Human Resource Management in the Shipping Industry

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Abstract

There are indications of consensus among commentators and other stakeholders that shipping industry managements need to pay greater attention to 'the human element'. This thesis examines the ways merchant marine officers (seafarers), working for British and European companies, are managed, through the theoretical specification and empirical evaluation of issues and practices associated with the seafaring employment relationship, including prospects for 'progressive HRM'. Issues include but not are limited to the influence of 'open registries' shortage of qualified officers, stress among seafarers, and problems arising from demography.

A mixed methods design was selected to evaluate a set of theoretically derived research propositions. Quantitative data was collected, using a questionnaire, from a sample of 357 seafarers working on board merchant vessels. Qualitative data was collected, using semi-structured interviews, from 10 individuals representing shipping company managements. A variety of statistical and qualitatively inclined operations were undertaken to analyse the data.

The results indicate little evidence to conclude that systematic, progressive people management is applied by shipping companies to which the study findings may be generalised, in relation to their seafarers. In a high-tech, stressful and complex working environment of the shipping industry with soaring financial and environmental risks, 'externalisation' of employment relationships appears to be given priority over more developmental investment in seafaring human capital even among employers in traditional maritime countries where such ideas have currency with policy makers.

The thesis contributes to knowledge by identifying a series of predictions to facilitate the systematic evaluation of how seafaring employment is being managed, accounting for normative claims in both shipping and HRM, and through assembly and analysis of an empirical database under conditions where access has to overcome a combination of managerial sensitivity to external inquiry and remoteness of the population of interest.

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Chapter One: Introduction

1.1 The research problem

As a general definition, whoever works on board ships at sea is called a seafarer. For the purpose of this thesis, however, the term 'seafarers' is limited to officers who work on board merchant ships[1]. Beset with competitive, technological, and, environmental demands, the 'quality' of merchant seafarers in the contemporary shipping industry (measured in terms of capabilities and skills) must be "extremely high" (Theotokas and Progoulaki, 2007: 383). Delegation of 'shipboard controls' (Kowtha, 1998) to the officers who navigate and engineer merchant fleets suggests the need for particular attention to be paid to these highly skilled workforce members, and the ways in which they are managed.

Tensions surrounding seafarer quality have been highlighted in the shipping literature (both academic and trade publications). On the one hand, it is reported that ship owners emphasise the 'vital' nature of labour costs in overall operational financial management to remain competitive. A globalisation of the seafarers' labour market over the past 25 years has been reported (Sampson and Zhao, 2003), with the implication that to achieve cost reductions "shipping companies worldwide [have been] moving away from the majority of traditional maritime regions such as Europe and North America … to employ crews from countries where labour cost is low" (Theotokas and Progoulaki, 2007: 383). On the other hand, 'crew quality' has been increasingly highlighted as a cause for grave concern, with recently published "hard statistical evidence … from one of the leading marine insurers, the Norwegian Hull Club, directly linking the rise in the number of accidents at sea with human and navigational error" (Frank, 2008: 1). This new data reconfirms the findings of a study published in the early 1980s, pointing to the 'human element' in 90 per cent of serious incidents at sea (Sampson and Zhao, 2003: 32).

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[1] The shipping industry is made up of a large number of sectors and sub-sectors: e.g. ship building, chartering, navy, merchant marine and its sub-sectors. In this thesis, the shipping industry is limited to the merchant marine sector. All the ships in this sector whether trading in 'short sea' or 'deep sea' have been included. Short sea means coastal shipping and deep sea is ocean transport.

Alongside "intense commercial pressure, heavy and condensed traffic, and market factors such as a lack of repair capacity", a lack of qualified officers has been highlighted as adding to shipping insurers' risks, which the Norwegian Hull Club expects to increase both for 2008 and 2009 (Frank, 2008: 1). Remarks published in a *Lloyds List* report, attributed to Arne Birkeland Chief Operating Officer of the mutual insurer, suggest that "the industry is in 'serious trouble' … as the shortage of officers grows, with many serving officers promoted before acquiring the necessary experience to take on high workloads and commercial pressures" (Frank, 2008: 1). The globalisation of the shipping workforce, it is argued, adds a further worrying dimension: namely that, with seafarers recruited through networks of crewing agents, "aboard modern international vessels it is common to find crews composed of men and women from several, or several dozen, countries" (Sampson and Zhao, 2003: 32). Problems associated with employing mixed crew from different countries to live and work on board ship have been linked to differences in culture, education, and living standards. Furthermore, some of these seafarers experience English language difficulties, which have brought about communication problems on board the ships. With technological changes requiring primary reliance on voice-based communication, making traditional universal forms of communication at sea (such as Morse lamps) redundant (Sampson and Zhao, 2003), the multilingual character of crewing adds a further challenge to effective leadership required on the part of ships officers.

Two aspects – resourcing ships crews and 'human error' – have been especially highlighted as problems for shipping industry management. These will be discussed further below, to pave the way for a statement of purpose for the thesis investigation.

1.1.1 Seafarer resourcing issues

Developed countries, which once were the shipping nations, are experiencing problems in attracting their nationals to work at sea. For the past several years manpower updates, published by the International Shipping Federation (BIMCO/ISF, 2000; www.marisec.org) have reported a decline in the number of officers each year, indicative of a shortage of skilled seafarers to work both on board the ships and

ashore. Leggate (2004) concludes that, despite the lack of a model for counting seafarers systematically, there has been a marked decline in qualified officers from OECD countries. Glen et al (2003) forecast a 10 per cent decline in the number of officers in the UK, a traditional maritime nation, in the period to 2007. At the same time, it is reported that seafarers leave the job early in their career and transfer to shore-based employment, not necessarily in the maritime sector. Since shipping related jobs ashore often need people with seafaring experience, the shortage of skilled seafarers also has a negative effect on shore jobs (Pettit et al, 2005).

Demographic issues, in the form of the 'ageing workforce' and limited gender diversity, have also been identified as problematic in the maritime labour market. Glen et al (2002) surveyed the age profile of UK seafarers in 2001, discovering that 73% of all officers are aged over 40 years. While not raising it specifically as a problem, writers such as Thomas (2004) has drawn attention to improving gender diversity as one possible solution to the shortage of qualified officers in the shipping industry. Men have dominated the job of seafaring, historically, due to the hard work and difficult living and working conditions on board ships. Modern ship design and seafaring tasks have made the job and life potentially easier, however. The question arises, however, as to whether shipping employers have policies and provide service conditions conducive to equal opportunity for women to join the seafaring workforce.

1.1.2 Human error: seafarers' safety and wellbeing

As noted in the opening paragraphs of this chapter, the importance of the human element in shipping accidents has been widely recognised. Rothblum (2003) argues that human error is the cause of the vast majority (75-96%) of all marine accidents. The 'human', in human error, may be defined as any one who some how is related to the safe running of sea-going vessels. In addition to the seafarers working on board the ships, this may include architects and engineers who design and build the ship and her related equipment, as well as the on-shore managers who manage the ship commercially and technically.

Specifically in relation to seafarers, researchers in the maritime industry have linked a range of issues with human error, either directly or indirectly. In addition to the

shortage of qualified officers, the ageing workforce, and labour diversity, factors highlighted include labour inefficiency, lack of or poor training, fatigue due to onboard work regimes, employee health and safety, stress, unattractiveness of marine jobs, lack of job security, and high rates of staff turnover (Moran, 1996; MORI-report, 1996; McConville, 1999; Cockroft, 2000; Alderton and Winchester, 2001; Donn and Morris, 2001; Kahveci and Sampson, 2001; Smith, 2001; Zhao, 2001; Donn, 2002b; Glen et al, 2002; Klikauer and Morris, 2002; NUMAST[2], 2002; Everard and McConville, 2003; Kovats, 2003; Stevenson, 2003; Squire, 2004; Leggate, 2004; Grey, 2008).

A survey by NUMAST (2002) found that 60-80% of respondents considered workloads, stress and fatigue as the major problems affecting seafarers over the preceding decade. Thomas et al (2003) argue that separation from family is the main cause of stress. Reduced manning levels, fast port turnaround, and 'paperwork' burden have been mentioned as reasons for fatigue. Cockroft (2000) identified issues such as recruitment practices, limited career development, safety and working conditions, pay and welfare at port and at sea as problematic areas of shipping labour management.

A MORI (Market & Opinion Research International) survey conducted in 1996 (see ILO, 2001), is one of very few published surveys investigating seafarers' working and living conditions. More than 6,000 seafarers were surveyed in 93 countries and topics included: employment contract details (including pay), working hours and onboard conditions, communications, incidents of abuse, safety and welfare, and influences on trade union activity.

Over half the respondents (54%) said they were recruited through a manning agent and had no direct relations with their actual employer, with 11% reporting having to pay a third person in order to get a job. On pay levels, 34% reported receiving less than $1099 pa. Communications problems were reported, with 42% of seafarers

[2] This acronym stands for the National Union of Marine, Aviation and Shipping Transport. Since 2nd October 2006 the union has been known as 'NAUTILUS UK – the union for maritime professionals'.

working in a language other than their own, and 40% of seafarers complaining of having difficulties in understanding colleagues. Approaching two-thirds of respondents (62%) reported working between eight and 12 hours a day. A large proportion of seafarers reported a decline in standards linked to aspects such as workload, manning levels, job security, stress levels, pay and shore leave. More than 29% of seafarers, mainly those employed on board 'flag of convenience' vessels, reported experiencing unfair treatment. In relation to trade union rights, 14% of seafarers said they had been warned not to contact trade unions. Finally, almost two-thirds (65%) reported having had some sort of accident on board vessels during the two years preceding the date of the survey.

Various bodies, for example, the International Maritime Organisation (IMO), the International Labour Organisation (ILO), the World Health Organisation (WHO), maritime unions, shipping federations, shipping companies, flag states, port states, marine insurers, classification societies, and universities have promoted rules and regulations intended to minimise accidents on board ships. Training has been highlighted as one route by which to limit human error related problems (MAIB, 2005): the revision of STCW (Standard of Training, Certification and Watch Keeping for Seafarers)[3] applicable to maritime colleges worldwide is an example of recent initiatives to address a lack of systematic control over seafarer training standards.

1.2 Summary and focus of the thesis

There are signs of consensus that managerial problems in the shipping industry are, at core, *human related*. Repeatedly attention is drawn to issues of skills shortage, linked with demographics and a perception that seafaring is unattractive particularly to potential candidates from the advanced industrial regions such as Europe. Competitive pressures and action by ship owners to reduce labour costs by recruiting seafarers from a global labour pool – drawing especially from 'cheap' employment markets – have been identified as exacerbating the problems of seafaring leadership, with published evidence claiming to link crewing strategies to health, safety, and environmental concerns that have beset the industry as catalogued over the past two-

[3] A convention adopted by IMO to establish a minimum standard of training for seafarers.

three decades. Although seafaring labour has been studied from an economic and sociological standpoint, examination specifically of the way seafarers are managed is lacking. Given the managerial problem faced by the shipping industry in its contemporary environment sketched in this introductory chapter, it seems reasonable to inquire systematically into the ideas and practices applied to manage the industry's core human resource (i.e. the seafarers). Accordingly the thesis is focused by the following aim and objectives.

Aim: to make a contribution to knowledge in relation to shipping and HRM through the theoretical specification and empirical evaluation of issues and practices in the management of seafarers and their attendant employment experience.

Objectives: To meet the foregoing research aim, a number of objectives follow:

To specify theoretically-informed frameworks to help predict and analyse people management policy and practice applicable to seafarers, derived from sources describing current practice in the shipping industry, accounting for strategic choices at sector and sub-sector level, on the one hand, and informed, on the other hand, by literature describing the nature of 'progressive' HRM approaches.

Using the theoretical material, to develop hypotheses to organise an empirical investigation into the character and implications of people management applied to seafarers in the British and wider European-based merchant maritime industry.

To assemble a database, drawing on primary research informed by samples of respondents from shipping management companies and seafarers, to facilitate triangulated evaluation of predicted issues and trends.

To draw analytical inferences from the primary data regarding the character of human resource management applicable to seafarers in contemporary practice, and the extent to which this may or may not be regarded as 'progressive'.

The remainder of the thesis is organised over a further six chapters, as follows. In chapter 2, approaches to shipping business organisation and seafarer management and

their consequences are conceptualised, drawing on shipping industry literature, in part informed by classical approaches to business strategy as applied to a shipping industry context (e.g. Glen, 2005). The discussion is supplemented by a review of empirically oriented literature describing the character of the contemporary shipping industry and seafaring work, accounting for economic, legal, political, social, and technological developments during the past two-three decades or so. Predictions are framed and specified using operational measures to focus empirical evaluation. In chapter 3, literature discussing resource-based business strategy and normative HRM is drawn on to consider in conceptual and operational terms ways in which action by shipping managements might be evaluated assuming the adoption of a more 'progressive' orientation towards management of the seafarer employment relationship that has been reported in the extant shipping literature. This alternative specification is developed mindful of argument that the environment in which shipping companies from traditional maritime nations must compete for sustainable advantage necessitates action to build a more 'internalised' relationship with core workforce members – in particular, the officers who engineer and navigate merchant marine fleets. This approach stands in contrast to perceptions of increasingly de-regulated and 'externalised' employment systems across the global shipping industry. Operational indicators derived from conceptual HRM commentary, as well as work undertaken in other industry sectors (Pfeffer, 1995, 1998; Hoque, 2000), are developed tailored to evaluate predictions applicable to the management of seafaring employment and its consequence for individuals targeted by HRM practices.

In chapter 4, methodological issues are examined underpinning the 'mixed methods' empirical research design informing the thesis, premised on a 'conventionalist' epistemology (Johnson and Duberley, 2000) - i.e. the working assumption is that, although the analyst's predilection is towards objective engagement with 'facts' about shipping and seafarer management, in practice, assembling and evaluating empirical data involving human subjects – and a human analyst – introduces subjective interpretation and thus disturbance to inferences about empirically observable patterns and trends.

Findings are presented in chapter 5, drawing on a database comprising quantitative and qualitative elements gathered during the primary research phase of the thesis. Categorical data analysis techniques are applied to discern and test the statistical significance of associations between variables gathered from a survey of seafarers (n=357), complemented and extended using qualitative interview data from managerial respondents from a small sample of shipping companies (n=10) in respect of business strategy, flag of registration, and vessel characteristics and approaches to determining employment arrangements applicable to seafarers. Managerial initiatives in relation to workforce demographics and work conditions-related policies (e.g. fatigue and stress-management) are also explored. Seafarer perspectives on their employment experiences are presented, before reporting on work carried out to interrogate the quantitative data set to surface factors indicative of the extent to which a 'progressive turn' might be inferred in the management of seafarers – against the normative indicators developed in chapter 3. Statistical findings are again complemented with non-standardised evidence collected from managerial interviews.

In chapter 6, empirical findings are combined with relevant aspects of the literature used to frame the study, to inform inferences regarding the character of observable human resource management applied to seafarers in the shipping industry. It is argued that, evidenced by the sample data gathered for this thesis, differential practice in the substance of employment terms and conditions extended to seafarers may be observed comparing seafarers in different industry sub-sectors and vessel types, as well as based on nationality. Predicted discontent among seafarers generally regarding one particular consequence of their management – conditions of working life aboard the vessels they sail in – is not substantiated by the data, however. Similarly, while there is widespread agreement among seafarers and shipping management representatives alike regarding the stressful nature of seafaring, perceived sources of stress appear to differ from those implied in the extant shipping literature. Finally, drawing on the normative practice benchmarks, it is argued that the evidence suggests a need for caution before inferring more than a piecemeal adoption of 'progressive' HRM in the management of seafarers. The position is suggestive that, given the emphasis among influential stakeholders in shipping on improved

management of 'the human element' a gap remains contrasting prescription and observable practice.

Brief concluding remarks are presented in chapter 7, synthesising thesis outcomes against the study's aim and objectives, along with possible areas for future research.

Chapter Two: The Shipping Industry and Management of the Human Element

2.1 Introduction

In the opening chapter of the thesis, management of the 'human element' or 'people dimension' (specifically seafarers) as a central problem facing the contemporary shipping industry was sketched. This problem provides the rationale for the thesis submitted here. A key question to focus discussion of the shipping industry and people management practices applied to seafarers is to what extent is the reported emphasis among interested parties that the 'human element' is central to the ability of shipping companies to survive and prosper consistent with reported policies and practices associated with the employment relationship available to seafarers? To what extent has attention to the people dimension commensurate with ensuring skilled seafaring leadership (masters and other officers) that may be expected to provide a competitive, healthy and safe environment, with the prospect of a pipeline of resources to succeed current seafarers, been recorded in the shipping management literature? Are there indications in the shipping literature suggesting a relationship between people management practices and particular industry segments and/or with particular organisational strategies? What are the implications of these findings for development of a conceptual framework and operational indicators to guide new primary research (the first objective of the thesis)?

In this chapter, the shipping industry's structural characteristics are discussed along with the strategies corporate management in shipping companies have been observed as pursuing, recorded in relevant literature. This material provides a context to focus discussion on what is known regarding the ways in which the employment relationship between shipping employers and seafarers is managed, and the consequences that have been observed flowing from the strategies and practices in action. These theoretical findings (illustrated by reported secondary empirical evidence) are used to develop propositions on the variables in play and what primary research might expect to discover, to guide analysis of the contemporary situation. A summary list of propositions is presented in table 2.11 at the end of this chapter.

2.2 Shipping: Structure and Business Environment

As a service industry to trade, international shipping or 'merchant marine' (by far the main mode of international transport of goods) has facilitated international trade and has contributed to its expansion (OECD, 2001). Total seaborne trade volume was estimated by UNCTAD (cited by OECD, 2001) to have reached 5330 million metric tonnes in 2000. It is, however, misleading to talk about *a* [i.e. one] shipping industry:

> *"The cargo shipping industry is not a homogenous entity. It consists of several discrete sectors, each of which is served by different types of purpose built vessels. Each sector is marked by specific performances and structural features, and they are governed by a complex array of national and international regulations responding to specific issues that have arisen as the international trading system has evolved" (OECD, 2001: 6).*

Understanding the configuration and segmentation of the shipping industry may offer a clue to the ways in which people management may be observed in practice.

The merchant marines of most traditional maritime nations have developed gradually, often over centuries. However, with the development of the 'open registry' system (discussed below), some countries have experienced massive growth in the number of ships carrying the national flag within a very short period (Tenold, 2003). Since at least the 19th century, with the advent of steamships, the shipping industry has been divided into different markets or sub-sectors (Alderton, 2004). Basically, there are two main markets, Liner and Bulk (also referred to as 'Tramp') shipping.

> *"Liner services are provided for numerous shippers by shipping companies operating (mostly) containerships on a regular basis between scheduled, advertised ports of loading and discharge. On the other hand, bulk shipping operations are undertaken by vessels designed to carry homogeneous unpacked dry cargoes (for example grain, iron ore and coal), or liquid cargoes (such as oil, liquefied gas or chemicals). Bulk shipping operations are ordinarily carried out for individual shippers on non-scheduled routes." (OECD, 2001: 7)*

Characteristics and economic market conditions applicable to each of the shipping industry sub-sectors are described in more detail in the following sections.

2.2.1 The Liner Market

The history of liner shipping dates back to the year 1844 when P&O[4] established a line service between Europe and the Far East (Alderton, 2004). The service provided at that time was not reliable and frequent due to the technical problems in running the ships. Navigators had to rely on wind to move the vessel and there was no means of communication between ship and shore once at sea. A fast, reliable and frequent service is now the guiding principle of liner shipping. Since the introduction of steamships, creating conditions for a reliable liner service, the industry has grown very fast. Introduction of containers was a revolution in liner shipping which added even more speed in the process of growth. Trade liberalisation, globalisation and world GDP growth have all helped to develop this maritime transport sector. The huge increase in the size of container ships, considerable reduction in turn round time in port and an increase in the speed of vessels are other changes during past decades.

In addition, there has been an important shift in the role of liner shipping companies as carriers. By the introduction of intermodal transport, liner shipping has become a part of supply chain management. The international supply chain itself has become very complex forcing operators to use variety of logistics models to give a reliable, fast, just in time, cost-effective and good quality service.

2.2.1.1 Characteristics of the Liner Market

The main difference between liner and tramp services, apart from types of vessels and cargoes, is that vessels operating in this market have to maintain a scheduled service along a fixed route; regardless of the amount of cargo they find to load. While tramp shipping vessels go almost everywhere in the world to find cargos, the features of liner shipping may be summarised in terms of regular and reliable service along a fixed route between two or more groups of ports; customers informed publicly about the service schedule; a published fixed freight rate, with advance notification to customers of any changes to freight rate; responsibility on the part of the service operator for all costs; variety in the types of general cargoes carried; vessel types

[4] The Peninsular and Oriental Steam Navigation Company

comprising general cargos, containers, Ro-Ro vessels, passenger ships, special vessels, or any type of vessel operating in a line.

Although any type of vessel operating in a fixed route at a pre-advertised rate and schedule can be classified as a liner vessel, the most common type is container vessels. Glen (1997) argues that there is steady rise in the number of container vessels in the liner trade and at the same time a decline of general cargo ships. He attributes this to the advantages of containerised cargo over loose cargo. Glen (1997) also describes a separation of cargo from passengers, as more and more special ships for each special purpose is built.

The size of the vessels in liner shipping has increased considerably in recent decades. According to Drewry (2003), since 1980 the capacity of the largest container ship has tripled from 3000 TEUs[5] to 10000 TEUs. Before 1995 the largest vessel was Panamax, which was the biggest ship in dimension that could pass through the Panama Canal. This vessel could carry around 4,442 TEUs maximum. Since 1995, the Post-Panamax and Mega Post-Panamax of up to 10,000 TEUs capacity have been built. The logic behind this change in size is a combination of economies of scale to cut costs and the growing demand for carriage of large amounts of cargoes. The disadvantages of large ships are their difficulty in finding enough cargo and also the draft restrictions in ports. From a financial point of view, high capital costs of building these kinds of ships can be also a disadvantage. Notteboom (2004) argues that the most competitive size for container vessels is a range of 5,500 to 6,500 TEUs. These types of vessels offer more flexibility and can have more direct access to regional or local markets.

2.2.1.2 Market Conditions in Liner Shipping

During the past decade, the liner shipping market has become increasingly concentrated as more and more companies merge or form alliances. Statistics provided by Containerisation International Yearbook, Lloyd's MIU (2003), show that the top 20 lines controlled almost 79% of the total world cellular capacity in 2002.

[5] Twenty-foot Equivalent Unit is an inexact unit of cargo capacity often used to describe the capacity of container ships.

This figure was 70% in 1998 according to the same source. Table 2.1 shows the share among the top 20 service operators for 2003 and 2007. Service operators mean those who own and also charter vessels. The table illustrates that, during this four-year period, the 20 largest shipping companies in the liner industry have remained the same. They also control the majority of the world trade, and their share of world container capacity has increased dramatically during the last four years from 63% in 2003 to 80% in 2007.

