in your port and global LSCs regarding doing business?
- b. Who has more control of these decision areas?
- c. How has the P/TO controlled these decision areas and in what form?
- d. In what other aspects is the P/TO's power manifested in relation to global LSCs in your port? How?

5.2. Causes and outcomes

- a. Why does the P/TO in your port choose to exercise these controls?
 - a. What are the desired and the actual outcomes?
 - b. How have these activities affected the vested business relationship?
 - c. What learning can you derive from the experience?

6. Other

- a. Is there anything else of importance we have not discussed in relation to the vested power relationship, P/TOs' power exercise and P/TOs' power improvement strategies?

Interview guide for liner shipping companies (LSCs)

1. Company background

- a. Port/terminal calls, business volume with the local port
- b. Local seaport and liner shipping market conditions

Kahkonen (2014) defined power as the ability to alter other's activities.

2. Power patterns

- a. How do you view the relationships between the P/TOs in Chinese hub seaports and global LSCs?
- b. How do you feel about the power of your company and the local P/TO when they are dealing with each other?
- c. Are these power relationships balanced? If not, which party is more powerful and why?
- d. Does it make a difference in other Chinese hub seaports that your company is calling at? If so, how?

3. Power sources

3.1. General perceptions of the origin of mutual power/dependence

- a. How does your company decide to form a business relationship with the local P/TO and why?
- b. Why do these two parties under study have the ability to alter each other's activities?

3.2. Power resources

- a. What are the resources that are valued by the local P/TO in relation to your company? Why are they valued?
- b. What are the local P/TO's resources that are valued by your company? Why are they valued?
- c. How do these resources contribute to these two parties' power in relation to each other?

3.3. Other sources of power

- a. How has the power balance/imbalance between these two parties changed over time in the local port? What factors have caused these changes?
- b. Are there any other factors that result in either of these two parties having greater or less power in relation to the supply chain? To each other? How?
- c. Does the level of relative power make a difference between your company and other Chinese hub seaports that your company is calling at? If yes, what are the factors that result in a difference in the level of relative power? How?
- d. How powerful is your company in comparison to your counterparts in the local port? Why is one company more powerful (or less/equally powerful) compared to others?

4. P/TOs' Power strategies

4.1. Content of power strategies

- a. How has the local P/TO attracted and kept global LSCs? Can you give me some examples?
- b. In relation to the local P/TO's resources that are valued by your company, what are the P/TO's strategies for managing them?
- c. How has the local P/TO managed those factors that can affect its power in relation to your company and other global LSCs?
- d. What other activities have been carried out by the local P/TO to maintain/improve its power position in relation to your company and other global LSCs?

4.2. Causes and outcomes

- a. Why do you think these activities/strategies are carried out?
- b. How have these activities/strategies affected the local P/TO's power in relation to your company and other global LSCs?

5. P/TOs' Power exercise

5.1. Content of power exercise

- a. What are the key decision areas between the local P/TO and your company in doing business?
- b. Who has more control of these decision areas?
- c. How has the local P/TO controlled these decision areas and in what form?
- d. In what other aspects, is the local P/TO's power manifested in relation to your company and to other global LSCs? How?

5.2. Causes and outcomes

- a. Why do you think the local P/TO chooses to exercise these controls?
- b. What are the desired and the actual outcomes for the local P/TO?
- c. How have these activities affected the vested business relationship?

6. Other

- a. Is there anything else of importance we have not discussed in relation to the vested power relationship, P/TOs' power exercise and P/TOs' power improvement strategies?

Appendix 4 Ethical approval forms

Ethical approval form (exploratory study)

STANDARD ETHICAL APPROVAL FORM

This form should be completed for every research project that involves human participants. It can also be used to identify whether a full application for ethics approval needs to be submitted. The researcher or, where the researcher is a student, the supervisor, is responsible for exercising appropriate professional judgement in this review. This checklist must be completed before potential participants are approached to take part in any research.

SECTION 1 - RESEARCH CHECKLIST

1.1	Does the study involve holding personal information (names, attributable information or personal identifiers of any form) on a database?	YES
1.2	Does the study involve participants who are particularly vulnerable or unable to give free and informed consent (children, people with learning disabilities, students in academically dependent relationships)?	NO
1.3	Will it be necessary for participants to take part in the study without their full knowledge and explicit consent (perhaps through covert observation)?	NO
1.4	Will the study involve discussion of sensitive topics (political or religious views, illegal activities, sexual activity, drug use and so forth) that could be uncomfortable to participants or harmful if divulged to others?	NO
1.5	Will the study involve potentially harmful procedures of any kind or be conducted in a hazardous environment that could expose the researchers or participants to higher risk than is encountered in normal life? http://www.cf.ac.uk/osheu/index.html	NO
1.6	Will financial inducements (cash, vouchers or a prize draws) be offered to participants?	NO
1.7	Will the study involve patients or patient data in the NHS?	NO

If you have answered 'NO' to all questions 1.1 to 1.7 above, please complete this form and submit TWO copies to Lainey Clayton in room F43. Both forms will be stamped as evidence of submission. One copy will be retained by the School for audit/office purposes and the other by the researcher/s. Undergraduate and postgraduate students should include/bind their copy of the form with their research report or dissertation.

If you have answered 'YES' to any of the questions above, you will need to complete a full ethical review form (ETHICS 2, available on Learning Central – CARBS RESEARCH ETHICS)

APPLICATION APPROVED
Research Ethics Committee
Cardiff Business School
Cardiff University

Ethical form 2

**FULL ETHICAL APPROVAL FORM (STAFF/PhD STUDENTS) or students
referring their form for a full ethical review**

(For guidance on how to complete this form, please see Learning Central – CARBS RESEARCH ETHICS)

If your research will involve patients or patient data in the NHS then you should secure approval from the NHS National Research Ethics Service. Online applications are available on <http://www.nres.npsa.nhs.uk/applicants/>

Name of Lead Researcher: Wenrui MA

School: Business School

Email: maw@cf.ac.uk

Names of other Researchers:

Email addresses of other Researchers :

Title of Project: The power relationship between shipping companies and terminal operators: cases from Chinese seaports

Start and Estimated End Date of Project: 10/2011--10/2015

Aims and Objectives of the Research Project: To explore the power relationship between shipping companies and terminal operators in Chinese seaports. To investigate how these relationships have been managed by terminal operators and their implications for the power relationship between ports and shipping companies.

Please indicate any sources of funding for this project: Self-funded

1. Describe the methodology to be applied in the project

The study is an exploratory study for my main case study research. One port operator in China will be selected. The purpose of the application of this data collection method is to understand how power functions in the context of Chinese seaports. Participant observation and face-to-face semi-structured interview will be used at this stage. In addition, secondary data such as organisational and public documents will be collected throughout the data collection period.

PLEASE ATTACH COPIES OF QUESTIONNAIRES OR INTERVIEW TOPIC GUIDES TO THIS APPLICATION

2. Describe the participant sample who will be contacted for this Research Project. You need to consider the number of participants, their age, gender, recruitment methods and exclusion/inclusion criteria

In terms of participant observation, I intend to define my role as 'participant-as-observer' which means I will be engaged in regular interaction with experienced and senior staff who work in the terminal operating company and port authority. With regards to semi-structured interview, targeted participants of this exploratory study mainly involve managers in one Chinese port operating company and officers in related port authority.

The sample size for the semi-structured interviews is estimated to be 10-20. Recruitment methods mainly include personal networking, theoretical and snowball sampling. The gender and age of potential participants are not likely arising ethical issues as these issues are not important information in my research. In terms of inclusion criteria, targeted participants should be familiar with terminal operation and seaport's business relationships with shipping companies.

3. Describe the method by which you intend to gain consent from participants.

Personal networking is an important method used by the researcher to access potential participants. In addition, potential participants may be accessed through email or phone calls. For all potential interviewees, they will be informed that their participation is voluntary and they are free to ask any questions that related to this research.

PLEASE ATTACH A COPY OF ALL INFORMATION WHICH WILL BE GIVEN TO PROSPECTIVE PARTICIPANTS (including invitation letter, briefing documents and, if appropriate, the consent form you will be using).

4. Please make a clear and concise statement of the ethical and health and safety considerations - <http://www.cf.ac.uk/osheu/index.html> - raised by the project and how you intend to deal with them (please use additional sheets where necessary)

Ethical issues involved in this exploratory study may include anonymity and confidentiality. To deal with these issues, Cardiff Business School Research Ethics Guidelines on academic practice will be followed. Moreover, all the participants in my study will be informed with these guidelines and potential ethical issues involved in this study. Participants' names will be deleted before the information is made publicly available.