Table 2.1: Top Twenty Service Operators in the Liner Market

Rank	Operator	Capacity(2003) (TEUs)	Operator	Capacity (2007) (TEUs)
1	A.P. Moller	844,626	APM-Maersk	2,030,146
2	MSC	516,876	MSC	1,306,257
3	Evergreen	442,310	CMA-CGM	934,046
4	P&O	419,527	Evergreen Line	625,765
5	CMA-CGM	299,174	Hapag-Lloyd	505,366
6	NOL/APL	273,573	COSCO	454,024
7	Hanjin/ Senator	290,677	APL	432,056
8	NYK	233,934	CSCL	427,745
9	COSCO	274,128	NYK	407,183
10	China Shipping	143,655	Hanjin/Senator	374,107
11	OOCL	185,502	MOL	362,295
12	MOL	222,533	OOCL	358,563
13	Zim	174,480	K Line	307,849
14	CP Ships	201,706	Zim	290,588
15	K Line	186,017	YangMing Line	286,227
16	CSAV Group	123,378	Hamburg Sud	280,292
17	Hapag Lloyd	154,850	CSAV Group	280,128
18	Yang Ming	153,783	Hyundai	248,938
19	Hyundai	136,548	PIL(Pacific Int.)	182,925
20	Hamburg Sud	n.a	Wan Hai Lines	144,889
Total		5,277,277		10,239,389
World		8,354,000		12,371,760

Sources: Containerisation International Yearbook (2005) and AXS-Alphaliner (2008)

This data indicate a highly concentrated condition in the liner market. Barriers to entry are high due to investment capital costs and the nature of the customer base and its development, as discussed above. To understand how market conditions impact on the liner sector of the shipping industry, it is necessary to consider the way companies conduct business with consequences for industry structure. This is discussed next, setting the context for subsequently exploring business strategy.

2.2.1.3 Conferences, Consortia, Alliances, Mergers and Acquisition

Historically, attributed to cost competitiveness and higher levels of service quality compared with tramp shipping, liner companies have cooperated as groups of companies in the form of 'conferences' and 'consortia'. Das and Teng (1997) classify the different types of cooperation in liner shipping into two categories. The first one, related to freight rates, is what is referred to as shipping conferences. Member firms mostly agree on a similar published freight rate to be applied. The second category involves inter-firm cooperation over operational issues and includes slot charter, pooling, joint services, consortia and joint ventures. When Das and Teng (1997) classified these types of cooperation, there were no alliances – the newest form of cooperation among liner companies, as a response to globalisation in more recent years (Midor and Pitto, 2000). Alliances may be included in the second category of operational cooperation.

Conferences were among the first forms of cooperation, dating back to 1875 when it was practiced in the Calcutta trade[6]. The conference was established to overcome the problems of tight competition and marginal cost pricing. Low freight rates and oversupply of ships led operators to think about a way to protect their companies from 'deadly competition' (Song and Panayides, 2002; Fusillo, 2003). The most important terms of agreements under the conference system concern rates and the number of sailings. There are two main types of conferences, namely, 'closed' and 'open'. In the former, entry for new members is limited and must be approved by existing members. The share of trade is set for members and rates are agreed among them. This system is criticised for being a form of monopoly, which leaves no

[6] This was a trade route between Europe and Indian subcontinent.

incentives for the members to improve their quality of service. This type of conference is prohibited in some countries (e.g. the USA), where trade laws are enacted against monopolies. Under the open form of conference, there is no restriction on membership and no control imposed over the share of trade or operating ships among the conference. But the members agree on the freight rate (Sjostorm, 2004).

The high capital cost of running a liner shipping company after the introduction of containerisation provided an impetus to liner owners to cooperate in a form of consortia, or through joint venture, or pooling, etc. These approaches are just different forms of sharing the assets and management to cut cost duplication when operating individually. Other reasons for cooperating in form of consortia have been reported as securing scale economies; achieving a critical mass in operational scale; overcoming difficulties in filling slots in ships; spreading the high risk of investment in ships; reducing the damages from trade imbalances; and improving the geographical coverage (Notteboom, 2004; Ryoo and Thanopoulou, 1999; Baird, 2003; Lim, 1996; Baird, 1997, Slack et al., 1996). These factors give the members of consortia advantages over individual companies, making it difficult for the other shipping companies to enter into the line.

All these forms of cooperation in liner shipping were developed for local or regional businesses. The introduction of containers, globalisation of trade, and creation of intermodal transport, gave rise to the need for a new form of cooperation. Therefore major liner shipping companies started cooperating at the global level by forming alliances worldwide. APL, OOCL, MOL and NEDLLOYD were among the first companies to form an alliance called Global Alliance in 1994 (Alderton, 2004). At present, the giant alliances account for the majority capacity in the main liner routes. In April 2003, the top eight alliances shared almost 90% of the total capacity in east-west trade (Baird, 2003).

2.2.2 The Tramp Market

In the tramp market, the operators do not run their ships along a fixed route but operate all around the world wherever they can find cargo. The liberalisation of trade

and increased demand for transportation of large parcels of cargo are said to be the reasons for building large bulk carriers and tankers in the tramp market. Examples include Ultra Large Crude Carriers (ULCC) and cape size bulk carriers (Bunker and Ciccantell, 1995). In addition to tankers and bulk carriers there are some other ships, which are categorised under tramp shipping due to the characteristics of the market they are operating in. These are Liquefied Natural Gas (LNG) carriers, Liquefied Petroleum Gas (LPG) carriers, Chemical carriers, Reefer ships, Roll-on Roll-off (Ro-Ro) vessels, and pure car/truck carriers (PCTC)[7].

The tramp market has been judged as close to the 'perfect competition' model (Clarkson Research studies, 2004). This means that there is no monopoly: shipping companies in this sector compete in a free market over the service they provide and the freight rate they offer to customers. The different sub-sectors operating in the tramp market compete over the share of the cargo available according to customer needs. Ships operating in this type of market trade all over the world and there is no trade barrier for the shipping companies (Alderton, 2004). On the other side the demand for the service is volatile and cannot be predicted. There are many small shipping companies in different sectors of the tramp market. For example in the bulk sector about 74% of companies are the ones with fewer than four ships (Table 2.2). This figure is 83% for the product carriers (Table 2.3).

2.2.2.1 Dry Bulk Shipping

The history of dry bulk shipping dates back to the mid-nineteenth century when the transatlantic coal trade was booming and needed ships to carry the goods. Increased demand for raw materials and energy commodities, liberalisation of international trade, and technological advances in shipbuilding led to a further expansion of the bulk shipping fleet thereafter (Alizadeh and Nomikos, 2005). With just over 5600 vessels in commission, in 2004, the share of dry bulk cargo shipment in world seaborne trade was about 65.7% of the total cargoes transported (Clarkson Research Studies, 2004). This statistic shows the importance of this sector in the world of maritime transport.

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[7] In some books these ships have been categorised under the term 'special purpose vessels'.

Although there are large varieties of cargoes shipped in dry bulk shipping, three main types drive the market: iron ore, coal and grain. The freight rates are affected by demand in transportation of these three commodities. There is a global market for the world's total agricultural and industrial production due to the cheap cost of sea transport (Coyle et al., 1998). There are four main types of ships in the dry bulk market. These vessels have been categorised according to their size. They are Capesize (+80,000 dwt), Panamax (60-80,000 dwt), Handymax (40-60,000 dwt) and Handysize (10-40,000 dwt) (Alderton, 2004).

Table 2.2: World Bulk Carrier Ownership

Company size (Owned vessels)	Companies (no.)	Ships (no.)	Million DWT[8]	Avg. ships
300+	-	-	-	-
200-299	1	297	15.91	297
100-199	4	508	26.60	127
50-99	7	374	22.82	53
10-49	92	1534	95.48	17
5-9	193	1251	70.63	6
2-4	416	1127	52.79	3
0-1	424	408	15.80	1
Unknown	-	122	4.28	-
Total	1137	5621	304.31	5

Source: Clarkson Research Studies, 2004

2.2.2.1.1 Market Conditions in Bulk Shipping

Freight market conditions in the bulk sector, like any other sector of the shipping industry, depend on the supply and demand balance. Demand for shipment of dry bulk cargoes largely depends on industrial development, linked with economic growth across the world's economies. Norwegian financial services group, DnB NOR, which counts itself "one of the world's foremost shipping banks"[9], provides

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[8] DWT-Deadweight tonnage is an expression of a ship's carrying capacity, including the weight of the crew, passengers, cargo, fuel, ballast, drinking water, and stores.
[9] http://dnb-nor.org/en/default.asp?p=26406 (accessed 21.07.08)

forecasts of market demand for seaborne transportation drawing on indicators such as world economic growth, the GDP (Gross Domestic Product) growth for each country and for each continent (DnB NOR market research, 2004). Falling transport costs and economies of scale also make economic growth possible. The increase in demand for the transport of bulk cargoes over recent years has been linked to the strength of the world economy, China's domestic GDP growth, and Asia's GDP growth as a whole. In 2004, which was one of the best years for bulk carriers, the world economic growth was the highest since 1973. The rate of global economic expansion was approximately four per cent (DnB NOR market research, 2004). On the supply side of dry bulk shipping, market research forecasters predicted increases of 6.1% in 2005 and 5.4% in 2006 based on demolition and new-building deliveries (Clarkson Research studies, 2004). The forecast, based on these types of analysis, was a healthy near-future demand for transportation services in the dry bulk sector.

The market in bulk trade is very competitive, however. The only significant barrier to entry may be the high cost of large bulk carriers. In terms of ownership, the sector is not highly concentrated. Table 2.2 illustrates that the majority of the fleet owners are the small shipping companies. Large shipping companies (owning more than 49 ships) own only 20% of the world fleet and have a share of 21% of the total trade. The response to healthy but highly competitive market conditions and the consequences for seafarers' employment and management will be discussed below, when specific consideration is given to shipping company business strategy.

2.2.2.2 Liquid Cargoes: The Tanker Sub-sector

The existence of oil dates back 2000 years but the carriage of it by steam ships was first done in eighteenth century. 'Gluckauf' was the first vessel, which carried 2,300 tons of oil cargo in 1886 (Alderton, 2004). Despite the competition by pipeline, road and rail, sea transport counts for two-third of oil movement in the world (Fellers, 2004). Today, ships are much larger in capacity and more specific in type of cargo they carry, responding to market demands. The size of vessels plays an important role in creating economic viability for the carriage of oil over long distances: scale

economies imply that movement of large amounts of oil on one ship enable sellers to compete in local markets (Smith and Borocz, 1995).

Cargoes carried by tankers can be categorised into two main types according to the characteristics of the cargo itself and the design of ships that carry them: there are crude oil carriers and product carriers. Crude oil is one of the main cargoes transported by sea tanker, carried in large quantities using large ships. Tankers are categorised according to the 'depth' ships originate from and the depth of the oil field (Wood, 2000). Unrefined (crude) oil is normally carried from its place of extraction to the refineries. There are many types of refined oil 'products', which need to be transported from refineries to the place of consumption. Unlike the crude oil carriers, which carry only crude oil as a single cargo[10], the product carriers carry a variety of different types of products in the same ship. The products include Naphtha, Kerosene, Diesel, Petrol, Bitumen, etc. Clarkson Research Studies (2004) report 1,314 crude oil carriers totalling 222.4m dwt and 1,599 product tankers accounting for 50.9m dwt in the world in March 2004 (Table 2.3).

Changes in the tanker sub-sector over time have been accompanied by increased complexity of the tasks to be carried out by the seafarers on board the tankers (Barsan et al., 2006). As crude oil carriers are larger in size, and usually carry one type of cargo, they do not need to be supported by a complicated pipeline system. Loading is done by gravity and ship's pumps do discharging. Product carriers are comparatively smaller in size and can carry a variety of different products with different grades in their separated tanks. The range of cargoes they can carry is from 'dirty' products like fuel oil to 'clean' ones such as naphtha. To be able to do so, they require a pipeline system, which can be monitored by officers remotely from the cargo control room. The tank cleaning is very important, especially when switching from a dirty product to a clean one. The cargo loading systems are complicated and special training is needed for the seafarers working on board tankers.

[10] Albeit with different grades of crude oil.

Table 2.3: World Tanker Ownership (2004)

Company size (no. of vessels)	Number of companies		Number of ships		M. DWT	
	Crude	Product	Crude	Product	Crude	Product
+100	-	-	-	-	-	-
50-99	2	1	118	79	21.94	1.66
10-49	35	25	667	478	112.60	15.39
5-9	39	57	258	364	48.10	14.14
2-4	69	157	196	422	31.06	14.27
0-1	84	269	73	232	8.47	5.06
Unknown	-	-	2	24	0.18	0.41
Total	229	509	1,314	1,575	222.35	50.52

Source: Clarkson Research Studies (2004)

2.2.2.2.1 Market Conditions in the Tanker Sector

In the past, the major oil companies (or seven sisters, as they used to be called) controlled the tanker market through ownership of the majority of oil transportation vessels. The situation has changed, however: in March 2004 they owned only 38 ships (Clarkson Research Studies, 2004). In crude oil, the top 20 crude oil carriers own only 43.3% of the world fleet; within this segment, large companies (owning more than 49 ships) own only 8% of the total tanker fleet (Table 2.3). Their market share is limited to 9%. In the product tanker market, the concentration is even lower with the top 20 owners owning only 26.2% of the world fleet. The seven major oil companies own only 22 'product' ships. Independent tanker owners hold the large majority share (Clarkson Research Studies, 2004). Company size is negatively correlated with the number of companies: market concentration in the tanker sub-sector is low, therefore.

Glen and Martin (2005) argue that the emergence of spot markets for oil products was one of the reasons explaining a decrease in market concentration. According to these

researchers, the market for tanker transportation is derived from the movement of oil; demand for tankers is a derived demand and is perfectly inelastic; and the elasticity of supply increases with increasing amount of tonnage laid up and declines as the laid-up proportion falls (Glen and Martin, 2005, p. 276). Environment and political issues have also come to play an important role in the structure and market condition of the tanker industry. The rise of state owned companies in the Middle East and also the effect of OPA 90[11], under which an owner is liable for unlimited oil pollution damages, add a political dimension to explanations for the reduction in the share of tanker ship ownership by the major oil companies (Kim, 2004). Double hull regulation introduced by the International Marine Organization (IMO); certificate of financial responsibility enacted by the USA; legal actions against crew members in the Erika case[12], combine with OPA 90 to illustrate the growing influence of environment and pollution prevention in the oil tanker market. Registration changes or switching from vessel ownership to chartering may be inferred from these regulatory changes. (Discussion of the impact of vessel registration and associated regulatory issues impacting on seafarers' employment conditions are discussed later in the chapter.)

There are more specialised forms of bulk commodities that may be transported by seagoing tankers. The complexities involved give rise to issues that go beyond the economic considerations considered in relation to the oil tanker market, and so brief discussion follows on chemical tankers and specialist fuel products.

2.2.2.2.2 Chemical Tankers

These types of ships have been designed to carry chemical cargoes in bulk. There are different types classifiable in terms of the construction of their tanks, which vary according to the nature of the potentially hazardous chemicals they carry. All types of chemical carriers have complicated pipeline systems, however, which enable the ship to load many different cargoes at the same time without risk of contamination. The

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[11] The Oil Pollution Act is legislation adopted by the US government for the ships visiting American ports.

[12] In this case the master of the vessel was taken to the court for oil pollution after the ship had an accident.

operations of these vessels are highly specialised and therefore need highly qualified personnel. The ownership of chemical tankers is concentrated, with the top 20 owners controlling over 42% of the world fleet (Clarkson Research Studies, 2004).

2.2.2.2.3 LPG Market

Liquefied Petroleum Gas (LPG) carriers have been built specially to carry the gases, which have been liquefied by temperature or pressure or both. Propane and Butane are the examples of this type of cargo. The market is growing at a slow rate (5% annually); in 2003 the seaborne trade of LPG was approximately 45 million tonnes (Clarkson Research Studies, 2004). The number of ships in the market has increased from 682 in 1990 to 991 in 2004.

2.2.2.2.4 LNG Market

Liquefied Natural Gas (LNG) is transported in ships having either a double membrane system (called 'membrane type') or special three-quarter inch spherical tank (called 'Moss type'). The gas consists of mostly Methane with small amounts of propane, butane and nitrogen. The gas has to be liquefied at a temperature of -160°C to enable the cargo to be transported by ship. The market has got four decades of history and is relatively new but growing very fast. According to Clarkson Research Studies (2004), worldwide LNG imports have trebled between 1984 and 2000. The worldwide LNG fleet in 2004 consisted of 158 ships. The market of LNG carriers is highly concentrated: the top twenty owners control 82.9% of the world fleet.

2.3 Segmented shipping markets and business strategy

The diversified structure and varying market conditions described above give rise to strategic questions to be addressed by the managements of shipping companies in how to operate their fleets profitably. Strategy, a term derived from the Greek word 'strategus' which means a commander-in-chief (or Athenian chief magistrate), developed to refer to a general's art in leading military campaigns (Simpson and Weiner, 1989), is defined by Legge (1995) as a means of planning and directing the organisation towards particular goals and objectives. Corporate managements face the need to choose and implement a business strategy that, provided others do not

simultaneously implement it, may provide the firm with competitive advantage until competitors imitate the same or introduce an alternative competitive strategy. In his classical treatment of the field, Porter (1980) identifies three types of competitive strategy: (1) 'cost advantage', (2) 'differentiation', and (3) 'focus'. His argument is that a firm can achieve cost advantage over its competitors if it can deliver the same service, or produce the same product, as competitors at a lower cost. Differentiation advantage exists if a firm's product or service has a higher quality than those of competitors. Focus strategy is about concentrating activities within a narrow market, such as a particular geographical location and it can have cost or quality advantage as an outcome. Since the third strategy, focus, is a fraction of either cost or quality, it can be said that the basic strategies, are cost advantage and differentiation (Porter, 1980).

Following Porter's (1980) logic, the primary managerial aim when pursuing a cost leadership strategy is lowering the cost per unit of production, directing attention to overheads including labour costs in particular. Investment in technology to automate production is one way in which labour cost may be reduced in 'expensive' labour markets. Alternatively, firms may seek out cheaper labour beyond the domestic labour market, i.e. from other parts of the world, in search of cost advantage over their competitors. Cost leadership strategy seems to work better for firms with easier access to cheap resources, such as human resources. The strategy may also fit a business environment in which customers prefer cost to quality. As noted above, in the tramp market, evidence has been reported of a tendency of customers to prioritise cost, creating the environmental conditions for shipping managements to adopt a cost-reduction business strategy. Under the strategy of differentiation, the main focus is on creating uniqueness in such a way that the product or service offered by the firm is clearly distinguished from competitors. Innovation, creativity and adaptability are the essential elements in this type of strategy, and Barney (1991) draws attention to the significance of firm resources, which he classifies into three categories: physical capital, organisational capital, and human capital (Barney, 1991). Physical capital resources include a firm's plant and equipment, its geographical location and access to raw materials. Competitive advantage may be derived from physical capital

enabling a firm to deliver a cheaper or better service or product. Organisational capital resources include reputation, brand equity, co-ordinating systems and formal and informal planning. Human capital resources include talent, experience, training and development, intelligence and judgement, relationship and communication of individual managers and workers in the firm (Wright et al., 1994). A differentiation strategy elevates the significance of human resources since they are the ones that produce the product or give the service. The assumption is that quality employees will create quality goods or services. Organisational and human capital resources need a long period of time in development before becoming a source of competitive advantage.

To locate managerial decisions to pursue particular business strategies, Porter (1980) draws attention to 'five forces' that he argues may be observed to interact within the business environment encountered by firms. Glen (2005) has developed this thinking in the specific context of the shipping industry. The position is summarised in Table 2.4.

Table 2.4: Implication of Porter's five forces for market structure

	Competitive	**Monopoly**	**Oligopoly**
Buyer power	High	Low	Some/Low
Seller power	Low	Low	Low
Substitutes	High	Low	Some/Low
Entry barriers	Low	High	Some/High
Rivalry	High	None	Some/Low

Source: Glen, 2005

Glen (2005) compares the five forces of strategic management (Porter, 1980) against three dispositional positions applicable to the various market segments within the shipping industry. An economic market position that (1) approximates perfect competition, or one in which a shipping firm may secure (2) monopoly, or (3) oligopoly status is juxtaposed with competitive forces categorised in terms of (1) bargaining power of consumers, (2) bargaining power of suppliers, (3) ease of substitution of product, (4) barriers to entry and exit and (5) level of inter-firm rivalry. Industries are defined in terms of the number of firms doing the same job in

the same environment. Therefore, studying business strategy in an industry means the business strategy of the majority of the firms in that industry. If the trend in an industry is towards a quality enhancement business strategy, paying attention to internal resource enhancement considerations over mere cost containment, it does not however mean that all the firms have already complied with it. It may be the case, though, that given a particular industry environment, successful firms may be predicted as following a quality-based strategy, with other firms gradually following the same trend.

2.3.1 Business Strategies of Shipping Companies in the Liner Market

To predict business strategy adoptions by companies operating in the liner market Glen (1997), using Porter's (1980) model, argues that the business strategy is close to Oligopoly in which price competition is less important and entry into the market is often difficult. Marlow (1999) states:

> *"Liner shipping is normally viewed as being oligopolistic in nature with firms competing on the basis of service offered." (Marlow, 1999, p. 1)*

When there is no price competition, other issues such as quality of service come to the fore. Informed by Table 2.1, a quality enhancement strategy rather than cost leadership is anticipated. Being a critical link in supply chain management, companies may focus on providing a reliable and high quality service, something logically difficult to achieve by implementing a cost reduction strategy. Cost rationalisation in the share of maritime transport has of course been achieved as a result of co-operation among liner companies forming alliances. Inland transport is now the major part of total multi-modal transport costs. For example P&O has announced that 70% of the company's total transportation cost is inland transport (Notteboom, 2004). The relatively high value commodities in the liner market, low proportion of maritime transport cost in the final price of the product, and issues like just in time as new forms of customer demand, suggest that the quality of the service for liner companies is more important than the cost reduction.

In summary, the indicators reviewed above may be applied to predict that the liner market is differentiating itself from other shipping markets by giving less attention to cost leadership as a long-term strategy. This does not mean that the companies do not think of reducing their costs or that liner customers are unconcerned about freight rates. But the evidence reported is the customers in the liner market are differentiating between a poor quality and high quality service. Hiroyuki Sato, senior managing director of Mitsui O.S.K. Lines, outlines prevailing customer demands as including accurate and fast transport; more frequent service; direct port call coverage by mother vessels; provision of so-called global services that simultaneously cover multiple major trades; smooth and seamless door-to-door transport; accuracy of cargo/container tracking system at any time, anywhere; simplified/faster/paperless ship loading procedures; freight rate competitiveness (Sato, 2002) . Slack et al. (1996) summarise customer needs in this statement:

> *"Carriers have to meet shippers' requirements in terms of frequency, punctuality, reliability and geographical coverage". (Slack et. al., 1996, p.289)*

In short, these new requirements from shippers mean that liner companies must now enter the logistics business and supply chain integration.

2.3.2 Business Strategy in Bulk Shipping

Applying Porter's (1980) model, as adapted by Glen (2005), to examine the structure and market conditions applicable to the dry bulk shipping sub-sector indicate that, although substitute services are probably low, a combination of high competition and rivalry between firms, with relatively low entry barriers to enter competition limit oligopolistic behaviour. Low levels of industrial concentration as illustrated in Table 2.2, price volatility under the competitive market conditions, and a large number of participants (buyers and sellers), homogeneity of product (service), mobility of assets and services which the owners provide, and efficient information dissemination, provide the balance of advantage to shippers in terms of negotiations over the freight rate. These conditions, combined with the comparatively low price of the commodity in this sector, as well as the importance of the cost of transport in the pattern of the trade, drives ship owners toward cost reduction rather than quality enhancement

(Alizadeh and Nomikos, 2005). The result is widespread adoption of a cost leadership business strategy (Glen, 2005), with logical consequences in terms of shipping employer orientation towards the cost of seafarers.

Research by Tamvakis and Thanopoulou (2000) shows that, in spite of market buoyancy (e.g. DnB NOR market research, 2004), there are no indications of economic incentives among ship owners to shift in the direction of quality. Although the age of fleets has been mentioned as a very significant measure by shipping charterers (Tamavakis and Thanopoulou, 2000), the freight rates set by price competition leave little to compensate for the huge cost of replacing vessels. The researchers report that ship owners in this sub-sector prefer to run their old ships and bear the high cost of maintenance, and the risk of detentions in ports where inspections reveal that maritime regulations (discussed below) are not being met. While fleet renewal may be an issue for some, charterers are reported as less concerned and some times even not concerned at all regarding factors such as country of registration (or 'flag'), management and crew characteristics, despite the consequences for the bulk shipping workforce of the lack of incentive for ship owners to improve safety (Tamavakis and Thanopoulou, 2000).

2.3.3 Business Strategy in the Tanker Sector

Applying Porter's (1980) Five Forces method to analyse the implications for business strategy in the tanker sub-sector of the shipping industry, Glen (2005, p. 5) again finds high degrees of market competition and volatility. The following factors are emphasised in arriving at this conclusion. First, seller power has been reduced following the fall in the share of vessel ownership among the major oil companies and rise in the number of independent multinational owners and state owners. Secondly, entry and exist is relatively easy: low asset costs, access to capital using mortgage and tax relief systems in many countries makes for ease of entry. Opportunities to sell vessels second hand or for scrap facilitates easy exit. Thirdly, product differentiation is limited: there is not much difference between the services provided by one crude oil tanker over another. Fourthly, while there is little product substitution – it is difficult and costly to substitute the service provided by sea

transport – and the rise of the oil trader has increased the number of independent charterers (so there are many buyers), concerted decision making by the OPEC[13] cartel, for example, means that buyer power remains fairly robust and inter-supplier rivalry high.

Given conditions biased towards a competitive rather than monopolistic or even oligopolistic market for tankers, the logical prediction from applying the Porter (1980) model would be for companies to adopt a cost reduction business strategy. But there are some other factors, introduced in the discussion of market conditions (above), which force tanker owners to think about quality as well. First, the share of the freight cost in the final price of oil is very low (e.g. 2% in the UK[14]). Second, environmental considerations and the high cost of pollution compensation in the case of a disaster have come into play. Regulations imposed by IMO, such as OPA 90, and the US government have introduced pressure on ship owners to improve the quality of their ships. Following the Exxon Valdez oil spillage, the US government have taken steps to enforce the OPA 90 code and certificate of financial responsibility for ships visiting American ports. Charterers, as transportation service users are not held liable under the regulations for oil pollution by ships. Financial responsibility rests with ship owners while ship owners have already started investing in their fleet by ordering new double hull ships to comply with the regulations, for example, Strandenes (1999) believes that quality requirements have divided the whole tanker fleet into two separate groups. The first group with high new double hull quality ships and the other one with ships operating in non-US trade only. She argues that, although the freight rates are not yet set according to quality, the advantages of the new ships are their flexibility to trade all around the world.

To summarise, despite tanker market characteristics, which drive ship owners towards a cost reduction strategy, factors such as environmental issues imply the need for attention to quality especially in use of the crew on board their vessels. Human error is said to be responsible for 80% of maritime accidents and costs the industry $541m a year (UK P&I Club, 2003). While not exposed to financial liability,

[13] The acronym stands for Organisation of Petroleum Exporting Countries.
[14] The source of this statistic is unpublished analysis by Glen (1997).

reputation risks may raise awareness among oil tanker charterers of quality considerations, extending to the crewing of vessels and the expectations they have of suppliers. It is an open question as to whether this extends to the willingness to pay higher freight rates.

2.3.4 Business Strategic factors related to other forms of tanker vessels

Chemical tankers: The complexity of the operation of these kinds of vessels both technically and commercially forms an entry-exit barrier. In addition, a high risk of pollution means significant capital investment requirements to design vessels in ways that may limit owners' financial exposure in the event of being held liable for environmental damage. The small number of owners and charterers involved in this business means a low level of buyers and sellers. These factors indicate leanings towards a more oligopolistic market in Porter's (1980) terms. Therefore it would be predicted that companies working in this market would adopt a business strategy emphasising quality enhancement rather than cost reduction.

LPG and LNG tankers: Entry to the LPG market is difficult due to the complexity of service, high quality and standards required by charterers and uncertainty of market condition. Given similarities with the market for chemical tankers, LNP business strategy is expected to adopt a quality focus. With its extremely high level of ownership concentration, high capital investment costs, including substantial investment in liquefaction and cargo handling facilities raising barriers to entry, a quality enhancement business strategy is also predicted in the LNG sub-sector. In both LNP and LNG, highly qualified and capable seafarers are required to carry out the inherently complicated tasks involved.

Other tramp shipping sub-sectors: The market for other speciality vessels included in the tramp sector, such as Reefer, Ocean Ro-Ro, and PCTC vessels, is difficult to enter due to speciality of the business and limited numbers of players (Clarkson Research Studies, 2004; Hall and Olivier, 2005). For the customers in these markets, the condition of the cargoes on arrival at destination and the quality of the service seem to be very important due to the high value type of cargoes. For example, car manufacturers make long-term contracts with car carrier companies on the basis of

quality and reliability of service (Pirrong, 1993). Given this position, companies operating in these markets are predicted to implement a quality enhancement competitive strategy rather than to focus overwhelmingly on cost.

2.4 The shipping industry: summary and predictions

The context for managerial approaches to seafarer employment may to some extent be logically deduced from the literature-informed picture drawn above illustrating the character, market environment, and business strategic context for the shipping industry. Organising the material using Glen's (2005) shipping strategies model developed from Porter (1980), firms operating in the tramp market may be predicted to seek competitive advantage by leaning in the direction of cost-leadership, while the orientation of liner operators may be predicted to be towards differentiation related to the quality of services offered to customers.

While this conclusion has the merit of parsimony, there is a danger of over-simplifying a more complex reality. Panayides and Cullinane (2002) caution that a firm-specific approach is needed to increase the chances of accurately predicting business strategy. In defence, it is argued that industries are defined as a number of firms doing the same job in the same environment. Therefore, studying business strategy relevant to the shipping industry – in its segmented form – means focusing on the business strategy of the majority of the firms in the population of interest. If the trend in liner shipping is towards a competitive strategy of quality enhancement, paying attention to internal resource enhancement considerations over mere cost containment, for example, it does not mean that managerial practice applied to all liner vessels necessarily conforms to that position along the strategy spectrum. But, given a particular industry environment, successful firms may be predicted as following a quality-based strategy, with other firms gradually following the same trend.

However, evidence has been identified that, to achieve sustainable returns on the high levels of capital investment in specialist vessels in either main shipping market segment, as well as to limit owners' economic exposure in the event of environmental

damage caused by mishandling of cargoes, a focus strategy may be predicted in some cases. It is possible that technological investment may feature in strategic resource initiatives, say, in specialist bulk transport – but this carries consequences for the human element. Even if seafarers were substituted to some extent by technical systems, it may be predicted that the remainder of those engineering and navigating vessels will require enhanced capabilities to assure effective operation of complex technological systems. Contingent on the requirements of a particular sub-sector, tanker operators in the tramp market may thus be predicted to be forced to balance cost and quality assurance, as these have been defined above. Conversely, given the reported scope for liner operators to use structural factors to secure greater room for supplier influence over market conditions (i.e. oligopoly), it may be predicted that profit maximising behaviour will involve less emphasis on differentiation in meeting customer demands, while still conforming with service reliability standards, opportunistically seeking routes to cost containment.

H1: *Shipping operators across market sectors will adjust their position on the cost-quality strategic continuum, contingent on issues such as the degree of specialisation in cargoes carried,* risk of exposure to financial liability for cargo spillages, *and scope to manage customer relations to the suppliers' advantage.*

2.5 Globalisation, Deregulation and the Management of Seafarers

The shipping industry's competitive environment, heterogeneous structure and business strategies associated with operations across multiple markets, may be predicted to have consequences for seafarers in terms of their career paths, employment conditions and working environment. Before developing this line of inquiry later in the chapter, analytical reflection is needed on factors that may be assumed to influence regulation of seafarer employment beyond the single focus on managerial agency. On the one hand it has been argued that 'globalisation' has reduced external regulatory limitations on managerial discretion over seafarer employment practices. On the other hand, as will be argued below, there seems to be a case to argue that *enforcement* of initiatives designed to restrain shipping employers from acting opportunistically in ways that carry negative consequences for the

seafarer employment experience is generally problematic. Such opportunism may create conditions running contrary to environmental and safety-of-life-at-sea standards (Li and Wonham, 1999; DeSombre, 2008). Still, it remains legitimate to review the role of institutional actors such as multilateral regulatory institutions and independent advocates for seafarer interests (specifically, trade unions). A further consideration that arguably predicts an investment rather than labour cost orientation towards seafarers, to be reviewed below, is the reported demographic profile of this employee population. As discussed in the first chapter of the thesis, concern has been expressed regarding the consequences of reported shortages of seafarers with the skills profile required to operate to standards necessary to avoid human error concerns that stakeholders in the shipping industry have placed in the foreground in normative reflections on contemporary managerial priorities. Seafarer labour market globalisation claims and implications, institutional factors, and demography will be discussed in turn in what follows next.

2.5.1 Shipping Industry, De-regulation and Open Registries

International transport plays an important role in facilitating globalisation of an expanding world economy (UNCTAD, 2003). In a world where countries are economically integrated, companies in each industry see themselves in a global market regardless of borders between countries so that, at least impressionistically:

> *'going global' is an inescapable fact of life for most organisations these days.* (Perkins, 1999, p. 9)

Globalisation of the world economy can be interpreted as implying an increased volume of cargo and more passengers needing to be moved at an economic cost. Obando-Rojas et al. (2004) contend that transportation, and in particular shipping, has been transformed by globalisation more than any other industry. Vessels and the seafarers who navigate and engineer them move around the world conveying goods from almost any one place to any other. Any of these ships may be financed, owned, registered, managed, crewed, insured and operated by different nationalities from all over the world. This is a unique situation, unlikely to be found in any other industry. A vessel built in Belgium, financed by a Swedish bank, owned by a Greek, registered in Liberia, insured in the UK, operated under Dutch management, crewed by a mix of

nationalities, and conveying cargoes between Canada and the Persian Gulf states, is an example of the shipping industry's global nature (Kumar and Hoffmann, 2005).

While an international setting for the maritime industry is self-evident, deregulation experienced since the 1980s has had major consequences for the seafaring labour market, with a material impact on the life and conditions of work of the seafarers on board vessels navigating the world's shipping lanes. Traditionally, shipping companies from the world's seafaring countries used to employ their nationals as cadets and train them in the maritime colleges to work on board their ships. Aboard their ships, the seafarers shared a common language, culture, and life style (Sampson and Zhao, 2003). After leaving the sea, these seafarers frequently went to work in a maritime shore-based job either in their employer's company or elsewhere (Gardner et al., 2001). While shipping employers from developed countries might have wished to engage cheap labour in developing countries to cut their costs, they were bound by the rules of their place of registry to use their own nationals. The widespread emergence of the 'open registry' (or 'flag of convenience') system has ushered in an era where owners may change the place of their registration of their ships to escape such traditional limitations.

It has been reported that, although historically cost-focused, during the severe economic recession in the 1980s, shipping owners generally were faced with cost cutting as a survival strategy (Farhoomand, 2004). In order to retain more profits, one avenue followed was corporate tax avoidance; and the route to achieve this objective was to register ships in alternative jurisdictions. By offering advantageous tax regimes and relatively relaxed vessel ownerships, according to professional services firm Deloitte (2006), countries prepared to run 'open registries' have attracted about half of the world's tonnage. Table 2.5 illustrates the trend.

Table 2.5: Tonnage Registered by Major Open Registries, as at January 2005, for ships of 1000 grt and above

Country of Registry	Total Tonnage Registered (*1000 DWT)
Panama	177866
Liberia	76372
Bahamas	41835
Cyprus	31583
Malta	30971
Antigua and Barbuda	8383
Saint Vincent and the Grenadines	6857
Bermuda	6206
Cayman Islands	4040

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register- Fairplay.

One response by a number of traditional maritime countries in recent years is to introduce what is known as 'tonnage tax', an alternative method of calculating corporation tax profits (UK Ships Register, 2008). The tax, charged as a flat rate on the gross registered tonnage of companies, is regarded as "a peculiar feature of the global shipping industry [where] levy of corporate tax or minimum alternate tax acts as a disincentive to fleet acquisition in an industry characterised by low margins" (Raghuvanshi, 2003). For example, HM Revenue and Customs (HMRC, 2008) have reported that this "optional regime for shipping companies was introduced into the UK tax system as part of Finance Act 2000", as an element in "the Government's wider policy to bring about a reversal in the decline of the UK fleet". Similar moves have been reported in relation to Germany, Holland, and Spain, equally anxious to overcome decline in national shipping fleets (KPMG, 2005). As an example beyond Europe, the change has been reported as having being included in the 2003-04 Budget passed by the Indian government (Raghuvanshi, 2003).

Table 2.6: Most Important International Registries, as at 1st January 2005, for ships of 1000 grt and above

Country of Registry	Total Tonnage Registered (*1000 DWT)
Hong Kong (China)	43957
Singapore	40934
Marshall Islands	38088
Norwegian International Ship Registry (NIS)	21265
Isle of Man	12073
Danish International Ship Registry (DIS)	8859
French Antarctic Territory	5427
Netherlands Antilles	2132

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register- Fairplay.

As a further liner of defense against national fleet depletions to open registries, some countries begin introducing their own 'international registries' – Norway was a lead nation in this initiative (see Table 2.6 for other significant examples). The moves led not only to offering shipping companies lower tax rates, they also ushered-in relaxed regulations. Ship owners were required to employ only a limited number of nationals to resource high ranked onboard positions, e.g. Masters. This enabled employers to seek to reduce their costs by employing cheap labour from other countries. For example, in the German International Registry ship owners have to employ only a minimum of seven German seafarers including the master (Donn, 2002a). While the initial driver to register ships beyond the owners' countries of origin was to skip the high tax in developed countries, then, opportunities to engage using cheap labour became another incentive to do so.

DeSombre (2008: 179) defines open registration in shipping as "the ability of ship owners to choose in which states to register their ships" with the effect, she argues, that "ship owners have moved registration of ships to low-standard states, while traditional national registries relaxed standards in an effort to keep ship registrations". The introduction of open registries first occurred in the period between the two world

wars (Donn, 2002a). The first ships of so-called flag of convenience were United States owned passenger ships, which were transferred to the Panamanian registry in the early 1920s (Barnes, 2005). However, it was the economic crisis in 1973, associated with the dramatic increase in oil prices and decline world trade growth, in turn, reducing the demand for international transport that prompted a shift to open registration on a large scale. The economic downturn coincided with an increase in the surplus capacity of the world shipping fleet due to an increase in supply of ships by new builds, mostly under subsidies, plus slow rate of demolitions (Colton and Huntzinger, 2002; Tenold, 2000; Thanopoulou, 1998). As a consequence freight rates dropped dramatically. The combined effect of low freight income and relatively high tax rates in developed countries may be seen to have prompted a search for economic solutions in the form of tax reductions and sources of cheap seafaring labour offered by open registries.

Table 2.7: Sample wage of seafarers in selected countries (US$ per month)

	Master		**Able-Bodied Seaman (AB)**	
	Dry cargo	Tankers	Dry cargo	Tankers
UK	9,300-11,000	11,000-12,800	3,500-4,200	4,200-4,900
Denmark	8,760-10,820	9,790-11,850	3,810-4,120	4,330-4,640
Spain	7,300-7,500	8,300-8,500	2,100-2,300	2,200-2,400
Pakistan	4,800-5,200	5,300-5,600	1,300-1,400	1,300-1,400
India	4,700-4,900	5,500-5,900	1,160-1,400	1,215-1,400
Croatia	4,600-5,000	6,000-8,000	1,300-1,400	1,300-1,400
South Korea	4,500-5,000	5,500-6,500	1,400-1,700	1,700-2,300
Latvia	4,500-5,000	5,500-5,800	1,300-1,400	1,300-1,400
Russia	4,500-4,800	5,000-5,500	1,300-1,400	1,350-1,450
Poland	4,500-4,700	5,900-6,300	1,200-1,400	1,350-1,550
Mexico	4,330-4,530	4,750-4,950	1,150-1,400	1,200-1,450
Montenegro	4,100-4,300	6,150-6,350	1,300-1,400	1,390-1,490
Egypt	3,880-4,080	4,490-4,690	1,400-1,450	1,400-1,450
Romania	3,800-4,000	5,050-5,250	1,150-1,400	1,350-1,550
Philippines	3,600-4,000	3,800-4,300	1,0501,400	1,100-1,400
Ukraine	3,460-3,660	3,980-4,190	870-970	970-1,070
China	2,700-3,300	3,550-4,150	820-1,000	970-1,200
Burma	2,150-2,350	2,550-2,750	370-420	450-500

Source: ITF Seafarers' Bulletin (2005)

De-regulation in the maritime industry, through international and open registries has made it possible to finance, own, register, crew and insure a vessel across different countries, as illustrated earlier. Focusing specifically on comparative labour rates, Table 2.7 demonstrates how much money ship owners can save when they switch from developed country nationals to flag of convenience labour sources. For example, on average, the salary for a British master on board a dry cargo vessel is 4.5 times higher than the salary for a master from Burma (US$10150 and US$2250 per month,

respectively). The case for an Able-bodied Seamen (AB) on board the same vessel is even worse. A British AB receives a salary of 9.7 times more than the same AB from Burma (on average, US$3850 and US$395 respectively). The appearance of a global seafaring labour market has thus been attributed to the widespread engagement with the open registry phenomenon (Wu and Morris, 2006). On the supply side, the flow of labour shifted from the traditional maritime countries in Western Europe and North America towards the Asian and Eastern European regions where cheap labour are available. Countries like the Philippines have been motivated to implement fiscal and regulatory standards attractive to shipping companies, given the opportunity to earn a lot of foreign currency by exporting seafarers abroad. Thus the widespread exploitation of the open registry system over recent decades changed dramatically the nationality of seafarers on board the world's seagoing vessels.

The shift in the source of labour supply remains an ongoing process. For example, a growing supply of low waged Chinese seafarers now is competing with significant first-movers such as the Philippines (Zhao and Amante, 2005). Researchers such as Wu and Morris (2006) have argued that global deregulation in seafaring labour markets, leading to the widespread use of multinational crews on board ships, has dramatically changed seafarers' career development patterns. Languages spoken on board ships, rates of pay and other employment conditions reflecting different country employment and work conditions standards have become highly diverse, altering a once fairly homogeneous seafaring career path. The presence and influence of trade unions has equally become fragmented, as discussed later in the chapter.

The flag of convenience system has been the subject of sustained criticism – from those who represent seafarers interests (specifically discussed later) as well as among commentators in the shipping literature (e.g. Carlisle, 1981; Tolofari et al., 1986; Li and Wonham, 1999; Couper, 2003; Tenold, 2003; DeSombre, 2008). For example, the Law of the Sea Treaty (UNCLOS), first conceived in 1982 by the United Nations (UN) as a method for governing activities on, over, and beneath the ocean's surface

(OECD, 2001)[15], provides that a ship of any nation can navigate the sea freely and the ships' national state has exclusive dominion over that ship. The implication is that no other nation can exercise command over that ship (Couper, 2003). But there must be a 'genuine' link, in the sense of a direct relationship between the ship's owners and the country of registration'. The definition of 'genuine' is not clear in the literature. Couper (2003) believes that this word was meaningful when ships were registered in their owner's country. But since the creation of open registries this expression has become ambiguous and the subject of variation in how the term may be understood. The OECD (2001) note that it is difficult to draw a distinction between regulatory requirements in maritime transport services and practices not subject to a regulatory framework but constituting the commercial practices of operators, which the OECD argue have existed in the liner and bulk shipping sector for a long time, and have had a considerable impact on the development of each of these segments of the shipping industry

Open registry companies or 'flag of conveniences' have been criticised for on safety grounds. For example, Li and Wonham (1999) examined 20 years of data on fleet, developments, particularly the safety records in terms of accidental total loss rates. This study "confirms that the open-registry ships tend toward substandard ships" (1999, p.137). In 1998, ten flag of conveniences were reported as among the worst twenty flags in the world for the lost tonnage and lost number of vessels, accounting for 66% of total lost tonnage (ITF, 2003). Port state control which is a system of inspecting randomly up to 25% of ships visiting a port has produced similarly negative results. According to inspections carried out by port state control, flag of conveniences are among those with highest number of vessel detentions (Alderton and Winchester, 2001). Eight out of ten flags with the highest record of ship detentions were flag of conveniences. To provide balance in this review, Li and Wonham's (1999) analysis indicates that some open-registry countries' safety records

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[15] UNCLOS came into force in 1994, replacing four 1958 treaties, a year after Guyana became the 60th state to sign the treaty. To date 155 countries and the European Community have joined in the Convention. The United States has signed the treaty, but the Senate has not ratified it as it is seen as promoting active redistribution of wealth between industrialised and third world countries, thus perceived as contrary to free-market principles. However, it is now regarded as a codification of the 'Customary international law' on the issue (OECD, 2001).

are "quite acceptable". In fact, the researchers argue that the safety record of developing maritime countries as a group is better than that of developed maritime countries, of which some are worse than the world average. Reflecting on the evidence, ITF (2003) argue that, comparing national flag companies with open registries, between both groups there are good and bad owners. But the trade union contends that the number of substandard ships among the second group is more than the first one, i.e. living and working conditions of seafarers among open registry ships are worse than under national flags.