STUDENTS SHOULD BIND THE SIGNED AND APPROVED FORM INTO THEIR REPORT, DISSERTATION OR THESIS

Please complete the following in relation to your research project:

		Yes	No	n/a
(a)	Will you describe the main details of the research process to participants in advance, so that they are informed about what to expect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)	Will you tell participants that their participation is voluntary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c)	Will you obtain written consent for participation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d)	Will you tell participants that they may withdraw from the research at any time and for any reason?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e)	If you are using a questionnaire, will you give participants the option of omitting questions they do not want to answer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f)	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g)	Will you offer to send participants findings from the research (e.g. copies of publications arising from the research)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h)	If working with children and young people please confirm that you have given due consideration to University guidance available at: http://www.cardiff.ac.uk/govrn/cocom/resources/2010%20November%20Safeguarding%20Children%20&%20VA's.doc	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

PLEASE NOTE:

If you have ticked **No** to any of 5(a) to 5(g), please give an explanation on a separate sheet.

(Note: N/A = not applicable)

There is an obligation on the principal researcher/student to bring to the attention of Cardiff Business School Ethics Committee any issues with ethical implications not clearly covered by the above checklist.

Signed: Wenrui MA

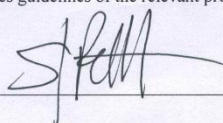
(Principal Researcher/Student)

Print Name: Wenrui MA

Date: 13/12/2013

SUPERVISOR'S DECLARATION (Student researchers only): As the supervisor for this student project I confirm that I believe that all research ethical issues have been dealt with in accordance with University policy and the research ethics guidelines of the relevant professional organisation.

Signed: Stephen Pettit



Print Name: Stephen Pettit

Date: 13/12/2013

*TWO copies of this form (and attachments) MUST BE OFFICIALLY STAMPED by
Ms Lainey Clayton, Room F43, Cardiff Business School*
STATEMENT OF ETHICAL APPROVAL

This project has been considered using agreed School procedures and is now approved.

Official stamp of approval of the
School Research Ethics Committee:

Date: 13/12/2013

APPLICATION APPROVED
Research Ethics Committee
Cardiff Business School
Cardiff University

Ethical approval form (main study)

APPLICATION APPROVED
Research Ethics Committee
Cardiff Business School
Cardiff University

Ethical form 2

FULL ETHICAL APPROVAL FORM (STAFF/PhD STUDENTS) or students
referring their form for a full ethical review

(For guidance on how to complete this form, please see Learning Central – CARBS RESEARCH ETHICS)

If your research will involve patients or patient data in the NHS then you should secure approval from the NHS National Research Ethics Service. Online applications are available on <http://www.nres.npsa.nhs.uk/applicants/>

Name of Lead Researcher: Wenrui MA

School: Business School

Email: maw@cf.ac.uk

Names of other Researchers:

Email addresses of other Researchers :

Title of Project: An examination of the application of power theory in the context of the Chinese seaport sector

Start and Estimated End Date of Project: 10/2011--10/2015

Aims and Objectives of the Research Project: To investigate the concept of power in the business relationships involving global liner operators and port operators in Chinese hub seaports. To find out how these relationships have been managed by port operators and their implications for the power relationships in focus. To find out the power sources and power patterns regarding the vested business relationships. To investigate how power has been used by port operators to control liners. To examine how port operators has manage power sources and improve their power in relation to liners.

Please indicate any sources of funding for this project: Self-funded

1. Describe the methodology to be applied in the project

Following a case study approach, this study is the second stage of my whole research in terms of data collection. The main aim of this research is to study power relationship between global liner shipping companies and port operators in Chinese hub seaports. Targeted organisations are ports group corporations in mainland Chinese hub ports and global liner operators that calling at these ports.

Participant observation and face-to-face semi-structured interview will be used at this stage. In addition, secondary data such as organisational and public documents also will be collected throughout the data collection period.