Donn (2002a) has defined a two-tiered system of employment in the shipping industry as the consequence of the spread of open registration. One tier provides acceptable standards of living and working conditions for seafarers while the other – mostly flag of convenience vessels, which do not have any genuine link with their place of registry[16] - is characterised by low wages and unsafe conditions. Donn (2002a) argues that wages and conditions in many open registries are so poor that companies from the 'acceptable' group cannot compete even by lowering their wages. It is hardly surprising to note that these developments have faced strong opposition from trade unions representing seafarers in traditional maritime nations. While as discussed below, globalisation has prompted a global response from these institutions probably more significant than observable among other trade unions in the advanced industrial world, efforts to mobilise effective resistance to deregulation and its consequences have had limited impact, given problems in enforcing consistency of practice. And while western industrial firms have been recorded relocating factories and service centres to regions such as Asia in search of cheaper skilled labour supplies, differences are notable when comparing shore-based and seagoing activities. If a UK IT company in the service industry employs Indian employees for its call centre in India, employees can expect some protection from the national laws and geographically embedded trade unions of their country. It would be misguided to assume that this situation translates to the global shipping industry. An open registry operator can employ cheap labour from the Far East, for example, to

[16] This will be discussed more in detail in section 2.5.3.1 where the regulations adopted by IMO are explained.

work on ships owned by a ship owner from a developed country. These employees may not be protected by laws in their country of origin, or ship owner's country, or the country of ship's registration[17], or even by the country where the ship is trading (Couper, 2003). This 'juridical gap' allows substandard owners scope to take advantage of seafarers.

In summary, the literature suggests that shipping market globalisation and deregulation has been associated with the emergence of a two-tier employment system for seafarers. At one extreme, internationally 'open' registries, feature vessels crewed by 'cheap labour' from an expanding range of developing countries. With a tenuous link between employer and employee, seafarers may be subject to employment standards relating to job tenure, career management, and rewards that fall short of those expected in traditional maritime employment. Seafarers may also be exposed to living and working conditions that fall below standards previously regard as the norm in terms of the safe navigation of their ships. However, cited research indicates that there is an alternative more positive direction on the spectrum of standards associated with seafarer employment. To predict the consequences for seafarer employment it may be relevant to factor-in the discussion earlier in the chapter regarding the need for high skills levels to operate specialist vessels and related cargo transportation systems, and a high quality customer service to compete profitably where sea transportation vessels form a core link in trans-global production and distribution chains. It may thus be meaningful to explore the ways in which shipping company managements approach the employment and management of seafarers, on the one hand, contingent on the scope for opportunism within an 'open' environment. On the other hand, operational and business strategic factors may be expected to influence decisions influencing seafarer employment contracts.

Several hypotheses may be deduced from these reflections, as follows:

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[17] In this case, the flag state has no jurisdiction over the ship.

H2: *Given the reported proportion of vessels registered so as to benefit from deregulation over employment terms afforded to them, seafarers will report concerns regarding the quality of contractual terms, when measured against norms for traditional maritime employment.*

H3: *Opinion regarding the quality of employment relationship will vary among seafarers depending on the type of vessels they are contracted to sail in, and the commodity transport markets in which their employers trade.*

H4: *When describing employment practices applied to seafarers employed by their company, representatives of shipping managements will offer indications suggesting a direct link between market- and vessel-contingent business strategy and cost versus developmental people management orientation.*

2.5.2 Institutional Regulation of Seafarer Employment Conditions

While managerial strategies for regulating the shipping business and concomitant determination of employment relationships extended to seafarers have been discussed in terms of influences from global economic phenomena, the review needs to be complemented by consideration of potential socio-political influences from institutional sources. Institutional regulation may flow from actions on the part of UN agencies, acting at supranational level, such as the International Maritime Organization (IMO) and the International Labour Organization (ILO), as well as from national and trans-national labour representative institutions whose function is specifically to safeguard and enhance seafarers' interests. The analysis presented in sections 2.2-2.5, illustrates how scope for managerial discretion in the shipping industry is subject to the interplay of market competition, structural factors, and the open registry system. In the case of attempts by socio-political regulators to enforce acceptable standards of practice, the evidence suggests that scope for outside influences to prevail over managerial discretion is more limited. Even where managerial opportunism under deregulated market conditions risks consequences detrimental to seafarers working in the industry. Evidenced by analysis of open registries revealing correlations, for example, between crew performance indicators and safety records and vessel age, loss, and detention rates (Li and Wonham, 1999), concern has been voiced that ship owners can gain commercial advantage through avoiding international standards for safety, environment protection, or labour

conditions (ICONS, 2000). Under liberalised global market conditions, and given the widespread severing of a 'genuine' link between ship registrations and particular jurisdictions – in particular those committed to enforcement of institutional standards – enforcement of regulatory standards is logically problematic. Examples of the issue discussed in the shipping literature are reviewed below.

2.5.3.1 International Maritime Organisation

The International Maritime Organisation (IMO) was established in 1948 by the United Nations and since then has introduced a number of international conventions and treaties with regard to maritime safety and pollution prevention. These international agreements indirectly or directly impact on seafarers' employment experience, living and working on board the world's maritime fleets. A major overarching attempt to regulate the global shipping industry is represented by the UN convention on the Law of the Sea (UNCLOS), referred to earlier in reviewing criticism of the spread of open registries. The agreement between signatory nations covers responsibilities of 'flag states' (the jurisdiction of vessel registration), coastal states (geographical territory that a ship is passing by) and port states (where a vessel is visiting). Flag states are to ensure that ships flying their flags are complying with the international rules and regulations regarding the safety and seaworthiness of the vessels, pollution prevention *and the competence of their crew*. The convention stipulates the expectation of a genuine link between the flag state and the vessel registered – a problematic expectation, as discussed earlier. Coastal and port state authorities have rights under the convention to inspect vessels navigating in their territorial waters and visiting their ports, to audit UNCLOS compliance. If non-compliance is identified, a vessel may be detained until the problem is rectified. Included in UNCLOS audit checklists are working and living conditions of the seafarers on board a vessel, their competency in operating it, crewing levels, and minimum age limits. Not only are there nations that have to date failed to ratify the convention, however; there is also no mechanism to ensure that contracting parties to the convention are actually fulfilling their obligations. Clearly, the onus is on the signatory states to enforce the regulations: carelessness or deliberate lapses on the part of some international and open registries undermines the regulatory intent.

The director of the Seaman's Church Institute has identified a number of trends as major problems facing mariners due to incomplete enforcement of the Law of the Sea: putting seafarers at risk when ordered by some coastal states to sail into danger outside their territorial waters; additional security responsibilities falling on the shoulders of seafarers in the wake of the so-called 'war on terror' following the attack on the World Trade Centre in September 2001; increases in the frequency of attacks on seaman associated with piracy; and growth in the number of cases in which seafarers face individual criminal prosecution following marine accidents leading to pollution (Stevenson, 2003). It is not surprising that such problems may be viewed as having a negative effect on the attraction and retention of seafarers. Moreover, the lack of enforcement of UNCLOS has been linked with an increasing number of cases where seafarers abandon their ships (Couper, 1999). Against these criteria, it seems the convention is not working to satisfy regulatory expectations.

Training and certification: IMO regulations directly related to human factor-related issues are the Standard of Training, Certification and Watch Keeping (STCW), a convention adopted to monitor the training standards in maritime colleges, and the International Safety Management Code (ISM), developed after a number of serious accidents to vessels occurred during the late 1980s. Self-evidently important in efforts to assure competence in the human element of maritime transportation, the 1978 STCW convention, which came into force in 1984, was the first international agreement to set standards for training, certification and watch keeping applicable to officers and ratings working on board merchant ships (Asyali et al., 2003). Before the introduction of this convention, individual governments used to establish their own standards for training seafarers. The IMO initiative reflected the growing number of maritime accidents attributed to human error (Martines de Oses and Ventikos, 2003). Action was taken in the early 1990s to amend the convention due to a view shared by IMO members that practice was falling short of intention. The result, STCW-1995, came fully into force in February 2002. One of the most important changes concerned the role of IMO. For the first time, adopters were asked to report to the IMO on the implementation of training and certification procedures in their countries to help assure quality of practice across member states. States that meet STCW-1995

requirements have been included in what is popularly termed a 'white list'. Vessels recruiting seafarers from countries outside the white list may be subject to 'port state control', which means a regular inspection at ports visited.

Despite strengthening the provision, since STCW-1995 implementation, debate has continued over its effectiveness in practice. A first question in contention is whether or not a seafarer holding a certificate of competency from a 'white list' country is truly 'competent'. According to report by the International Chamber of Shipping (ICS), the white list has been compromised by political pragmatism (ICS, 2005). A previous IMO Secretary-General responds that to be in the 'white list', a country has at least to take some measures to assure seafarer competence, which he regards as an important step (O'Neil, 2001).

A second regulatory compliance barrier under debate relates to cost. Training institutions have had to upgrade their facilities in order to comply with STCW-95 requirements. The cost burden falls either on ship owners or the seafarers themselves. In most cases, especially in seafaring labour supply countries, evidence suggests that it is the seafarer who must pay. A study conducted by Cardiff University (Obando-Rojas et al., 2004) has indicated that the number of fraudulent certificates has risen because the seafarers cannot afford the high cost of STCW-95 upgrading. The author of the paper argues that if nothing is done to mitigate the cost burden, seafarers may have little choice but to use fraudulent certificates. An example of fraudulent certification that has reached the public domain is one obtained by David Cockroft, the secretary general of the International Transport Federation, in 2001. He got his 'chief mate ticket' from Panama by sending a passport, photo and $4,500 (ITF, 2005).

Question marks regarding quality assurance to a common standard across flag nations and the economics of compliance to accredited competence levels suggest that enforcement of desired levels of seafarer training and accreditation has to date been compromised, therefore, despite some sense of movement in a positive direction.

Safety management: The aim of the International Safety Management (ISM Code) was to ensure safety at sea, prevention of injury or loss of human life, and protection of the marine environment. It became mandatory for all ships of 500 grt or more in July 2002. The Code provides for each shipping company to be issued with a Document of Compliance (DOC) to show that it has complied with the requirements of the ISM Code. It also requires every ship to be issued with a Safety Management Certificate (SMC) indicating that an approved Safety Management System (SMS) is in place. In common with seafarer training, a debate has ensured regarding effective ISM Code implementation/enforcement. An International Commission on Shipping report (ICONS, 2000) on ISM Code implementation concludes that the Code has not yet reached its full potential, arguing that ship owners see it as a 'paper exercise', and calling for greater attention by port state control. The report also recommends increased frequency of on-board inspection of ISM Code compliance, on the ground that twice in five years, is inadequate.

While it may be argued that, when the ICONS (2000) report was published, ISM implementation was at an early stage, Anderson (2004), author of *Cracking the Code*, has surveyed implementation of the Code. He found that the ship owners from developed countries are against the Code while those from developing countries support it. Ship owners expressing opposition argue that they already manage their ships to a high standard of safety. Therefore, they do not welcome the additional cost arising from ISM Code implementation. Too much paperwork, irrelevant procedures, not enough seafarers to undertake the extra work, lack of training, lack of support by employers as well as a lack of motivation among seafarers are among the negative factors expressed by the individuals surveyed on ISM implementation (Anderson, 2004). A further criticism concerns *interpretation* of the ISM Code, rather than the Code itself. For example, the Code emphasises the importance of training not only for those working on board seagoing merchant ships, but also for shore-based staff. In practice, according to Sagen (2005), ship owners have adopted a limited reading of these provisions as applicable only to ships crew. Among the resultant shortcomings reported are writing of procedures by non-qualified shore staff, certificate compliance instead of continuous improvement of skills, and other technical deficiencies.

2.5.3.2 International Labour Organisation

Operational health and safety and employment conditions of seafarers are the main concerns attributed to the ILO regarding the shipping industry. Around 39 conventions and 29 recommendations have been adopted to date, in an effort to make sure minimum standards are met related to these considerations. Convention 147 is especially important: its objective is to bring sub-standard ships into compliance with ILO requirements. The Convention empowers port states to inspect foreign ships irrespective of whether or not their flag states have ratified the Convention.

In September 2004, the ILO convened a meeting to draft a new convention on maritime labour standards. The aim was to agree on a single convention comprising all previous conventions and recommendations. The new convention (MLC, 2006) was adopted in February 2006, and sets minimum standards under five 'titles', as follows:

Title 1: Minimum requirements for seafarers to work on a ship

Title 2: Conditions of employment

Title 3: Accommodation, recreational facilities, food and catering

Title 4: Health protection, medical care, welfare and social security protection

Title 5: Compliance and enforcement - on board complaint procedures.

According to a Lloyds Register press release (LR/15/08, dated 4 June 2008), the Register "has developed a voluntary assessment programme, designed to support the practical implementation of the forthcoming ILO Maritime Labour Convention (MLC, 2006) on new and existing ships". Describing the initiative as readying shipping for a "seafarers' bill of rights", positioning the institution's role as one of developing "support, systems and training to help ensure ILO Convention compliance", the view is expressed that the MLC, 2006 will have a direct and positive impact on crew recruitment and retention and maritime safety - key issues for all those involved in shipping. Detailed requirements of the Convention aim to tackle

issues associated with "the causes of fatigue, occupational accidents, recruitment, employment opportunities and working and living conditions for an estimated 1.2 million seafarers … Lloyd's Register believes that the MLC, 2006 will have a direct and positive impact on crew recruitment and retention and maritime safety [when] all seafarers, regardless of their nationality and the flag of the ships they work on, can enjoy decent working and living conditions" (Lloyd's Register, 2008). A voluntary assessment scheme is offered to ship owners, shipyards and operating companies, based around inspection criteria addressed by the five titles of the Convention (Lloyd's Register, 2008). An international programme of seminars, workshops and training programmes is reported in preparation to support the needs of clients.

The Lloyds Register (2008) press release anticipates ratification of MLC, 2006 by or before 2012. On the other hand, if the number of states ratifying the convention does not reach the minimum required, it will fail to be enacted. And as with the experience of other regulatory initiatives, effective implementation and tools for enforcement remain open questions. As with the IMO, the ILO is dependent on flag states and port states in monitoring the implementation of ILO seafaring-related regulations.

2.5.3.3 International Trade Unions

Adopting a social partnership perspective to examine the maritime employment system, it may be inferred that organised labour institutions constitute an additional potential source of regulation beyond ship owners and managers. National trade unions in the maritime industry were developed first in what are referred to in the literature as traditional maritime nations, mostly developed economies (Donn, 1994). Third party involvement in regulating employment conditions applied to seafarers, and this applies equally to officers and other crew members, was facilitated by employment generally from labour markets in which owners and managers were also situated. Standards for setting working conditions were likely to be those applicable to shore-based employees (Sampson, 2003). Seafarers enjoyed the protection of strong trade unions, with the potential to mobilise members in pursuit of demands resolved through national collective bargaining. Trade union membership levels were high in each jurisdiction (Donn, 2002a). Deregulation in the shipping industry and of

the flag of convenience regime has served to undermine third party collective bargaining power. Ship owners have transferred employment from traditional maritime nations to locations where the cost of hiring is significantly below levels in the economies where union-premium rates had been won (Couper, 1999).

One line of defence was development of a trans-national labour response. The International Transport Workers' Federation (ITF), a global union association, is a prominent result. The maritime industry is hailed as the first industry in which employee protection and representative collective wage bargaining has been established on an international scale. While for example, at European level, collective actors such as the European Trades Union Congress has emerged in an attempt to coordinate interactions with managerial social partners, in practice, trade union activity and power base remains generally rooted within the jurisdiction where the labour unions first emerged. Lillie (2004) argues that the outcome is unique, and has directly affected shipping industry labour costs.

In spite of this positive assessment, however, the position appears to leave shipping industry organised labour institutions on the defensive, as with labour organisations generally over the past three decades of global economic liberalisation. Most of the activities of the international trade unions in the maritime industry, such as the ITF, are concentrated on disputes over flag of convenience ships - vessels on which the seafarers lack support from their countries of nationality, the ship owners' countries, or any other jurisdiction, to regulate their employment situation. Exemplifying the unreasonable standards of working and living conditions, the ILO (2002) report cases of seafarers left without wages or even food for months at a time. ITF (2003) investigations report instances where recruitment agencies or management companies bring pressure to bear to dissuade seafarers from joining a trade union by threatening them with blacklisting. The outcome would be that no more maritime employment would be offered. There are reports of cases where seafarers have been required to sign an agreement with the agency not even to contact ITF representatives.

The ITF has had some albeit limited success in increasing the number of vessels whose owners have consented to engage in collective bargaining with the union.

Donn (2002b) reports that in 1999, about 29% of flag of convenience ships had accepted the principle of collective bargaining with the ITF, compared with 4% in 1957. The social partners for collective bargaining at the international level are the ITF representing employees and the International Shipping Federation (ISF) from the employers' side. The same parties represent the seafarers and the ship owners in ILO settings. Differences are recorded between the social partners, in particular, regarding the open registry regime. The ITF believes that permitting flags of convenience leads to abusive practices and should be abolished, arguing that under this system there is no genuine link between flag states and vessels, undermining internationally acceptable standards. Gaps in UNCLOS, it is argued, are thereby exploited to the detriment of maritime management practices. On the other side, ISF representatives have argued that open registry and sub-standard ships are two separate issues, which should not be related to each other in developing regulatory principles. There are very high quality operators among the open registries, which treat their seafarers fairly (as borne out to some extent in the analysis by Li and Wonham (1999, p. 137), who found "quite acceptable" safety records in some open registry contexts). For the ISF it is argued that open registries offer the only system currently providing the commercial solutions their members seek (Preece, 1998).

Once more, the principal impediment to success emerges in the form of enforcement of the collective agreements in practice. While the ITF has officers all around the world whose role is to ascertain that agreements are being complied with, the evidence is not encouraging. For example, it is reported that many open registry ships apply 'double book-keeping' as a means of escaping the need to apply collective agreements consistently across the seafarers employed (Donn, 2002b). Seafarers from developing countries, for example, are said to be scared of revealing their status as employees outside the official employment log, for fear of being blacklisted when seeking their next contract.

On the other side, the domestic maritime unions of traditional maritime nations have continued supporting their national employees. Evidence for this claim is found in an ILO report published in 2001, praising the trade unions of traditional maritime

nations for their effective role in the global labour market. The report singles out the Norwegian trade unions as an example of effective national trade unions, illustrated by having played a major role in creating a Norwegian second register in 1987. The other way in which domestic trade unions have supported their members is through affiliation to the ITF. In 1999, for example, the ITF encompassed 235 unions from 97 countries, giving a total membership of 660,059 (ILO, 2001). This was almost 66 per cent of the total global maritime labour at that time. Today, one of the ITF's roles is to offer a centre of coordination for trade union members universally. The domestic trade unions can exchange information through the ITF in supporting members in ways unavailable to a union acting alone, accounting for the impact of labour market globalisation.

In support of long-term efforts to eliminate (or at least mitigate) employment abuses under the flag of convenience system, the ITF has campaigned since launching an initiative in 1948 at the Oslo world congress in Norway. The Federation explains the aims of the flag of convenience campaign incorporating four principal aspects: first, establishment of a regulatory framework for the shipping industry that would outlaw flags of convenience; secondly to attack sub-standard shipping and seek ITF-acceptable standards on all ships irrespective of flag, using all the political, industrial and legal means at the Federation's disposal; third, to protect and enhance the conditions of employment of maritime workers to ensure that, regardless of colour, nationality, sex, race or creed, marine workers are protected from exploitation by their employers and those acting on their behalf; and fourth, to individually strengthen affiliated unions, in all respects, "so as to ensure the provision and delivery of a greater of solidarity in the campaign" (ITF, 2004).

Over more than half a century of campaigning, the ITF has tried to help seafarers working on flag of convenience ships by introducing a minimum wage and blacklisting those vessels whose owners are perceived to be ignoring basic living and working conditions on board their vessels. Very low wages, poor on-board training, inadequate food and clean water, and long periods of work without proper rest are among the findings reported by ITF inspectors after investigating suspect ships (ITF,

2003). ITF representatives encounter barriers to securing enforcement of trans-nationally agreed seafaring labour rates, not only from rogue flag employers. Problems have been cited in Federation reports derived from apparent divergence in the interests of unions from traditional maritime nations (in decline) and those that have become active in developing countries as expanding sources of seafaring labour supply (Donn, 2002a). Open registry labour supply unions have been found not to support compliance with agreements in which ITF bargaining has secured common minimum wage levels (Lillie, 2004). This contrary position has been attributed to anxiety on the part of those representing seafarers in low wage economies to maintain the advantages that they may perceive flowing from wage differentials between their members and those who belong to developed country trade unions (Donn, 2002a). The open registry unions may object to wage settlements achieved by the ITF and even the minimum wages levels specified in ILO standards, which lack the benefit of a union negotiated premium. A belief has been recorded, attributed to open registry labour representatives that the ILO should set different levels of a minimum wage for seafarers, according to the economic conditions that prevail in each region (Donn, 2002a).

In summary, it can be said that these international organisations have played a vital role in supporting unprotected seafarers; but they have a common problem which is lack of means of enforcement of their requirements. The evidence for this claim is that, despite all the efforts by these organisations, there are still many seafarers who are abused by some flag of convenience vessels and work in very poor conditions on board vessels (e.g. ITF, 2005). In view of the enforcement difficulties reported (e.g. ICONS, 2000), it may be predicted that, underpinning shipping business strategy, market economics are likely to prevail over ideals of social partnership of the type enshrined in international maritime conventions and the ambitions of the seafaring labour movement:

H5: *When inviting shipping managements to comment on their business and employment policies and practices, it is unlikely that unprompted reference will be*

made to perceived significance of regulatory influences flowing from socio-political institutions linked with the global maritime industry.

None the less, rather than accept at face value critical voices on the general condition of life and work aboard maritime vessels, there is merit in evaluating the proposition that current managerial practice, rather than outside institutional regulation, creates a safe, secure and competence-assured environment (cf. Anderson, 2004; Lloyds Register, 2008). Such a prediction may be framed also to factor-in the link to a vessel's flag of registration.

H6*: Seafarers report general satisfaction with living and working conditions aboard the ships on which they are employed.*

H7*: Assessments of conditions aboard merchant vessels will be associated with the flag state under which the vessel sails.*

2.6 Human Related Problems in Shipping: Demographic factors

As noted in introducing the thesis, demographic factors have been identified as presenting a serious challenge to shipping managements needing to resource their fleets. The issue is one that may be viewed as significant irrespective of where ships are registered, and unlike economic or social factors whereby fleet operators may be able to apply a cost reduction strategy or one in which they leverage their structural advantage, or indeed exploit open registry conditions to serve particular corporate aims, control is bounded. Three specific factors will be discussed in what follows: first, a general discussion of a shortfall between demand and supply for skill sets demanded in high technology/customer service oriented maritime work settings. Secondly, bearing in mind impediments to meeting seafarer resource demands extending beyond the forms of disenchantment among potential recruits discussed in section 2.5 (cf. Stevenson, 2003), traditional gender bias in commercial maritime occupations and its consequences will be reviewed. This will be followed, thirdly, by reflection on the issue of an aging seafaring workforce. Secondary data sources will be deployed to inform evaluation of the issues and specification of propositions for subsequent empirical testing.