PLEASE ATTACH COPIES OF QUESTIONNAIRES OR INTERVIEW TOPIC GUIDES TO THIS APPLICATION

2. Describe the participant sample who will be contacted for this Research Project. You need to consider the number of participants, their age, gender, recruitment methods and exclusion/inclusion criteria

In terms of participant observation, I intend to define my role as 'participant-as-observer' which means I will be engaged in regular interaction with experienced and senior staffs who work in port group corporations and liner shipping companies. Results from the exploratory study indicate that various port group corporations usually serve as port operators in China. Therefore, targeted participants of the semi-structured interview mainly involve managers and directors in Chinese port group corporations and their subsidiary terminal operating companies and managers in global liner operating companies.

The sample size for semi-structured interviews is estimated, to be 30-50. Recruitment methods mainly include personal networking, theoretical and snowball sampling. Phone call and email might be used to gain access. The gender and age of potential participants are not likely arising ethical issues as these issues are not important information in my research. In terms of inclusion criteria, targeted participants should be familiar with terminal operations, liner operations and/or business relationships between port operators and liner shipping companies.

3. Describe the method by which you intend to gain consent from participants.

Personal networking is an important method used by the researcher to access potential participants. In addition, potential participants may be accessed through phone calls. For all potential interviewees, they will be informed that their participation is voluntary and they are free to ask any questions that related to this research.

PLEASE ATTACH A COPY OF ALL INFORMATION WHICH WILL BE GIVEN TO PROSPECTIVE PARTICIPANTS (including invitation letter, briefing documents and, if appropriate, the consent form you will be using).

4. Please make a clear and concise statement of the ethical and health and safety considerations - <http://www.cf.ac.uk/osheu/index.html> - raised by the project and how you intend to deal with them (please use additional sheets where necessary)

Ethical issues involved in this study may include anonymity and confidentiality. To deal with these issues, Cardiff Business School Research Ethics Guidelines on academic practice will be followed. Moreover, all the participants in my study will be informed with these guidelines and potential ethical issues involved in this study. Participants' names will be deleted before the information is made publicly available.

STUDENTS SHOULD BIND THE SIGNED AND APPROVED FORM INTO THEIR REPORT, DISSERTATION OR THESIS

Please complete the following in relation to your research project:

		Yes	No	n/a
(a)	Will you describe the main details of the research process to participants in advance, so that they are informed about what to expect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)	Will you tell participants that their participation is voluntary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c)	Will you obtain written consent for participation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d)	Will you tell participants that they may withdraw from the research at any time and for any reason?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e)	If you are using a questionnaire, will you give participants the option of omitting questions they do not want to answer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f)	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g)	Will you offer to send participants findings from the research (e.g. copies of publications arising from the research)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h)	If working with children and young people please confirm that you have given due consideration to University guidance available at: http://www.cardiff.ac.uk/govrn/coocom/resources/2010/20November%20Safeguarding%20Children%20&%20VA's.doc	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

PLEASE NOTE:

If you have ticked **No** to any of 5(a) to 5(g), please give an explanation on a separate sheet.

(Note: N/A = not applicable)

There is an obligation on the principal researcher/student to bring to the attention of Cardiff Business School Ethics Committee any issues with ethical implications not clearly covered by the above checklist.

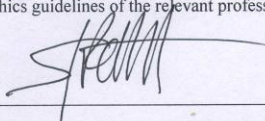
Signed: Wenrui MA
(Principal Researcher/Student)

Print Name: Wenrui MA

Date: 10/03/2014

SUPERVISOR'S DECLARATION (Student researchers only): As the supervisor for this student project I confirm that I believe that all research ethical issues have been dealt with in accordance with University policy and the research ethics guidelines of the relevant professional organisation.

Signed: Stephen Pettit



Print Name: Stephen Pettit

Date: 10/03/2014

*TWO copies of this form (and attachments) MUST BE OFFICIALLY STAMPED by
Ms Lainey Clayton, Room F43, Cardiff Business School*
STATEMENT OF ETHICAL APPROVAL

This project has been considered using agreed School procedures and is now approved.

Official stamp of approval of the
School Research Ethics Committee:

Date: 10/03/2014

APPLICATION APPROVED
Research Ethics Committee
Cardiff Business School
Cardiff University

Appendix 5 Consent form (English and Chinese versions)

Consent form (English version)

In the research ‘An examination of the application of power theory in the context of the Chinese seaport sector’, power relationships between port operators and liner shipping companies will be investigated.

This research aims to explore how power affects these two parties.

The research result will be beneficial for my company in terms of developing appropriate business and supply chain strategies in order to gain competitive advantages and provide more awareness and insight to help my company in developing power strategies.

I understand that my participation in this project will involve completing an interview about my company’s power relationships with liner shipping companies/(port operators) which will require approximately 50 minutes of my time.

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to ask any questions at any time. If for any reason I have second thoughts about my participation in this project, I am free to withdraw or discuss my concerns with Dr Stephen Pettit (Pettit@cf.ac.uk) and Dr Robert Mason (Masonrj@cf.ac.uk).

I understand that the information provided by me will be held confidentially and securely, such that only the researcher can trace this information back to me individually. The information will be retained for up to the end of 2014 and will then be anonymised, deleted or destroyed. I understand that if I withdraw my consent I can ask for the information I have provided to be anonymised/deleted/destroyed in accordance with the Data Protection Act 1998.

I, _____(NAME) consent to participate in the study conducted by Wenrui MA (maw@cf.ac.uk), PHD student of Cardiff Business School, Cardiff University, under the supervision of Dr Stephen Pettit (Pettit@cf.ac.uk), Dr Robert Mason (Masonrj@cf.ac.uk) and and Dr Jane Haider (haider@cardiff.ac.uk).

Signed:

Date:

Consent form (Chinese version)

本课题名为‘审视权力理论在中国港口业中的应用’。它主要研究港务公司与船公司的权力关系。

这项研究的目的是探索权力如何影响课题所关注的双方。 .

这项研究有利于贵公司开发设计适宜的商业与供应链策略。它有利于提高贵公司对于权力问题的重视，开发相应的权利策略，由此在商业竞争中取得优势。

本人明白，对于此项研究的参与会包含一些访谈。它的内容会涉及到我公司与船公司（或港务公司）的权力关系。访谈长度将会占用大概 50 分钟时间。

本人明白，对于此项研究的参与完全出于自愿，我可以在任何时间，在不给出任何理由的情况下，提出退出此项研究。

本人明白，我有权在任何时间提出自己的想法与疑问。如果有任何原因使我对此次参与产生怀疑，我有权与 Stephen Pettit 博士(Pettit@cf.ac.uk)跟 Robert Mason 博士(Masonrj@cf.ac.uk) 讨论我的犹豫。

本人明白，我提供的信息，将会在保证安全性与保密性的情况下进行保存，只有研究者可以通过我提供的信息追查到我本人。这些信息将会被保存到 2014 年底，之后它会被匿名处理，删除或者销毁。我明白如果我退出此项研究，我有权要求把我已经提供的信息，根据英国‘1998 年数据保护法’，亦作上述处理。

本人, _____(姓名) 同意参与此项，由 Stephen Pettit 博士 (Pettit@cf.ac.uk), Robert Mason 博士 (Masonrj@cf.ac.uk)以及 Jane Haider 博士 (Haider@cardiff.ac.uk) 指导，由卡迪夫大学商学院在读博士研究生马文瑞进行的研究。

签名:

日期:

Appendix 6 Respondent profile (main study)

Cases	Nature	Code	Working position	
Xiamen Port	Intra-port terminal operator in the port district of Haicang (Jointly ventured with one liner)	XM1	Operations director	
		XM2	Deputy finance manager (former manager of the business department)	
		XM3	Operations director	
		XM4	Business director (used to work in a liner shipping company as business director)	
		XM5	Business director	
		XM6	General manager	
		XM7	Business director	
	Liner operator 1a	XMM1	Operations director	
		XMM2	Operations manager (port representative of liner operator 1)	
	Shanghai Port	Intra-port terminal operator in the port district of Waigaoqiao (Jointly ventured with liners)	SH1	Business manager
Intra-port terminal operator in the port district of Yangshan			SH2	Operations manager
			SH3	Deputy operations manager
			SH4	Deputy operations manager
			SH5	Operations director
			SH6	Business coordinator
Port Group Corporation		SH7	Business manager of a subsidiary cargo forwarder (used to work in the production and business department of the port group corporation as director)	
		SH8	Business director (production and business department)	
Liner operator 1b		SHM1	Logistics manager	
Liner operator 2		SHZ1	General manager	
Liner operator 3	SHE1	Operations manager		