2.6.1 Seafaring Skill shortages

In January 2004, Fairplay International Shipping Weekly carried the headline news that: "The level of world trade is soaring, yet the availability of seafarers continues to cause major concern" (Fairplay, 2004). Commentators in and on the shipping industry have highlighted the shortage of qualified officers to work on board merchant ships. Figures from BIMCO/ISF (2005) manpower updates confirm the problem, revealing a shortfall of 10,000 officers or 2% of total workforce. In comparison with data reported in 2000, a 2% improvement is observable. But this rate of increase is still judged insufficient to provide the necessary workforce for an industry which is growing very fast. Tables 2.8 and 2.9 indicate the demand for the seafarers as at 2005 and supply/demand balance projected into the future where, compared with ratings, officer supply and demand are negatively related.

Table 2.8: Supply and Demand of Seafarers in 2005

Ranking	Supply (000s)	Demand (000s)	Balance (000s)
Officers	466	476	-10
Ratings	721	586	+135

Source: BIMCO/ISF Manpower Update, 2005

Table 2.9: Future Supply/Demand Balances

Ranking	2005 (000s)	2005 (%)	2015 (000s)	2015 (%)
Officers	-10	-2.1	-27	-5.9
Ratings	135	18.8	167	21.6

Source: BIMCO/ISF Manpower Update, 2005

Academic analysis has explored a number of issues on either side of the equation. On the demand side, factors such as expected increases in the world fleet, recruitment and wastage levels, age structures and crewing scales have been taken into account (Leggate, 2004). The increased demand for both officers and ratings has been attributed to increases in the size of ships, decline in scrapping, and growth in the number of new builds. The BIMCO/ISF (2005) data shows a repetition of the 1% annual increase in the world fleet as reported in the previous year's manpower update. The trend has put the maritime labour supply under pressure, with indications

that the problem seems to be worse for more specialised ships. In Europe, for example, shortages are more pronounced in tankers and LNG carriers (Lloyd's List, 2005).

High freight rates have been identified as a factor worsening the shortage of officers (Bajpaee, 2005). These high freight rates have led to delays in scrapping older ships and an increase in new orders, in turn, increasing the demand for seafarers. A prior reported trend under which crewing levels were being reduced, negatively impacting on overall demand for seafarers appears to have run its course. Reasons offered for this change include international regulations coming into force specifying minimum safe crewing levels (Li and Wonham, 1999; Chen, 2000), increased maintenance costs, and in addition seafarers' complaints regarding the negative consequences for their social lives due to reduced crewing levels (ILO, 2001).

On the supply side, analysis of which relies on statistics provided by national authorities, the BIMCO/ISF (2005) report shows an increase of 42,000 officers commissioned since 2000. The major change over the course of the last decade has been the shift in the source of supply from traditional maritime nations to the developing countries. The validity of analysis such as that undertaken on behalf of the International Shipowners Federation by the Warwick Institute for Employment Research (e.g. BIMCO/ISF, 2000, 2005) has been debated. For example, it is claimed that there is no generally recognised unified definition of "number of seamen". Li and Wonham (1999) argue that any of the following descriptions may apply: number of seamen actually working on board vessels; or number of seamen employed by shipping companies; or number of registered seamen; or number of licensed seamen" (Li and Wonham, 1999, p. 297).Those who are at leave, working ashore, as well as those seeking employment can also be added to the list. To help tie down the basis for analysis, Glen et al. (2002) use the term "active officer" in their study of UK seafarers. They define the active seafarer as one who has been born in UK, is aged between 16 and 65 as at June 30th 2002 and was issued with a certificate of competency or revalidation between 1st July 2001 and 30th June 2002. Mirmiran (2005) contends that the criteria to be used in analysing the supply of seafarers must

be the same as those used in defining ships. McConville (1999) categorises seagoing vessels into potential ships, available ships and active ships. The first group are new build ships still on order. The second group are those vessels that are laid up due to the low freight rates their owners are able to attract, and the third group are vessels actually trading. Applying this logic to seafarers, potential crewmembers could be those under training, and available ones might be those on leave, standby or working ashore. The third – active – group might be those currently working on board a vessel.

Leggate (2004) and Hadjieleftheriadis (1999) believe that the problem is in the *quality* of seafarers rather than their numbers. Although the STCW-95 has raised the standard of the training and certification of seafarers, its existence is insufficient to solve the problem of the shortage in quality officers. When discussing 'competent' crew, it may be argued that this should not mean only seafarers holding a certificate. As discussed earlier, there is evidence showing the apparent ease with which fraudulent certificates may be obtained. High levels of technical knowledge and English language proficiency are both vital for a seafarer who is going to work on board a vessel trading in international waters. The meaning of a competent crew, it is argued needs to parallel that of a seaworthy ship. A ship is called seaworthy when all the facilities to perform the required voyage are demonstrable. This means that if one hatch cover is leaking, a radar not working, a necessary certificate is not on board, or minimum crewing level has not been complied with, then the ship may deemed un-seaworthy. The same logic may be extended in considering the quality of seafaring skills. If a seafarer has got a certificate but cannot speak English, he/she is not competent to sail on board an ocean going vessel. A more specific example could be that a seafarer, although certified and fluent in English, has not been trained to navigate or engineer tankers. In this case the seafarer is not competent to work on tankers.

Given the controversy, reports need to be treated with caution – but analysts appear generally in agreement that there is a problem in matching the supply of seafaring skills, at requisite levels of quality, with demand. Accordingly, it may be predicted

that, as an acknowledged managerial problem, this aspect of the human element in shipping will be accorded high priority in business planning activities. It is proposed to apply the following hypothesis to test this logical deduction empirically:

H8: *Evidence will be discernible in managerial discourse signalling that action to balance seafarer demand and supply is being treated as a strategic issue.*

2.6.2 Gendered skills and seafarer resourcing

Thomas (2004, p. 309) argues: "Women seafarers are an under-recognized resource that, if utilized, could fill labour shortages in the industry". Men have traditionally dominated shipboard jobs, attributed to the physical hardships of seafaring, long voyages and dangers at sea. Nowadays, voyages tend to be shorter and physical jobs have been reduced with the help of modern technology. Despite the changes, the number of female seafarers is still less than 2% of the entire workforce – and most non-shore females employed serve in catering departments on board passenger ships (ILO, 2001). This figure contrasts with other traditionally male dominated industries, where the proportion of female employment has risen, e.g. to 10% in construction and 25% in manufacturing (McKay and Wright, 2007). The ILO adopted a resolution in 2001 calling for a study on women seafarers, and Brandt Wagner, a maritime specialist with the ILO, argues that the organisation is very serious about gender issues (ILO, 2001). The resultant report recommends that shipping employers adopt policies in relation to sexual harassment, menstruation, pregnancy, contraception, maternity, and sexual (medical) health, to help integrate women more fully into the seafaring workforce. In her research into women seafarers, Thomas (2004) found that those employers who had employed female seafarers had a positive attitude towards them. And the women seafarers, themselves, had enjoyed the job and some were committed to stay at sea, integrating a seafaring career with marriage and motherhood.

Despite some encouraging signals, then, it may be predicted that much remains to be done to secure support by shipping industry managements to achieve gender parity.

H9: *In spite of the argument that appointment of women officers could help address the skills shortage problem, females continue to be significantly under-represented among seafarers.*

2.6.3 An ageing workforce

Research published in the maritime literature shows that the industry faces the problem of an ageing workforce (McKay and Wright, 2007; Wu and Morris, 2006; NUMAST, 2002; Glen et al., 2002). Although the problem appears to be worse in developed countries than developing ones reflecting the shift of employment sources from developed towards developing countries, it sums to represent a worldwide problem. A survey of merchant marine officers conducted by the National Union of Marine, Aviation and Shipping Transport Officers[18], who are members of the union (NUMAST, 2002), reveals that around 64.6% are aged over 45, with 5.7% over 60 years old. Academic researchers have collected data indicating that 69.9% of British deck officers, including masters, and 68.7% of all British engineering officers, including chief engineers, are aged over 40 (Glen et al., 2002). Research by Wu and Morris (2006) reveals that the average age of senior merchant maritime officers worldwide is 44.6 years, with ages in the advanced industrial regions highest at 47.7 years, lowest in Asia (43.9 years), and in 'transition regions' such as the former Soviet bloc countries consistent with the global average (44.6 years). In turn the researchers discovered that junior officers globally were on average 35.7 years old, with the youngest group (32.2 years) on average this time in the advanced regions (Asia, 35.5 years; Transition, 36.8 years). Focusing specifically on the UK, while workforce aging has been identified as an issue, with 47% of the working population aged over 40 (McKay and Wright, 2007), the proportion above age 40 in the shipping industry is much higher than the national average. Table 2.10 displays the age profile of British certified officers in 2006, when 70.2% of the deck officers and 67.5% of the engineer officers were recorded as over 40 years old (Glen et al., 2007).

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[18] A British trade union representing merchant seamen among other transport industry professionals, which emerged in 2006, with the seafarer element federating with a Dutch trade union, FZW. The parts are due to formally merge in May 2009 to become *Nautilus*.

Table 2.10: Age and Certificate Profile of Certified Officers (June 2006)

Age (years)	Deck	Engine	Total
16<20	0	2	2
20<25	378	381	759
25<30	849	764	1613
30<35	759	629	1358
35<40	698	557	1255
40<45	960	706	1666
45<50	1521	1103	2624
50<55	1682	1347	3029
55<60	1581	1298	2879
60<62	562	383	945
Total	8987	7170	945

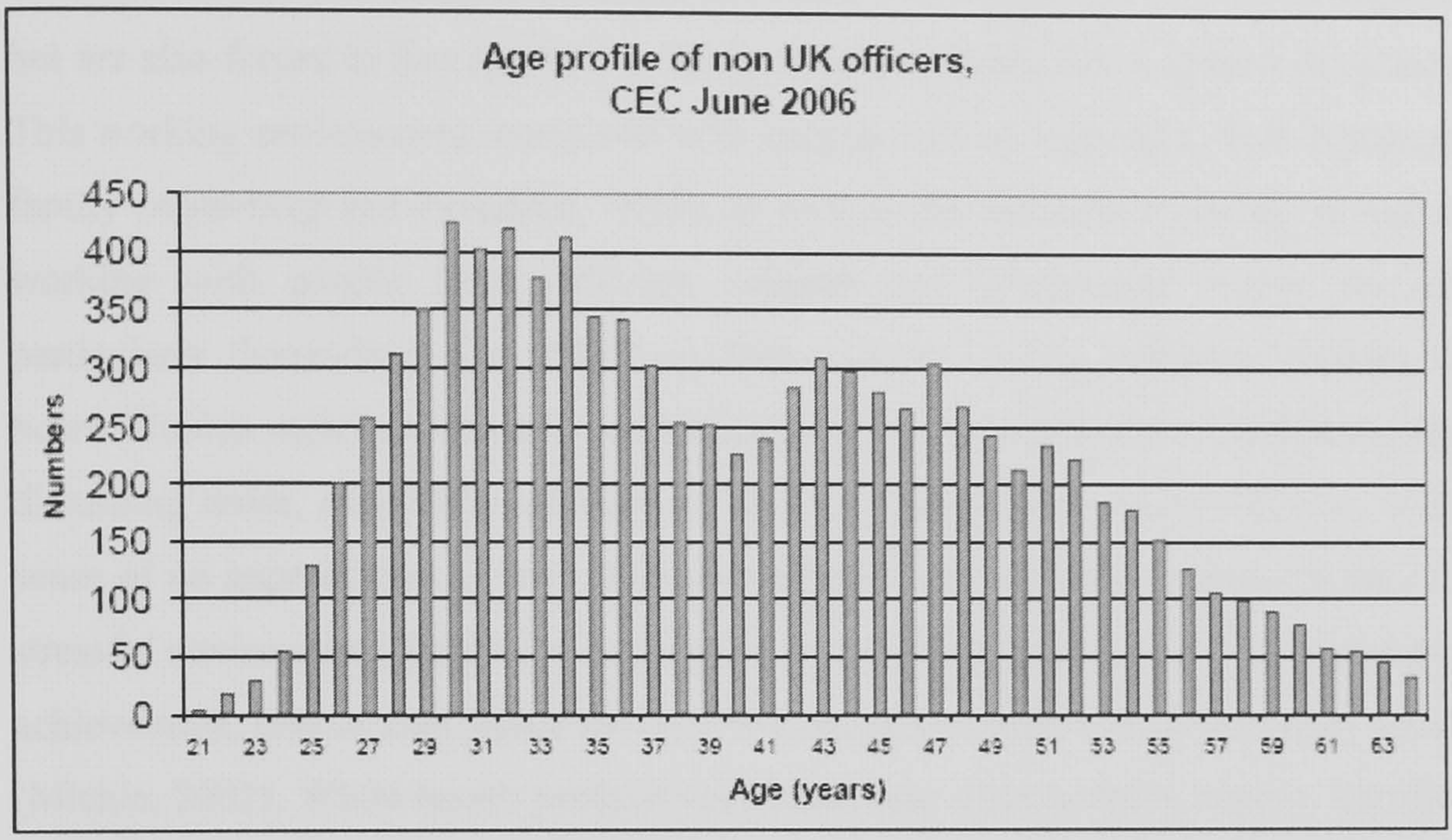
Source: Glen et al. (2007)

Currently, research findings suggest that the British shipping industry is looking to the ability to crew ships using non-UK certified officers to help ameliorate the problem. Data assembled by Glen et al. (2007) illustrate that the age profile of seafarers holding a Certificate of Equivalent Competency (CEC) and working on British vessels is skewed in favour of younger officers (Figure 2.1). Projections by the same researchers suggest that, in the case of UK certified officers, the bias towards the number aged 40 and above will worsen over the next few years, with little projected respite for more than a decade into the future (Figure 2.2).

Arising from consideration of the secondary data and discussions in the shipping literature, there seems a strong case to reason that, for UK shipping in particular, the aging seafaring workforce is a serious problem adding still further to concerns regarding the ability of companies to secure skilled crew matched to demand.

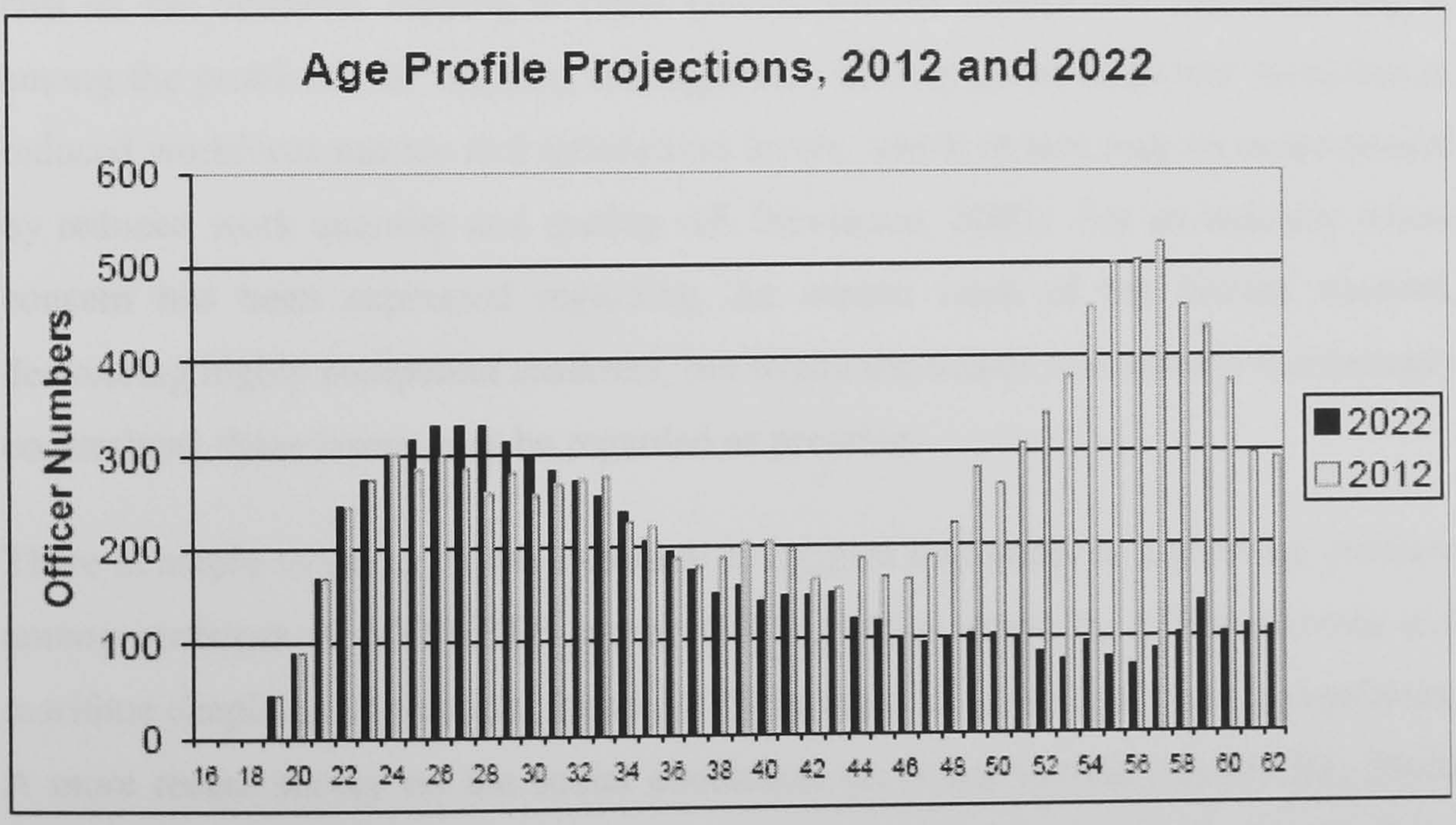
H10: *The age profile of seafarers is likely to exacerbate current and future skills shortage problems facing the shipping industry.*

Figure 2.1: Age Profile of Non UK Officers with Certificate of Equivalent Competency (CEC), recorded as at June 2006



(Source: Glen et al., 2007)

Figure 2.2: Projected Age Profile of UK Certified Officers in 2012 and 2022



(Source: Glen et al., 2007)

2.6.4 Consequences of problematic employment conditions

Seafarer stress: Seafaring is a unique job since employees not only work together but are also forced to live together in fairly confined spaces for long periods of time. This working environment, combined with long periods of separation from home and family (Agterberg and Passchier, 1998), as well as the demands of living as well as working with people from different cultures and background makes the job particularly demanding. Elo (1985) studied a group of 591 seafarers working on board Finnish merchant vessels. His findings of work-related stress factors include: disturbing noise, climatic conditions on board, occupational group problems, and a sense of no appreciation at work. For the individual, the negative consequences of a stressful environment have been catalogued as including health, functioning and goal achievement, loss of confidence and self esteem, and overall wellbeing/quality of life (Michie, 2002). While health professionals have been alert to these matters for some time, more recently managerial interest has been aroused when connections have been drawn between work-related stress and employee conflict and fatigue as well as heightened levels of absenteeism and voluntary staff turnover, imposing an avoidable cost on the business. Adding to these factors, Michie (2002) lists the following as among the problems for shipping management: difficulties in employee recruitment, reduced workforce morale and satisfaction levels, which in turn may be accompanied by reduced work quantity and quality (cf. Stevenson, 2003). For an industry where concern has been expressed regarding the central issue of the human element, demanding highly competent seafarers, but where the source has become increasingly constrained, these issues may be regarded as pressing.

There is ample evidence in the literature to suggest that stress is a growing problem among seafarers. A MORI/ITF survey (1996), and a report by ITF inspectors and maritime chaplains worldwide, found a 23% increase in stress levels among seafarers. A more recent survey on the social conditions on board vessels (NUMAST, 2002) showed that between 60-80% of respondents considered that stress levels have worsened over the past decade. Pittordis (2005) reports an increase in seafarers' incapacity to work claims with a psychiatric origin and blames stress at work. Finally, in a similar vein, Roberts and Marlow (2005) surveyed work related mortality among

British seafarers between 1976 and 2002, and identified 55 cases of suicides out of a total sample of 835 cases.

Deduced from the foregoing literature-informed discussion, two predictions may be evaluated empirically related to stress among seafarers:

H11: *Seafarers will report high levels of work-related stress.*

H12: *Seafarers will report two principal reasons for experiencing work-related stress as: (1) separation from their families, and (2) environmental conditions on board the vessels they sail in.*

Seafarer fatigue: It has been argued that fatigue among seafarers forms a major cause of reported marine accidents during the past decade. The IMO, shipping companies, trade unions, P&I clubs[19], manning agencies, and academics have all highlighted the problem (e.g. Smith, 2007; MAIB, 2005; NUMAST, 2002). The IMO maritime safety committee adopted practical guidance on fatigue in its 74th session. The IMO defines fatigue as:

> *A reduction in physical and/or mental capability as the result of physical, mental or emotional exertion which may impair nearly all physical abilities including: strength, speed, reaction time, coordination, decision making or balance (IMO, 2001).*

Reduction in speed, reaction time, decision-making and balance are critical issues, for a seafarer who has little time to decide and act correctly under operational pressure. Ships are not like cars, which can be stopped immediately by pressing the brakes. Seafarers must be alert at all times to avoid accidents, and to help others asking for help. According to the principle of navigation, a deck officer on duty must take a proper watch by sight and hearing. Any reduction in his abilities to do so can be disastrous. A study by the UK Marine Accident Investigation Branch (MAIB) in 2004 pinpoints fatigue as a major factor in many accidents particularly groundings. The following were reported to be the consequences of fatigue on board (MAIB Safety Digest, 1/2005):

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[19] An association that protects its members against large marine insurance claims.

- *Inability to concentrate, including being less vigilant than usual*
- *Diminished decision-making ability including: misjudging distance, speed, time, etc; overlooking information required for complex decisions; failing to anticipate danger; poor memory, including forgetting to complete a task or part of a task; slow response, including responding slowly to normal, abnormal or emergency situations; reduced competence in interpersonal dealings*
- *Attitude change, including: being too willing to take risks; displaying a "don't care" attitude; disregarding warning signs (MAIB, 2005, p. 9).*

It is reported that fatigue and stress have been exacerbated by a sense of increased isolation attributed to reductions in the number of crew on board vessels[20], developments that affect a seafarer's quality of social life as well as work experience (McKay and Wright, 2007). When around 40 people might be on board at any one time, seafarers had a social milieu within which to spend time with their peers outside work, for conversation, eating and recreational activities. With fewer than ten people on board some ships, seafarers may rarely see one other, adding to a sense of loneliness among seamen already isolated from their families and friends. Advances in the port technology and cargo handling facilities play a role here too, since ships are spending less time in ports. Crewmembers lack time to go ashore after a long voyage due to the short stay at port and lots of duties to perform. And increases in the size of vessels have led to ports being constructed in remote areas, to accommodate operational limitations and environmental considerations. This remoteness has further restricted the ease with which shore leave may be available to seafarers.

Reductions in the number of crewmembers, and the knock-on effects, have been raised by international bodies such as the IMO as a stress factor, and a related call to review safe manning levels was made by Britain to the maritime safety committee in 2006. The IMO has published guidelines for member states on factors related to seafarer work-related stress on board ships. A number of factors included are relevant here: inadequate rest breaks; psychological and emotional factors; skills, knowledge and job-related training; shift work and work schedules; workload; paperwork

[20] Replacing crewmembers with technology is illustrated by the example of autopilot steering systems, introduction of which removed at least two seamen from the number of crew.

requirements; rules and regulations; levels of automation; and physical comfort in workspaces (IMO, 2008).

Associations have been postulated between fatigue and high levels of stress (Smith et al., 2006; Smith, 2007). Accordingly, it may be reasoned that reports from seafarers will inform analysis to connect the two phenomena.

H13: *Analysis of reports from seafarers will identify an association in patterns of stress and fatigue experienced by seafarers in the course of their duties.*

Occupational attraction and unplanned seafarer turnover: A recurring theme has been a growing loss of attractiveness among potential marine officers to pursue a seafaring career. Factors identified in theoretical commentary and secondary data analyses have included reductions in the quality of what has long been an employment experience with some unique challenges. Problems of market deregulation in the global economy, under the open registry system inhibiting institutional regulators in the enforcement universal best practice standards of treatment of seafarers, have been theorised as significant. The highly technical nature of the job inhibits ease of access to seafaring employment. Despite the reported evidence that fraudulent certification has become problematic, concerns regarding human error and the financial liability risk that falls on ship owners in the event of environmental accidents suggests that fleet owners and managers will be concerned to recruit and retain high calibre officers. The high cost of training seafarers makes unplanned losses an unwelcome phenomenon. However, the rate of labour turnover in the shipping industry is said to be very high (McKay and Wright, 2007). In some sectors it is between 75%-100% every 18 months, perceived as incompatible with the situation in any other industry (Robert and Moulin, 2000).

Many seafarers leave the job at sea during the early years of their employment, either for a shore job in the marine industry, or to an alternative occupation altogether. One factor that has been raised as likely to act as a negative incentive to remain long-term is the reported decline in a formal career path for seafarers, including access to onshore employment opportunities in the industry after leaving the job at sea

(Obando-Rojas et al., 1999). While some seafarers will remain with a single employer over an extended period, crewing practices that involve a series of short-term contracts are seen as reducing the sense of mutual commitment between employer and employee. Even the traditional incentive of going to sea 'to see the world' has been reported as diminishing as young people perceive opportunities to visit other countries as a feature of work in other globally situated occupations, or on vacation (Hand, 2008). Salary rates in shore-based occupations are viewed as more attractive (Sampson and Shroeder, 2006), a situation hardly offset when considering negative points increasingly attached to seafaring, such as lack of social life on board the vessels due to reduced manning, difficulty in going ashore in some countries for security reasons, and concerns about being exposed to personal criminal liability when involved in shipping accidents. Taking these factors into account, it is predicted that continuity of employment is not a feature observable among seafarers.

H14: *Seafarers do not have long-term employment tenure with their current employer, from which a corporate career path might be inferred.*

2.7 Summary

Discussion in the present chapter has attempted to articulate comprehensively the context within which contemporary seafaring employment may be understood, critically reviewing argument and secondary evidence to frame the basis of an empirical enquiry to address some of the thesis objectives. While tempting to classify shipping across a binary Liner-Tramp divide, the literature reviewed for this chapter demonstrates that the situation is more complex than that. Each segment may be sub-divided into a number of specialist cargo and vessel categories. Each of these, in turn, gives rise to human element consequences of market structure and competitive circumstances; not only downward pressure on labour costs, but also significant issues around requirements for skills that are both technically and customer-service related. From a strategic vantage point, using well-recognised business strategy modelling adapted to match the circumstances of the shipping industry, a variety of approaches have been discerned wherein it may be predicted shipping companies face the need to factor-in consideration of their employment relationship with seafarers,

given a range of opportunities to influence competitive position, mindful of significant exposure to financial liability risks.

Exploring beyond economic conditions and industry structure, socio-political institutional developments impacting on the global shipping industry have been analysed to deduce mixed reports in terms of institutional actors' capacity to enforce common standards across the world's fleets in liberalised and de-collectivised markets for trade and labour. Before rushing to blanket judgement on the quality of shipping management practice, however, while indicators appear mixed at best, there is merit in seeking to evaluate predictions regarding observable practice and contingencies. In common with most aspects of contemporary employment systems, employers appear to have the dispositional advantage over workforce members – in particular those in developing economies where even labour representatives may eschew universal solidarity given an agenda to move *towards* what traditional maritime nations may regard as *minimum* standards.

However, as specified in the review of literature indicative of greater complexity than a simple reading might imply, it can be logically deduced that contemporary demography as well as negative perceptions among potential seafarers interacting with a demand for skill calls for progressive employment practices. This is not only to meet concerns summarised in Chapter One, to tackle the human failings in merchant shipping. It also demonstrates the makings of a commercial imperative consistent with 'war for talent' commentary that has gained a hold across so-called knowledge intensive organisation and employment systems generally (Brown and Perkins, 2007). While, hypothetically, oligopolistic ship owners may have leverage over market and institutional compliance, and convenience flag vessel managements may be able to navigate round labour standards to drive down costs, skills shortage whatever the antecedents is a more intractable problem that may call for innovation as well as resource investment to secure, develop, retain, and motivate value-adding seafaring capabilities matched to complex organisational conditions across global shipping.

Reports of unreasonable levels of stress, fatigue, insecurity in the face of personal and economic risks, and general lack of wellbeing among seafarers, while calling for empirical investigation, are inconsistent with a strategic choice to compete by actively adopting a more developmental orientation towards seafarers and their employment experience. To evaluate the prospects for this alternative approach to management of the human element in shipping, attention now turns in Chapter Three to framing predictions of what a 'progressive' approach to seafarer management might look like, informed by commentary under the rubric of HRM, and indicators against which empirical investigation may be undertaken to evaluate the prospects for such theoretically derived propositions.

Table 2.11: Hypotheses developed in chapter two

1	*Shipping operators across market sectors will adjust their position on the cost-quality strategic continuum, contingent on issues such as the degree of specialisation in cargoes carried,* risk of exposure to financial liability for cargo spillages, *and scope to manage customer relations to the suppliers' advantage.*
2	*Given the reported proportion of vessels registered so as to benefit from deregulation over employment terms afforded to them, seafarers will report concerns regarding the quality of contractual terms, when measured against norms for traditional maritime employment.*
3	*Opinion regarding the quality of employment relationship will vary among seafarers depending on the type of vessels they are contracted to sail in, and the commodity transport markets in which their employers trade.*
4	*When describing employment practices applied to seafarers employed by their company, representatives of shipping managements will offer indications suggesting a direct link between market- and vessel-contingent business strategy and cost versus developmental people management orientation.*
5	*When inviting shipping managements to comment on their business and employment policies and practices, it is unlikely that unprompted reference will be made to perceived significance of regulatory influences flowing from socio-political institutions linked with the global maritime industry.*
6	*Seafarers report general satisfaction with living and working conditions aboard the ships on which they are employed.*
7	*Assessments of conditions aboard merchant vessels will be associated with the flag state under which the vessel sails.*
8	*Evidence will be discernible in managerial discourse signalling that action to balance seafarer demand and supply is being treated as a strategic issue.*
9	*In spite of the argument that appointment of women officers could help address the skills shortage problem, females continue to be significantly under-represented among seafarers.*
10	*The age profile of seafarers is likely to exacerbate current and future skills shortage problems facing the shipping industry.*
11	*Seafarers will report high levels of work-related stress.*
12	*Seafarers will report two principal reasons for experiencing work-related stress as: (1) separation from their families, and (2) environmental conditions on board the vessels they sail in.*
13	*Analysis of reports from seafarers will identify an association in patterns of stress and fatigue experienced by seafarers in the course of their duties.*
14	*Seafarers do not have long-term employment tenure with their current employer, from which a corporate career path might be inferred.*

Chapter Three: Seafarers and Human Resource Management

3.1 Introduction

In the second chapter, theoretical and secondary empirical sources from the shipping management literature were deployed to describe and analyse the shipping industry, and employment practices applied to seafarers and their consequences. While logically valid to explore the predictions specified, the dynamics of contemporary merchant shipping and growing impetus to focus attention on the human element suggest that shipping managements may be experimenting with practices informed by more progressive ideas on recruitment, retention, and deployment of seafarers. In this chapter, the second half of the first thesis objective is addressed, informed by commentary on 'progressive' people management (defined for the purpose of this thesis as proactive management of seafarers, where business goals and bundles of employment practices are aligned[21]), offering an alternative basis for conceptualising and modelling the approach to managing seafarers (compared with that discussed in Chapter 2). Concepts and measures of 'progressive' people management are specified under an 'HRM' rubric: ideas that have, since the 1980s, come to inform mainstream thinking about managing employment relationships. The goal is to formulate testable propositions to guide primary data gathering as to what might be observable assuming seafarers were managed in accordance with 'progressive' HRM principles. To pave the way for this analysis, initially the discussion that follows focuses on ideas to interpret structural developments that it may be reasoned will motivate shipping industry employers to reconsider their strategic orientation towards seafarers, positioning them as a pivotal resource in securing sustainable competitive advantage. A summary list of propositions is presented in table 3.1 at the end of this chapter.

[21] Progressive HRM is specified in more detail in section 3.3

3.2 Human Capital and Resource-based Competition

From literature derived evidence considered in Chapter 2, the prediction is that making decisions about contemporary maritime business and related organisational strategy (including the human element) is complicated in ways that models based solely on Porter's (1980) thinking, for example, are inadequate to grasp. Rather than a simple cost versus quality dichotomy, changing economic, political, social and technological conditions suggest that fleet owners and managers may perceive the rationality of exploring ways to assemble and deploy resources to create competitive advantage from within, rather than simply reacting to outside forces. Or, where feasible, attempting to ameliorate pressures external to the firm through defensive cost cutting and/or oligopolistic re-structuring initiatives. It has been argued that *sustainable* competitive success depends not only on meeting existing customer demands; it also requires firms to innovate continuously to secure and retain technological leadership (Harryson et al., 2008). Achieving these imperatives simultaneously means rebalancing the relative weighting of physical assets (e.g. land and machinery) in favour of skilful leverage of knowledge and technology. Companies are exhorted to consider the value of assets such as branding and reputation for quality of service, business alliances, longstanding ties with customers, intellectual property (i.e. what is known, applied, and controlled corporately) and, most important of all, relations with the humans employed by the enterprise (Bates, 2002). Weatherly (2003) groups these 'intangible assets' – i.e. "any non-physical, knowledge-based, useful assets that have been captured in some form to provide economic value to the organisation" (Dion, 2000: 35) – into four categories, which may be combined advantageously: customer, human, social and structural.

The category of particular interest for the purposes of this thesis is **human** assets (specifically, seafarers). Weatherly (2003) describes factors such as employee levels of education and professional certification. In turn, these may combine with the application of tacit knowledge to produce competence in specific work situations. The human asset bundle may be deployed in ways likely to enhance a firm's brand perception in competitive markets, underpinning **customer** loyalty. Further intangible resource benefits may flow from **social** interaction between employee groups,

disseminating company-specific work practice information (or intellectual property), e.g. through coaching and mentoring, which may involve formal and informal networks lubricated by these forms of **structural** intangibles. Value-enhancing communities of interest may also result from social interaction between employees and customers and other external business partners (Weatherly, 2003).

Intangible assets tend to be difficult for a competitor to copy. For example, a shipping company may employ an engineer able to apply knowledge and creativity to coordinate work practices that extend the intervals between major overhauls needed to maintain a vessel safely in commission. The result is an increase in trading and thus income generating time. This capability is not something that other companies can simply buy at will in the external market. It might take years to find or train such a person, and for the individual's accumulated experience to be institutionalised, complementary to that of fellow seafarers and vessel-specific work processes. This may be especially true bearing in mind the increasing complexity in operating maritime vessels, described in Chapter 2. Other intangible assets consistent with Weatherly's (2003) model include long term relationships built up by employees acting as company representatives beyond the firm that, again, competitors would find time-consuming if not impossible to copy. To illustrate the point, it may take years for a LNG carrier to secure customer loyalty beyond single economic transactions, although the asset may be quickly lost if, for example, poor service in the actions of a company representative is perceived. This may be the case in relation to the liner market in shipping where, as described in Chapter 2, skilful interpretation and satisfaction of customer demands is important, undertaken in ways that blend with internal networks of know-how to offer profitable returns to the ship owner.

However, if greater weight is to be placed on intangible assets such as knowledgeable, skilled employees, willing to perform in ways that benefit their employer, it follows logically that complementary action is necessary to insure against the resource deficit implied by the reported mismatch of demand and supply of seafaring skills, and impediments to securing alignment of 'resourceful humans' (Legge, 1995). That is, seafarers able and willing to enable shipping companies to

secure sustainable competitive advantage through cost-efficient, technically complex, safe, and customer-responsive maritime transportation. Automation may reduce the need for 'ordinary' seafarers: e.g. using computers to monitor and control a vessel's propulsion system has eliminated the need to keep a constant watch in engine rooms. And introduction of satellite communication and the Global Maritime Distress and Safety System (GMDSS) has removed radio officers from ships. Linked with increased vessel size and reduced crew numbers, maintenance activities once carried out on board now may rely on temporary workers engaged while the ship is in port (Grey, 2008). But these innovations stimulate demand for engineers and other knowledge-based 'communities of practice' (Lindkvist, 2005) to resource organisational activity under the new conditions. A deck officer may be required to combine duties related to the navigation of the ship with monitoring and controlling the engine room from the bridge, and undertaking radio officer tasks. Moreover, in the high technology marine environment, IT capability has come to play a prominent role, in substitution for some of the more traditional seafaring skills. These core competence shifts apply too at the peak of a ship's leadership team, where the master is no longer sole commander of the ship, with unitary authority to determine almost any matter. Satellite communication and IT systems means that the master of a vessel nowadays is a link in a chain of managers: the shore management can monitor and control vessels no matter how far away they are from land-based administration. Yet, rather than only operating as an experienced technical expert, the master needs enhanced managerial capabilities to coordinate a small team of skilled professionals, necessitating pre-sea training in modern management techniques (Kowtha, 1998). The master's responsibility for the safety of the ship and those on board has not, however, been at all reduced by the greater ease of communications (King, 2000).

Emphasising intangible resources does not mean that all employees have skills that are equally unique and/or valuable to a particular firm (Arthur, 1992). Instead of adopting a universalistic view, the argument is that strategic human asset management focuses investment on human resources contingent on their specific contribution potential. In other words, managerial attention and investment of scarce corporate resources are predicted to be devoted to the workforce segmented between

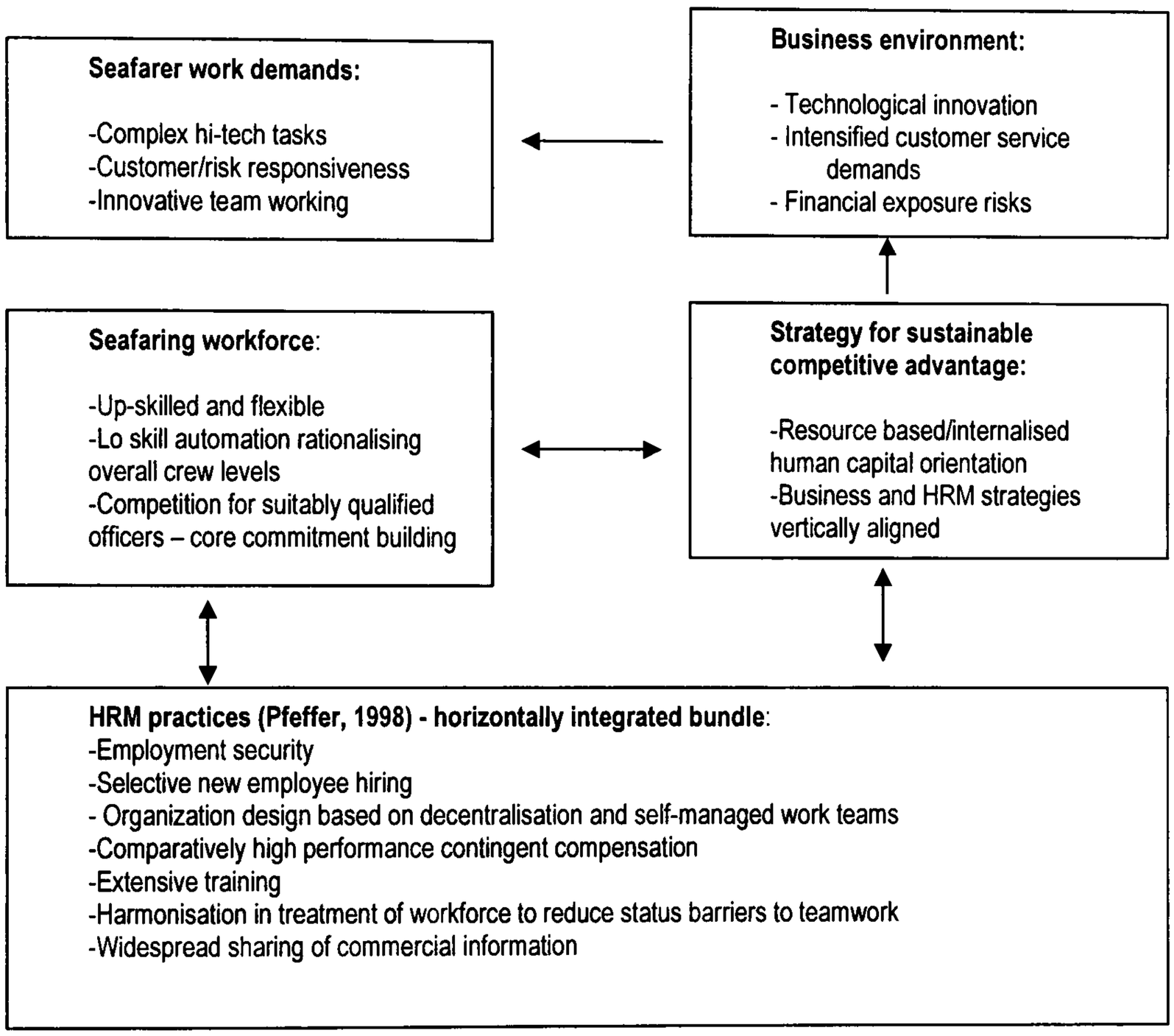
sources of core capability essential to achieve corporate value creation under competitive market conditions, and peripheral labour. The latter is likely to be regarded as easily substitutable drawing on external markets (in some cases even outsourcing the activity to a third party supplier), whereas core human capital is to be nurtured within an internal labour market.

Reflection on circumstances that appear to demand changes to people management, and its strategic assumptions, has led some management commentators to revise notions of labour as a cost of production towards the view of people – at least, those identified as pivotal to the organisation, such as high skill seafarers – employed as a form of 'human capital' (e.g. Cascio and Boudreau, 2008). Positioning core human capital at the head of a list of 'intangible assets' (Bates, 2002; Dion, 2000), implies the need for human capital accounting, in terms of assessing the value that may be derived from employing people to serve the corporate purpose, allied to consideration of the levels of investment that will enhance the value of that capital 'asset' for the business – e.g. in targeted hiring, development and nurturing seafarers so that they have the capability and willingness to serving the corporate purpose to contribute to a firm's competitive advantage. Under the logic of human asset accounting, factors such as age and experience of core employees, as well as their potential future earnings power for the company are measured and valued for inclusion on the balance sheet. The value of human capital may be influenced by a multitude of other factors, including the combined effects of a company's business strategy and for example, the introduction of new technology such as 'unmanned' engine rooms and GMDSS, described above, which needs highly skilled labour to derive value from its application. Under this resource-based view, human capital is organised with other intangible assets to form a business 'core competence' (Hamel and Prahalad, 1994).

In summary, the rationale is that sustainable advantage comes from deploying bundles of resources aggregated by the organisation that are rare, valuable, inimitable and non-substitutable (Barney, 1991). Rather than directing the organisation in terms of its 'market positioning', the argument runs that corporate strategy needs to be shaped by the organisation's unique internally configured resources. According to

human capital theory, investment in employment relationships should differ according to the value and uniqueness of the skills workforce segments posses and the substitutability of particular groups of workers. Shipping companies thus face a choice in human resource management between degrees of 'internalisation' and 'externalisation', consistent with the balance of emphasis between internal versus external environmental and resource considerations influencing business strategy.

Figure 3.1 Aligning forms of capital investment and HRM practices in shipping



Source: Author

Skills that are available to multiple firms are regarded as not justifiable for internalisation because they can be easily employed from outside at lower cost. By contrast, it is judged that unique assets need to be developed internally. Adopting this logic, it may be predicted that shipping companies will use the scope to exploit lower labour market costs under the open registry system by externalising non-core crewing requirements. However, given the reported shortage of seafarers capable of releasing

the value creating potential of investment in high technology vessels and related operating systems, and through delivering high quality service to sustain profitable customer loyalty, while limiting exposure to environmental and safety risks, it will be rational for shipping employers to internalise employment relationships extended to suitably qualified officers. A summary illustration is provided in Figure 3.1. Informed by the foregoing discussion, a managerial emphasis towards seafarers may be predicted, as follows:

> H15: *Shipping managements will emphasise internalised relationships with seafarers regarded as core corporate assets.*

To develop the implications of a resource based strategic orientation, and to specify measures against which the extent to which an internalised employment relationship between employers and seafarers may be evaluated, ideas that may be grouped under the rubric of 'progressive' HRM (see summary list of practices in the lowest box in Figure 3.1) are reviewed in the next section of the chapter.

3.3 Progressive HRM: Definitions and Debates

Human resource management (HRM) has been defined in generic terms as encompassing the policies, procedures and processes involved in management of people in work organisations (Sisson, 1990). Mainstream Anglo-American commentary, since the 1980s, on 'progressive' people management has been classified between 'hard' and 'soft' models of HRM or as underpinned by 'utilitarian' versus 'developmental' orientation. At one pole, an approach initially developed by a group of scholars at the University of Michigan (Fombrun et al., 1984) argues in favour of matching HRM practices selectively to business strategy and organisational structure (Boxall, 1992). This elevates the perceived importance of HRM to corporate decision takers, while continuing to stress the need for human resources to be profitably exploited – as would apply to any other factor of production (Storey, 1992). Placed at the opposite pole in the normative HRM literature, a second group of scholars (this time at Harvard University), still emphasising integration of business and human resource strategies, position employees as valuable corporate assets,

rather than costs of production that need to be minimised. The approach, which appears to be consistent with resource-based strategy reasoning (Beaumont, 1993), develops an argument that human resources need to be induced to commit their potential to add value form to a firm if they are to form a source of competitive advantage (Beer et al., 1984). Under what has been referred to as 'developmental humanism', the assumption is that employees are active, not passive, inputs to production processes (Legge, 1995).