Cases	Nature	Code	Working position
Qingdao Port	Intra-port terminal operator in the port district of Qianwan (Jointly ventured with liners and global terminal operators)	QD1	Deputy operations manager
		QD2	Deputy general manager (port representative of a share-holding global terminal operator)
		QD3	Business director from the port group corporation (assigned as an inspector in the terminal operating company)
		QD4	Deputy operations manager
		QD5	Deputy general manager
		QD6	Operations director
		QD7	Operations manager
	Intra-port terminal operator in the port district of Qianwan (Jointly ventured with liners and global terminal operators)	QD8	Deputy business managers
		QD	Business director
	Liner operator 4	QDA1	Deputy operations manager
	Liner operator 5	QDH1	Operations manager
Liner operator 6	QDM1	Operations director	
Ningbo Port	Intra-port terminal operator in the port district of Beilun (Jointly ventured with liners)	NB1	Business manager
		NB2	Business director
	Ningbo Port Group	NB3	Director (Business department)
		NB4	Deputy general manager of a subsidiary container freight station (used to worked in the business department of the port group corporation as a director)
		NB5	Deputy general manager of a subsidiary logistics company (used to worked in the development and investment department of the port group corporation as a director)
	Liner operator 7	NBC1	General manager
	Liner operator 8	NBCO1	Operations director

Appendix 7 Case port/terminal operators' cost reduction actions in 2014

Case	Action	Detail
Xiamen Port	Integrating operational system	Promoted by the container terminal group, the operational systems of Haitian terminal and Xiangyu terminal were integrated after the preparation of six months. The integration was estimated to improve the efficiency of these two terminals' resource usage and facilitate direct port call for carriers.
	Adopting lean thinking	The container terminal group adopted the 5S system to manage the warehouse for detained goods in order to reduce waste and optimise productivity.
	Updating enterprise asset management system	The container terminal group run a workshop to figure out solutions for the improvement of the enterprise asset management system. The new system involves various parts of large equipment. Meanwhile, a personalised operation interface was also planned so as to meet the special needs of different departments.
Qingdao Port	Reducing energy consumption	Qingdao Port managed to reduce the energy consumption of rubber-tyred gantry cranes through the improvement of wiring, the instalment of transformer and the modification of the operational programme.
	Coordinating feeder ships	The port group encouraged feeder carriers to select the appropriate terminal according to the destination of cargoes that they carry or to call at both terminals (i.e. Qingdao Qianwan Container Terminal Company and Qingdao Qianwan United Container Terminal Company) if necessary. This action reduced annual operation cost of the port about 5.4 million Yuan.
	Automating office system	The automation of office system was improved throughout the port group to achieve a paperless and more efficient office process.
Ningbo Port	Updating Electronic Data Interchange platform	The updated Electronic Data Interchange platform is compatible with a popular Chinese social networking software (i.e. WeChat) and incorporates the in-house developed data exchange system and operation monitoring system.
	Developing Railway Business Management System	Railway Business Management System was developed in-house and served an essential component of the sea-rail container transportation platform in Ningbo Port. It integrates all information about sea-rail container transportation and enables the sharing of this information with relevant parties.
	Updating operational equipment	The new handler can handle double containers. It is capable of stacking containers up to 8-high.

Case	Action	Detail
Shanghai Port	Reducing energy use and extending the service life of equipment	Shengdong International Container Terminal Co. conducted a range of actions to reduce operations costs including the increasing use of twin container handling cranes, the optimisation of the use of LED lights in container yard and the extension of the service life of gantry cranes' tyres.
	Reducing transshipment time	Shengdong International Container Terminal Co. managed to achieve direct transshipment between two mother ships at berth. The operations removed the transportation of containers between berth and container yard, and they were achieved through improved planning of the operations of the incoming vessels.
	Improving terminal security	Guandong International Container Terminal Co. adapted a range of methods to improve the terminal security. These methods include the adoption of new technology for on-site supervision, the clarification of the zone of responsibility and security standards, and the analysis of the record of the violation of security rules.

Source: based on port news gathered from the official website of four case hub seaports and internal newsletters (Shanghai Port Group Official Website 2015, Qingdao Port Group Official Website 2015, Ningbo Port Group Official Website 2015, Xiamen Port Group Official Website 2015)