The hard-soft dichotomy, if it ever truly existed (Strauss, 2001), has been challenged by some commentators (Storey, 1992; Legge, 1995; Boxall, 1996; Ulrich, 1998; Kane and Crawford, 1999; Browning and Edgar, 2004) on the basis that – at least in respect of human resources central to achieving business strategies – employers seek to create employment systems for acquiring, developing, and retaining the skills necessary for sustainable organisational effectiveness at the most economic rate possible (Hendry 2003). In the context of the shipping industry, for example, it may be argued that evidence of a 'progressive HRM' approach would be more than an ideological expression; it would indicate practical attention to what managements perceive as necessary to manage the human element in an optimum manner.

More recent commentary seeking to move beyond the initial definitional phase (e.g. Guest, 1987), whether cost or commitment based, has turned to the search for bundles of people management practices (e.g. Storey, 1995) that it is predicted are associated with high performance (i.e. cost-effectively profitable) business outcomes. The result has been an extensive strand in the HRM literature describing and testing the relationship between HRM techniques and performance (e.g. Arthur, 1994; Delaney and Huselid, 1995; Huselid, 1995; King, 1995; Parks, 1995; Becker and Gerhart, 1996; Huselid et al. 1997; Ichniowski et al., 1997; Hoque, 1999; Scholarios et al., 1999; Fey and Bjorkman, 2000; Michie and Sheehon-Quinn, 2001; Truss, 2001; Bjorkman and Xiucheng, 2002; Dixon, 2002; Gelade and Ivery, 2003; Guest et al. 2003; Laursen and Foss, 2003; Paul and Anantharaman, 2003; Rodriguez and Ventura, 2003). The area remains controversial and is methodologically problematic, given the influence of intervening variables that may obscure the extent to which

HRM practices or other phenomena exert a causal influence on business financial outcomes. It is not proposed to engage further with this particular line of discourse. Instead, the more modest focus for the thesis is to identify how the extent to which forms of HRM, as distinctive managerial interventions in seafarer management, consistent with the view that the human element plays a pivotal role in the shipping industry, may be specified and defined operationally to guide empirical investigation.

Bearing in mind the relationship between management and the people whose activities they oversee, and introducing the idea that management may attempt to create the conditions (or 'culture') in which employee behaviours may be influenced in line with strategic managerial goals, (Harris, 1984, cited in Gabbia, 2000, p. 2) argues as follows:

> *Successful companies guide and shape their company's culture to fit their strategy. One of the tools used to accomplish this shaping is the reinforcing of certain ideas, values and behaviours and discouraging others by means of HRM activities.*

Wood and Albanese (1995: 222) summarise the position thus: "a central plank of the theory underlying all HRM literature [is] that certain practices form a unity". Elevated to strategic importance, HRM is something to be addressed by top management, vertically aligning corporate business strategy and people management. And positioning HRM thinking as interacting with resource based forms of strategy the second consistent thread is that a progressive orientation to managing the employment relationship will involve implementing the range of practices involved as a horizontally aligned bundle. The task then is to shift the frame of reference from normative to analytical, to inform primary research related to the shipping industry.

3.4 Progressive HRM: Concepts and Indicators

Indicators are required to guide investigation of the extent to which shipping employers are adopting a progressive HRM orientation towards seafarers. A hypothetical link has been postulated between high technology investment in vessel engineering and navigation, and demand for seafarers with matching levels of skill, and willingness to apply them, if merchant marine operators are to achieve profitable

returns on their financial capital outlay. In terms of specific HRM practices, Snell & Dean (1992, cited by Jackson and Schuler, 1995) argue that 'hi tech' employers make more comprehensive use of HRM practices such as systematic selection, recruitment, training and appraisal than is the case with those using traditional technologies. Pfeffer (1995, 1998) develops the line of reasoning in operationalising indicators of successful people management matched to an emphasis on strategic focus to secure value from employment under conditions of organisational complexity.

Consistent with arguments that some HRM practices have a universally beneficial organisational impact (e.g. Delery and Doty, 1996; and Guest, 1997), Pfeffer (1998, p. 96) describes seven practices that he contends indicate a progressive approach to managing the employment relationship. These indicators may be summarised using the following headings: employment security; selective hiring of new employees; organisational design premised on the principles of decentralisation and self-managed work teams; comparatively high compensation contingent on organisational performance; extensive training provision; reduced status distinctions and barriers, including dress, language, office arrangement, and wage differences across levels; and extensive sharing of financial and performance information throughout the organisation.

Pfeffer (1998) argues that, although the place of various sub-components and issues around implementation capacity may be debated[22], his categorisation offers a parsimonious basis for assessing HRM practices that he predicts are consistent with firm success under contemporary conditions. The validity of empirical generalisation from Pfeffer's (1998) operational definitions of progressive HRM practices can be criticised from two angles. First, the application of these techniques in different companies having different cultures, business strategies, working environment, type of industry, business cycles, and so on may not have the same effect. Second, the same practices might not be applicable to all employees at all levels in the same way. Concerning the first aspect, Ahmad and Schroeder (2003) in their research on 107 manufacturing companies in different countries and different industries found overall

[22] Pfeffer (1998) points out that the list represents a critical review and simplification of his own work: an earlier list comprised 16 separate components (Pfeffer, 1995).

support for Pfeffer's (1998) seven 'best practices', controlling for country and industry effects. Budhwar and Khatri (2001) identified evidence for the applicability of HRM models in an Indian context: factors such as national culture, social relations, political contacts, caste, religion and positional power were found to have an impact on the use of HRM sub practices but not the main practices. Due to interrelationships between the core elements, instances where certain sub-practices are excluded from a practice bundle may be off-set by including alternative sub-practices that deliver the same effect. For example, wage compression, meaning reduced wage differences across levels, is a factor in the reduced status differences mentioned by Pfeffer (1998).

Regarding the second criticism, focused on the scope for applying HRM practices to all employees in the same way, based investigating 375 companies located in Spain, Gonzales and Tacorante (2004, p. 56) conclude:

> *The result of this work demonstrates that a set of companies does not use human resource practices in the same way with all their employees, but rather that these vary in accordance with the value and uniqueness of the jobs to the companies in question.*

This finding suggests that, before accepting the universal applicability of Pfeffer's (1998) HRM practices, caution is needed controlling for distinctions between workforce segments based on differentials in the way some occupational groups are valued by employers – for example the distinction made in the commentary reviewed earlier in the chapter between highly skilled seafarers in short supply, and other merchant marine workforce members, with skills that can more readily be substitute by technology or other workers. The present investigation is sensitive not only to predicted differences in the extent of adoption of progressive HRM contingent on shipping company business strategies. The inquiry also focuses exclusively on a single category – seafarers (as defined in Chapter 1) – addressing Gonzales and Tacorante's (2004) criterion of job category uniqueness and perceived value. Therefore, the next task is to specify the progressive HRM components in more detail, following the order of the seven headline factors listed above.

3.4.1 Employment Security

Security of employment tenure is emphasised by Guest (2000), as aligned with one of the HRM anchors featured in his seminal description of normative practice (Guest, 1987): employee commitment. It may be predicted that, all other aspects equal, employees who expect to loose their jobs are less likely to invest voluntary effort in support of an employer's objectives. In turn, it may be reasoned that work practice innovation, worker-management co-operation, and productivity improvement have a strong link with the level of employment security perceived by workers (Pfeffer, 1998). Employment security also gives rise to action by both parties to the employment relationship, to plan for a long contractual period. The implication is that the employer will apply best efforts in selecting, recruiting and training the employee. On the other side, the employee will conduct a proper research to ascertain the job and the company that he/she is going to work for over an extended time frame. These actions may be associated in reduced costs due to employee layoff and/or dismissal. Drawing a relationship between job security and training (Martin et al., 1998) argue that employment security increases the incentive for workers to learn and participate in training programmes.

Consistent with the discussion of human capital theory, above, Pfeffer (1995) emphasises that employment security does not mean that organisations retain all the employees but segment the workforce to offer employment security to those who work effectively. In the case of seafarers, 'effective working' may be interpreted as displaying behaviours and skills necessary to secure sustainable competitive value. As explained in Chapter 2, shipping companies in traditional maritime nations used to employ their seafarers as cadets and train them to become officers, offering a clear career pathway to the senior ranks. Some ship owners and shipping management companies have been recorded as using the flexibility of open registries to move away from such practices, especially when choosing to employ cheap labour from developing countries on short term (say, six month) contracts, with no guarantee that the employment will be continued at the end of the period. Variation in employment security may be associated with the nationality and rank of seafarers, the type of shipping companies they work for (Sampson, 2003), and strategic orientation in terms

of externalising or internalising the human resource. For the purpose of the present investigation, employment security among seafarers, reflecting an internalisation orientation among shipping employers, will be indicated where a job security pledge is evident either in the form of a commitment to lifetime employment or a policy of no compulsory redundancy (Guest, 2000). Wood and Albanese (1995: 223) note that these assurances have been accorded higher priority in the US literature, compared with "less emphasis … placed on it" in the UK.

3.4.2 Selective Hiring of New Employees

Applying selectivity in hiring new employees, for Pfeffer (1998, p. 99), means that employers are "as specific as possible about the precise attributes they are seeking" screening candidates on traits that are difficult to change even through training. The emphasis is on identifying fit between person, job, and organisation, over and above an individual's intelligence and skills. One way in which it is predicted an employer can achieve more precise workforce selection is through gathering intelligence through exit interviews when employees leave the company. Feedback from these interviews can be used to enhance recruitment and selection processes (Harris, 2000): investing effort in properly defining job descriptions, based on job analysis techniques, will better enable applicants to understand what is expected of them and what they can expect following appointment, further limiting possible mismatches. Complementing job specification, careful recruiters will define required capabilities in the form of a person specification, derived from business strategy, human resource strategy, and reflecting the nature of the job, type of industry, location, and culture. Personality, competency, intellectual capacity, communicative skills, social skills, commitment and motivation, leadership and management, potential for development, trainability, problem-solving ability, teamwork attitude, and behaviour type are listed by Schager (2003) as examples.

Advanced selection techniques, complementing interviews, include psychometric tests and forms of written examination, customised to the specific requirements of the firm and the role (Williams, 2002) as well as careful scrutiny of references, also represent indicators of a selective approach to hiring. Participation by line managers

in recruitment and selection processes is deemed important, since they are likely to be the most familiar with the actual job and the person required to perform it (Lepak and Snell, 1999). The position will be further illustrated by the existence of a formal policy in place stating an employer's recruitment and selection philosophy, and containing policy and accompanying guidelines for managers on what to do during the hiring process. The policy will comply with legal requirements and non-discriminatory hiring practices covering equal employment opportunities and occupational health and safety (Lepak and Snell, 1999).

Among the predicted results of following a systematic recruitment procedure is reduced costs due to staff turnover (Huselid, 1995); training expenditure may also be minimised. Pfeffer (1998) identifies several outcomes of lengthy and comprehensive selection procedures. First, confirmation that candidates who have survived have been carefully scrutinised; second, ensuring that the selected employees have already developed a sense of commitment; third, increasing the level of motivation among employees by promoting the feeling of being special and important to the company.

Lepak, and Snell (1999) comment on the balance to be struck between filling employment vacancies internally and drawing on a labour pool outside the company. Proper internal succession planning may ensure greater stability in and predictability of a firm's stock of skills and capabilities, better co-ordination and control, enhanced socialisation and lower transaction costs. However, constraints on the firm's ability to adapt to environmental changes, for example to meet the need for re-skilling need to be avoided by over-reliance on internal sources of recruits, they argue. Externalisation may be preferred when the emphasis is on decreasing overhead and administration costs, enhanced organisational flexibility, and sensitivity to shifting workforce requirements. But again there is a predicted downside arising from over-reliance on short-term employment: as recorded in chapter 2, the outcome may be damage to core workforce composition, exacerbated at times of skills shortage. Thus, an indication of progressive HRM related to selective hiring, in Pfeffer's (1998) terms, will be an indication that shipping managements take the matter seriously,

judged against the indicators listed above, and incorporate hiring practices within balanced crew planning.

3.4.3 Organisational Design Based on Decentralisation and Self-Managed Teams

Progressive HRM principles are expected to feature in organisational design and its interaction with job and role specification and, in turn, to inform employee recruitment and selection, development, communication, and compensation. Pfeffer (1998) anticipates the presence of devolved arrangements for organising managerial activities – such as those for which seafarers are accountable – to enable coordinated information sharing and collaboration based on respect for specialist know-how, not just hierarchy. Pfeffer (1998) argues that peer-based work control arrangements save managerial resources necessary to oversee employees in performing day-to-day tasks, since workers exercising their skills in teams control themselves. This approach to work system design also, he contends, permits employees to pool ideas to innovate in problem solving, in turn motivating specialists able to exercise creativity in undertaking their craft, encouraging commitment to the organisation. Pfeffer (1998) further predicts that progressive HRM derived organisation design enables the absorption of administrative tasks, leading to efficiency gains.

Creativity is especially important in a 'closed space' society, such as a ship. While, as noted earlier, sophisticated communications and data management systems have provided the means by which shore-based input to operational decisions has become the norm, once out of port seafarers remain reliant on one another to solve immediate environmental and safety problems arising in the course of a voyage. Principles for designing the technical aspects of seafaring roles are encapsulated in IMO requirements – standardising the duties performed by a merchant marine officer the world over. But corporate management have a choice over whether complementary commercial management decisions associated with merchant vessels are centralised or, where one-the-scene knowledge may be significant, devolved to shipboard management teams. Under the principles of progressive HRM, it is anticipated that organisation and work system design will reflect a total quality management approach

(Saunders and Peterson, 1995; Wood and Albanese, 1995) designed-in quality assurance will locate authority at the point of best-informed decision taking.

It may be further predicted that the accent will be on flexibility in organisation design, enabling responsiveness to changing economic market conditions (Beatson, 1995) that set the context for the merchant marine environment, as discussed in Chapter 2. Flexibility may be introduced though managerial initiatives to increase a firm's numerical flexibility, e.g. substituting permanent with casual or seasonal labour (Michie and Sheehan, 2003), and increasing the degree of financial flexibility related to wage bill commitments, via contingent pay administration. (Pfeffer's accent on relatively high but performance-contingent compensation is discussed in sub-section 3.4.4.) In the context of self-managed teamwork, a third form of flexibility – functional flexibility – which means having a skilled workforce capable of carrying out a wide range of tasks, of the kind expected of seafarers employed to work in high technology vessels – is predicted, so that labour utilisation may be varied within an existing human resource complement (Michie and Sheehan, 2003). Functional flexibility among seafarers may take the form of the presence of 'dual- purpose officers': seafarers trained and willing to work as deck and engineer officers, depending on operational requirements.

3.4.4 Compensation – Level and Performance Contingency

Managerial goals governing proactive approaches to compensating, or rewarding, employees include maximising performance, increasing commitment, as well as to motivate, attract, and retain talented employees (Dulebohn and Werling, 2007). Pay related to employment can be delivered in a variety of forms and may be linked with simple availability to perform work tasks required by management, on the one hand. On the other hand, emphasised in Pfeffer's (1998) specification, compensation may be paid contingent on employees' or organisational performance. In addition to salary, or basic pay, employees may be eligible for commission payments, progression within pay scales and/or one-off bonuses, linked to individual merit or demonstrated achievements, or in the form of team awards (including so-called gain sharing for efficiency improvements), or at business and whole company level

through profit sharing and/or stock ownership. Benefits-in-kind such as holidays, and insured benefits, may also be included in a 'compensation and benefits package'. And long term deferred pay may be offered in the form of retirement pension provision.

Pfeffer (1998) predicts a relationship between what a firm pays and the quality of the workforce it attracts. Consistent with a human capital orientation, investing in high levels of basic pay is designated a vital role not only in attracting the best employees, but also retaining and motivating them. Team based and corporate level gain sharing and profit sharing, it is argued, will encourage the employees to focus on cost reduction and profit maximisation. Stock ownership makes the employee feel like an owner and therefore, it is assumed, act like an owner as well, with a long-term stake (Wanger et al., 2003). Related to the financial flexibility concept referred to above (Michie and Sheehan, 2003), making pay contingent on performance following Pfeffer's (1998) logic serves a dual purpose. First, it makes the well-performing employee feel appreciated and differentiated from others, in recognition of the individual's comparative contribution to the organisation. Second, contingent pay creates the flexibility to adjust labour costs upwards and downwards depending on an employer's ability to pay, e.g. due to changing market conditions and revenue flows, while retaining core workforce skills over the long run by avoiding layoffs during an economic downturn. Thus there is a link to the earlier employment security factor in Pfeffer's (1998) suite of practices.

In the shipping industry, a different contingency factor, i.e. the nationality of seafarers and place of registration of the company has been reported (Sampson, 2003), that may differentiate between progressive HRM employers and others. As discussed in Chapter two, flag of convenience vessels are reported as exploiting opportunities to employ seafarers at rates of pay that may fall below even the minimum levels designated by the ILO, possibly under a smokescreen of double bookkeeping (ITF, 2005; Sampson, 2003). In contrast, shipping companies from the traditional maritime nations are reported by the same sources as offering compensation levels and better conditions of employment overall, backed up by permanent contracts.

3.4.5 Training Provision

The importance of learning and support for skills development has been linked with recipes for achieving organisational success, and emphasised in accounts of progressive HRM (Dechawalanapaisal, 2005). Sisson (1989) positions training as a central element in assessing 'effective' human resource strategy in three major ways: first, companies become dependant on the external labour market for their skills supply if they neglect to invest in developing existing workforce capabilities; second, training provision creates an incentive to develop complementary aspects of HRM, in order to protect the company's investment; and third, training has a symbolic value in so far as it demonstrates to employees the value the company places on them and can thus encourage commitment to an employer (Beardwell and Claydon, 2007) and motivation to help achieve corporate objectives (Sisson, 1989, cited in Workforce, 2004).

Stolovitch and Maurice (2003) identify three organisational contexts where employee-training provision may be anticipated. First, training may be legally mandated: for example, in the shipping industry seafarers are required under IMO regulations to be trained and certificated as competent to perform certain technical aspects of their jobs. While not normally regarded as intended as a commitment building HRM practice, it may be that progressive shipping employers reimburse costs incurred by individuals to obtain and update their technical certification level, so distinguishing themselves from those who expect seafarers themselves to absorb this expenditure. Second, training investment may be required either when installing new operating systems, or introducing new employers to existing systems with which they are not already familiar. Constant changes in onboard technology, as discussed previously, necessitate this type of training, which may be delivered using short courses outside the working environment or through on-job training. As in the first form of training provision, distinguishing the progressive employer in a shipping context is likely to be a function of whether or not the training is company-funded or left to the seafarer's own account. A third form of training provision in the Stolovitch and Maurice (2003) categorisation is that purposely intended to raise an employee's performance potential above the basic level of competence in pursuit of organisation-

specific requirements. While, for example, IMO regulations specify generic levels of certified competence applicable to seafarers at each rank, supplementary skills in navigation and cargo handling may be anticipated contingent on the vessel specification. Training provision may be understood as part of the cycle in Pfeffer's (1998) conceptualisation of progressive HRM practices, demonstrating an intended long-term relationship with seafarers, encouraging self-directed work behaviours grounded in confidence in a specific operational environment, enabling the employee to contribute to organisational effectiveness in ways that may be recognised through performance-contingent compensation mechanisms, reinforcing the sense of commitment to the organisation and its managerial priorities.

One obvious indicator of a commitment to systematic training provision is the existence of a defined policy and documented procedures (McGunnigle and Jameson, 2000). This may provide details of employee training covering job tasks, managerial skills, business strategy, extending to long-term career development initiatives. The expectation would be for the training and development policy to specify a required minimum amount of time that all core staff will spend annually undergoing formal training, tailored to the needs of individuals and the organisation. The policy would be expected to describe the accountability placed on line managers to co-ordinate analysis of training needs and how these are met, both in the form of relieving staff from duties to attend conferences, technical and management training classes, simulation, seminars and so on. On-job training as well as training outside the usual workplace will be covered, and the policy will ensure systematic evaluation of training provision to assure effectiveness and fitness-for-purpose.

3.4.6 Reduced Status Distinctions and Barriers

Wood and Albanese (1995) use the term 'single status' to describe HRM practices intended to convey a principle of treating all employees the same, without segmenting groups according to hierarchy (e.g. 'blue-collar' versus 'white-collar'). The idea is not to offer employment terms valued monetarily in exactly the same way, but to make all workforce members feel they are valuable and valued (Sisson, 1989), with the intention of motivating people not only to work hard for the organisation, but also

to be committed to its objectives (Coopey, 1995). The presence of a 'harmonised' approach to HRM may be indicated via reduced status distinctions such as dress, physical work space, wage inequalities across levels not attributable to merit, and equality of contractual treatment of all employees in the form of payment methods, provision of entitlement to paid holiday, hours of work, etc. (Marchington and Grujulis, 2000; Pfeffer, 1998).

In the case of shipping, progressive HRM may be indicated where practices are designed so that no distinctions in the employment experience for seafarers are drawn based on nationality or rank, or between shore-based employees and those serving aboard marine vessels, other than where 'rank' or 'grade' is determined by reference to objective evaluation of job worth and/or performance contribution.

3.4.7 Sharing Financial and Performance Information

To change employee attitudes and behaviour (Kessler et al., 2004), progressive managements give employees the information they need to contribute to the success of the organisation and solicit feed back from them. Pfeffer's (1998: 119) argument is that "even motivated and trained people cannot contribute to enhancing organizational performance if they don't have access to information on important dimensions of performance and, in addition, training in how to use and interpret that information". The information includes financial performance, market position, competitive pressures, company regulations, vacant positions, important events, strategy and operational measures. Employees are also informed about corporate-level and business unit performance targets, and the role they can play in achieving those objectives. Proactively engaging employees in dialogue regarding the organisation's commercial as well as operational activities may be via formal communication and consultation meetings (Glover, 2001). As a minimum, it is argued that companies need to set in place a formal procedure for handling employee grievances, and ensure that the employees are made aware of it, and encouraged to use it for positive not simply negative reasons.

This practice takes on a heightened significance in the case of seafarers, given their remoteness, literally oceans away from corporate management in many cases. The

advent of technology, such as satellite-enabled communication, which has made it possible for shipping company managements to be in continuous contact with the vessels in their fleets, may be deployed not merely as one-directional media for conveying instructions and extracting data to monitor and control the performance of vessel crews. A progressive approach to HRM in shipping environments will be evidenced by active utilisation of these technological innovations for the purposes of ensuring that seafarers remain informed and consulted about the organisation and its wider commercial and operational standing. The existence and use of formal procedures and institutional arrangements for employee information and consultation, and training in how to make sense of corporate information to facilitate engaged understanding of how to contribute to corporate goal achievement, as well as formal grievance arrangements by way of a fall-back mechanism, may be taken to indicate positive engagement with this aspect of the Pfeffer (1998) HRM practice bundle.

3.4.8 Progressive HRM Indicators and Data Collection Instrumentation

Pfeffer's (1998) indicators help in specifying an indicative framework to guide analysis of HRM in relation to seafarers, to satisfy the empirical objectives for the thesis. Informed by the seven-factor portfolio with its benefits of parsimonious expression, the next step is adoption of suitable data collection instrument, constituted using terms recognisable to shipping managers and seafarers. Following a search of the HRM literature for comparable research that might be extended to assemble and evaluate unique insights about employment and management of seafarers, an investigation of the extent to which HRM practices have been adopted in the hotel industry was identified (Hoque, 2000). HRM practices were investigated in a sample of UK hotels, informed by a data gathering instrument judged broadly consistent with Pfeffer's (1998) focal points. Hoque (2000) groups HRM practices under the rubric of employment terms and conditions; recruitment and selection; organisation-contingent job and work practice design; training; quality management; communication-consultation; and pay systems. The constituent parts of the instrument not only largely reflect Pfeffer's (1995, 1998) thinking; they are, in turn, derived from analysis conducted by Wood and Albanese (1995), and Guest and Hoque (1994). Wood and Albanese (1995) evaluate implementation of progressive

HRM practices intended to nurture employee commitment to managerial goals in a sample of UK manufacturing plants. Guest and Hoque (1994) report an investigation into HRM practices in so-called 'Greenfield' work locations.

Hoque's (2000) study set out to demonstrate that, although the HRM practices specified originated in manufacturing industry, they could be generalised to encompass service industry employment settings as well. To validate this claim, Hoque (2000) examined factors that affect the use of HRM techniques, controlling for context. The empirical robustness demonstrated suggests that the instrument (whose detailed design and application, in practice, is discussed in Chapter 4 of the thesis) recommends it as a systematic guide to evaluation of the extent to which human resource management, observable in relation to seafarers, indicates the assumption of a 'progressive HRM' orientation among shipping managements.

A remaining question in evaluating progressive HRM and seafarers is how many HRM practices should be observable empirically in order to conclude that progressive HRM consistent with that theorised in Pfeffer's (1998) model is in evidence? Hoque (2000) adopts the rule of thumb that what he terms 'HRM hotels' are those using an above average number of HRM practices asked about. To demonstrate consistency with a benchmark established in published academic research, the same 'tipping point' has been chosen to measure implementation of progressive HRM practices in the shipping industry. It is predicted that the presence of progressive HRM in relation to seafarers can be inferred from evidence of implementation of more than the median number (i.e. above 50%) of a suite of progressive HRM indicators.

> H16: *Progressive HRM is applied to seafarers when 50% and above of Pfeffer's (1998) 'seven practices of successful organizations', operationally defined to encapsulate Hoque's (2000) seven part, 21-item research instrument are present.*

3.5 Summary

One reading of the shipping industry literature leads one to predict fairly a utilitarian orientation towards seafarers and their employment experience (humans as resources

not resourceful humans), modified perhaps in situations where enhanced influence over market structure and concomitant profitability permits more active investment in seafarer careers and employment conditions. An alternative scenario may be theorised, as discussed in this chapter. The economics of avoiding the risks of being seen to manage in face of consensus that the human element is crucial to overcoming a catalogue of environmental problems, as well as technological developments in the industry that have raised the bar on skills needed among seafarers can be rationalised to predict a shift towards progressive HRM. At least among shipping employers who invest in advanced marine and cargo management technology, who value reputation, and are attentive to risk management, might be expected to adopt a resource based view of competitive strategy. Practising HRM as a progressive, proactive approach to people management may be viewed as complementing this business orientation. While various configurations have been reported in the theoretical literature, a common denominator appears to be the notion of alignment – vertically to business strategy, and horizontally forming bundles of practice. A logical assumption is that progressive HRM practices, as operationalised using, in particular, the Pfeffer (1998) and Hoque (2000) indicators may be applied to core employees – such as the seafarers which are the unit of analysis in the thesis. Extending these earlier theoretical and empirical analyses, a logical chain is postulated aligning the high technology – safety/quality conscious – environment for shipping demanding highly skilled core employees (seafarers), treated in a manner that is qualitatively different to that reported in mainstream shipping literature. In the next chapter, attention turns to empirical research design, to reflect critically on preparation and application of the proposed data collection instrument, and subsequent analysis of findings to test the propositions specified in the two 'theory chapters' (Chapter 2 and Chapter 3).

Table 3.1: Hypotheses developed in chapter three

15	*Shipping managements will emphasise internalised relationships with seafarers regarded as core corporate assets.*
16	*Progressive HRM is applied to seafarers when 50% and above of Pfeffer's (1998) 'seven practices of successful organizations', operationally defined to encapsulate Hoque's (2000) seven part, 21-item research instrument are present.*

Chapter Four: Methodology

4.1 Research Design

In this chapter, methodological considerations are discussed in investigating perceptions on management of the human element (specifically seafarers), and its consequences, in the merchant maritime industry. First, the rationale for the research design is introduced followed, secondly, by an appraisal of how a fit-for-purpose data set was assembled, using research instruments for quantitatively oriented survey research among seafarers and qualitatively oriented interviewing among shipping company managements, each group sampled for the purpose of the thesis. Thirdly, consideration turns to analysis of the quantitative and qualitative data, consistent with the conceptual and theoretical framework and predictions for primary research developed in the preceding chapters. Fourthly, demographic features of the corporate and seafarer samples are summarised. Fifthly, before concluding the chapter, reflections are set out covering the practicalities of undertaking research into an area that can be judged 'sensitive', as well as learning points drawn from the methodological experience recorded here.

A mixed methods research design was adopted for the empirical aspects of the thesis (Dipboye, 2007). For practical as well as theoretical reasons, the decision was taken to gather seafarers' views following a quantitatively oriented survey procedure, while managerial views were assembled using a qualitative research technique. Theoretically speaking, quantitative analysis is designed to produce conclusions that may be generalised to the population of interest (McNeill and Chapman, 2005). Here, the ambition was to generate knowledge about seafarers' views on their employment experience, drawing on data accessible from a seafaring sub-population[23]. From a practical point of view in completing small-scale research into a population working across the world's oceans, qualitative data gathering would have been challenging to the extent that more costs than benefits may have arisen – even were it possible to be

[23] While this is the theoretical aim, in practice, generalisation is limited due to the practicalities of assembling a seafarer data set strictly in accordance with the principles of probability sampling (Barnett, 2002). The issue is discussed more fully in the next section of the chapter.

granted access to a range of seagoing vessels for direct engagement with respondents. Knowledge from the published literature of trends in people management and commentary on its implications for seafarers' working lives also provided a theoretical rationale for adopting a standardised research design applicable to assembling views from this population of interest. Reviewing this literature facilitated development of predictions, for evaluation using indicators amenable to pre-coding. Insights from early dialogue with knowledgeable people in the industry – specifically shipping industry trade union representatives – helped in recognising that obtaining a high response to questioning would be advanced using a standardised rather than open-ended instrument. (This aspect is discussed in more detail later in the chapter when attention is given to data collection instrument design and administration.)

In comparison with the seafarer viewpoint, in dealing with the managerial perspective in what has been recognised as a sensitive area given the high profile human failings, at least in part attributed to management decision taking (e.g. Frank, 2008), a more open-ended direct form of communication with respondents may be justified. The merits were tested of gathering empirical data using an instrument paralleling the one applied to seafarers, so that statistical comparisons could be effected. This proved to be completely impractical: as reported below, while a self-administered questionnaire was distributed among a sample of shipping companies, this produced a zero response. Reflection in the face of this initial disappointment, however, led to the insight that not only would greater delicacy be needed to secure access to managerial perspectives, there were also benefits of exploring emerging practice in ways that only subsequent coding to organise empirical material (rather soliciting responses from a choice of pre-coded 'answers') would deliver. Theoretically, then, there is a rationale for adopting a qualitative design for surveying managerial opinion across a sample of shipping companies, premised on the argument that the dynamics of the shipping industry mean that the way the debates have been framed in the literature may lag practice. In short, there is merit in allowing respondents an open-ended opportunity in a dialogue to 'tell their story'. As with seafarers, the assumption has been made that the account is honestly communicated rather than an artifice.

Triangulation combining quantitative and qualitative research into a single design for primary data collection and analysis (McNeill and Chapman, 2005) has become acceptable in social science research, in particular, as a means by which to verify the accuracy of data collected and reliability of the research tool (Dipboye, 2007). On the one hand, the present study seeks to describe what is happening in relation to the management of seafarers, for the purpose of evaluating practice, organised by a theoretical framework deduced from relevant literature - a 'how' question, with an explanatory intent (Yin, 2003). However, bearing in mind the scarcity of empirically informed literature on contemporary seafarer management, and the impediments to random sampling, the investigation may be classified as exploratory, with the goal of theoretical rather than empirical generalisation (Yin, 2003.).

In the following sections of the chapter, sampling, questionnaire and interview guide design considerations, index measures, and methods of analysis are reviewed. Finally, the demographics of the empirical samples are described.

4.2 Selecting the sample

Seafarers: To be able to make statistically informed inferences from a sample to answer research questions about a population, ideally, it is necessary to gain access to a probability sample (Saunders et al., 2000). The steps involve identifying a sampling frame based on the research focus – in this case, 'seafarers', defined in Chapter 1 as a term limited in this research to merchant marine officers employed onboard vessels. Once the sampling frame has been devised, normally, a suitable sample size will be decided, together with a choice of sampling technique deemed fit for purpose, checking that the sample selected is representative of the population (Saunders et al., 2000). As noted earlier, research access to a population such as seafarers, which is widely dispersed across the world's oceans, presents a particular challenge. In sampling terms, the first issue is to determine the composition of a sampling frame that, in the case of merchant shipping, could not in all likelihood be known with any sense of precision. For example, there is no register of the names of all certificated mariners worldwide – and if this were available it would necessitate access, say, to countless corporate records to identify individuals in active service on a vessel.

Given limited resources, a degree of pragmatism has been necessary in sampling from the seafaring population for the purposes of this thesis. Drawing on established research links between the Centre for International Transport Management Research at London Metropolitan University and the UK seafarers' trade union NUMAST, access was negotiated to survey the 16,000 seafarers who were members, as at November 2005. NUMAST members include ship masters (captains), officers, officer trainees (cadets) and other shipping industry personnel, such as ship pilots, vessel traffic services operators (similar to air traffic control), harbourmasters, seafarers in the oil and gas industry, and shore-based staff. The approach adopted may be described as a form of purposive sampling, whereby the researcher "*exercises deliberate subjective choice in drawing what he or she regards as a 'representative' sample*", taking issues such as accessibility into account (Barnett, 2002: 18, emphasis in original). As Barnett (ibid.) points out purposive sampling, while overcoming the limitations inevitable in a haphazard approach, always runs the risk of distortion due to personal prejudices or lack of knowledge regarding crucial features in the structure of the population being sampled. But, if the judgement is "sound" the results of purposive sampling "can be very good" (ibid.). While NUMAST members may be described as a convenience sample (Saunders et al., 2000), a degree of control is introduced in the sense that analytical generalisation may be valid to seafarers with an affiliation to UK shipping and who are in membership of an independent body representing seafarers' interests in setting employment terms and conditions. In theoretical terms, it may also be argued that surveying opinion among seafarers employed from a traditional maritime nation, and who have access to trade union protection in negotiation and enforcement of regulations, would mean that predicted employment standards would form an analytical high water mark in relation to the seafaring population world-wide.

NUMAST circulate a monthly newspaper among the membership, and it was agreed to include a questionnaire (design of which is discussed below) in the November 2005 issue. A total number of 16,000 questionnaires were thus released, including a pre-paid envelope for responses to be returned in. A degree of randomness within the NUMAST sampling frame may thus be assumed – given that all members of the

targeted population had an equal chance of selection or exclusion from the survey sample. Of course, given that the sample was self-selecting, availability and propensity to respond may be deemed to be a source of possible bias in the distribution of responses obtained. Based on previous experience among NUMAST representatives when conducting membership opinion surveys a 5% rate of response was anticipated. That response-rate estimate was included when applying the following formula (Saunders et al., 2000) to calculate the expected sample size that would result from this exercise:

$$n^a = \frac{n \times 100}{re\%} = n \times 100/5 = 16000,\ \text{n} = 800$$ Where n^a is actual sample size, n is expected sample size and $re\%$ is assumed rate of response.

A total of 391 questionnaires were returned out of which 357 were valid. However, this could be deemed to be a 44.6% rate of response assuming a sample size of 640[24].

Managers in shipping companies: In an initial attempt to survey opinion among shipping company managements, a total of 45 international companies was identified consisting of the 15 largest companies in tonnage in each of the main sectors of the shipping industry namely tramp, tanker and liner shipping. In this case, then, a purposive sampling approach was again adopted. The largest companies in each sector were selected on the premise that these companies employ a large number of seafarers. The main source used in choosing the companies was Clarkson's Register of cargo ships, October 2005 edition. The list was also checked against other sources such as BRS (Barry Rogliano Salles) and Mol (Mitsui O.S.K Lines)[25] to make sure the top 15 largest in each sector had been selected. Addresses were found either from the World Shipping Directory or company websites.

Questionnaires were sent via e-mail and in paper form through the post. Since none of the companies approached responded within one month, a follow up e-mail was sent.

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[24] Returned questionnaires were screened against the criterion that valid responses would be from officers working on board merchant maritime vessels. Any questionnaire not matching that requirement was discarded.

[25] This is a big liner shipping company that produce information about liner shipping.

Once again, no responses were received. No evidence was uncovered to suggest that academic researchers have previously approached shipping companies to ask about the employment practices these companies follow. Consequently, there was no existing literature to consult for guidance on whether or not the difficulties encountered in collecting data from managerial respondents were unique to this study. A contingency plan was formulated, in the light of reflection on the apparent impasse: using shipping industry network contacts among the Business School's researchers, 30 companies were approached through the good offices of the British Merchant Navy Training Board (MNTB). A MNTB representative circulated a request to HR management specialists within her network, to grant the thesis researcher access. This was on the basis that researcher-respondent discussion would be sought (rather than a self-administered survey), and that respondent anonymity would be guaranteed. An offer was made to disseminate results from the research, on request, for the information of those who agreed to take part in the data gathering. Again, the process was not straightforward, and it was necessary for a follow up communication to be sent after one month had elapsed. This time a number of positive answers to the call were obtained.

In effect, the approach adopted to gather managerial opinion can be classified as a "snowball" sampling procedure. This method involves identifying and communicating with an initial ('base') group of individuals in a population, and then asking them to suggest similar persons to be interviewed, and possibly even helping the researcher move to the next 'level' in the rolling 'ball' (McNeill and Chapman, 2005). A sense of credibility for the researcher can be created whereby one person in a network may be able to endorse, by reference, the research project and researcher as someone others in the network may usefully interact with to assist in building an empirical database. The initial recommendation disseminated by a MNTB representative, known to others in the targeted network, was important in this credibility-building process. Eventually ten companies agreed to cooperate either by face-to-face interview or through telephone conversational interview. The emergent sample can be classified as a convenience sample, which is a non-probability sample in which chance selection technique is not used (McNabb, 2004). To find out whether

a convenience sample represents the population sampling frame, Sousa et al. (2004) referring to Cochran (1977) suggest that known data from the population can be compared with data from the sample to see if there are similarities between the two sets of data. For the purpose of this research, the population consists of managers working in different sectors of shipping industry, tramp and liner, short sea and deep sea. These managers can be from shipping companies, shipping management companies or crew agencies. There is at least one manager from each of these sectors and types of companies in the sample of ten companies interviewed so, on the grounds suggested, it can be said that the sample is representative of the population. In practice, having adopted an alternative means by which to access shipping respondents in the face of a nil response to a self-administered survey invitation, as already noted a qualitative orientation followed consequent on that shift. Not only does the dataset offer a basis to triangulate findings with those from the seafarers' survey, there is scope to generalise from the sample of managerial opinion assembled, albeit to theory rather than empirically, based on statistical testing (Yin, 2003).

4.3 Questionnaire design

To help inform design of a questionnaire to survey opinion among seafarers[26] regarding their employment experience, and to evaluate predictions regarding implementation of HRM practices, a meeting was arranged with a representative of the trade union (NUMAST). This was considered prudent given the intention to distribute the survey instrument via the NUMAST members newspaper. But it was felt that useful information would also be obtained to help in composing questions to be addressed by seafarers, drawing on NUMAST experience of surveying membership opinion. Practical issues surrounding the format of the questionnaire, type and number of questions, were discussed, as well as possible limitations. From experience, the NUMAST representative suggested formatting the questionnaire in such a way that it could be printed on A3 size paper, folded and put inside the

[26] The original survey instrument sent to shipping company managements was consistent, in principle, with the seafarers' questionnaire. Given the zero response, this document is not discussed further here. However, the issues raised were influential in designing the interview guide followed to gather qualitative data from shipping company respondents, discussed in the next section of this chapter.

monthly NUMAST newspaper. He also advised keeping questions as short and simple as possible. It was felt that, given experience of a relatively low rate of return of questionnaires distributed by the trade union when surveying membership views (i.e. a proportion falling below 1000 out of 16000 members, as recorded earlier), to secure a reasonable response to the survey, it should not appear overly burdensome to respondents.

By way of a 'pre-piloting', the order and wording of questions were also discussed, to consider ways in which questions could be easily understood by this particular set of respondents while also satisfying the objectives of the research. There is a danger that in surveying opinion among non-specialists regarding a specialised area – with its own terminology that may contain forms of jargon that it cannot be assumed will be familiar to respondents – inaccurate data is assembled based on differences between what the researcher and respondents, respectively, believe the nature of the line of questioning to be. Thus, although following operationally defined indicators for employment and HRM practices derived from the academic literature, every effort was made to present questions informed by this material in a form that would be comprehensible to those invited to share their opinion. This is one downside with self-administered survey instruments – at least with a researcher present clarification of intended meaning may be offered if requested by respondents (even though this is not an infallible solution to 'interpretative gaps'.) The result is a compromise to some extent in terms of the level of sophistication in the data thus obtained, However, every attempt was made to maintain standards necessary to address the research questions without compromising the ability of respondents to offer suitably informed opinion due to incomprehensible jargon.

The questionnaire was designed comprising three complementary sections. In summary, the first section asks the seafarer to list demographic details; the second section asks for information describing the company the respondent is employed by; and the third section asks for opinion about the employer's people management practices. Parts one and two of the questionnaire were designed to collect data about age, sex, rank, and nationality of the seafarers, as well as the type and nationality of

the companies being worked for, and the type of the vessel they were sailing on at the time of completing the survey document. This information was intended to inform analysis of correlations and differences between different categories of seafarers and companies and vessels, in relation to employment characteristics and consequences.

In the third part, composition of which is now discussed in detail, thirty questions ask about people management practices and three additional questions related to consequences for the seafaring employment experience. The object was to inform evaluation of the hypotheses formulated in chapters 2 and 3. The 'HRM practice' questions are derived from the survey instrument used by Hoque (2000), in turn, informed by Guest and Hoque (1994) and Wood and Albanese (1995), as well as being related to the principles developed by Pfeffer (1998) in his attempt as parsimonious articulation of seven progressive HRM practices.

To reprise the indicators in summary, Pfeffer (1998) places emphasis on 'employment security', 'selective hiring of new employees, 'organisational design based on decentralisation and self-managed teams', 'relatively high compensation levels contingent on performance', 'training provision', 'reduced status distinctions and barriers' and 'sharing financial and performance information'. Each of these aspects may be seen as the aggregation of various sub practices, and Hoque's (2000) research in the hotel industry helpfully breaks-down a majority of the Pfeffer (1998) thematic areas creating 21 questions, under the rubric of 'terms and conditions', 'recruitment and selection', 'training', 'job design' and 'quality issues', 'communication and consultation', and 'pay systems'. Unlike Pfeffer (1998), Hoque's questionnaire did not include specific references to 'employment security' for the purpose of assessing the extent to which 'progressive HRM practices were observable. To remain true to the original Pfeffer (1998) principles, and given the significance of this aspect in relation to deregulated shipping employment conditions, the Hoque questions were supplemented by questions to assess seafarers' opinion on 'employment security'. Detailed wording of sections of the questionnaire dealing with HRM practices is discussed below but it is worth pointing out in summary that, although most of the seafarer survey questions were phrased consistent with Hoque's

(2000) wording, small revisions were made to account for the different industrial context being surveyed. For example, the incidence of performance related pay is investigated using two separate questions, covering individual and team-based pay-for-performance taking into consideration shipping industry practice, and remuneration of seafarers as members of a team of officers, rather than a single question on the use of merit pay among staff at all levels. Another modification also related to the shipping context was reference to 'dual-purpose job officers' as a specific seafaring role, examined under the job design heading, which Hoque (2000) framed in terms of 'flexible job description'.

All questions were based on dichotomous standardised responses. While this limited the type of data (binary categorical) and hence scope to engage in high power statistical testing, it was decided to proceed in this way following the advice of the NUMAST representative, based on previous experience in surveying the same population. As discussed below, it has been possible to organise the data – for example using factor analysis – to enable the data set to be interrogated at a reasonable level of sophistication, with enhancements following an initial presentation of results, to help address the thesis research question. The approach was also consistent with Hoque's (2000) research into HRM in hotel industry. The aim of each question, covering the prescribed range of HRM practices, is to find out if that practice has been implemented or not. A thematically organised explanation follows next, and a copy of the complete questionnaire appears as Appendix one.

4.3.1 Employment Security

Two questions were designed to test issues surrounding a predicted lack of security of tenure associated with employment practices adopted by shipping companies under the open registry system. The first question asks seafarers if they have a contract of more than one year with their current employer. The other question asks them if there is a policy of no-compulsory redundancy in their contract.

4.3.2 Selective Hiring of New Employees

Seven questions in this section were designed to test the recruitment and selection procedure the seafarer experienced when joining the current employer. The first

question seeks information to help assess the care applied by employers to validate the consistency in standards of a seafarer's competence/knowledge at the time of recruitment, bearing in mind that shipping companies employ seafarers from all around the world. So the first question asks about attending a written examination or formal interview during the recruitment procedure. Familiarisation of the candidates with the values and objectives of the company is the second question, to establish the extent to which seafarers are informed about the corporate atmosphere they are going to work in. A third question in this section was designed to test efforts among shipping companies to enable applicants to understand what is expected of them following recruitment, informed by job analysis and written job descriptions. The question asks about information describing the details of the job offered to the candidate at the time of recruitment. Questions four, five, and six, were designed to evaluate the extent to which practice observed by seafarers may be inferred to demonstrate participation by line managers, fair recruitment procedures, and employment from within the organisation, all emphasised in the HRM literature as progressive techniques linked with employee hiring practice. The seafarers were asked, in question four, whether they were aware of a policy of internal recruitment for managerial positions in their companies. Responses may count as evidence that seafarers are able to follow a career path as merchant marine officers, in terms of technical rankings from junior officer to senior officer and/or managerial roles. Question five asks seafarers if they met the department manager during recruitment (i.e. involvement of line managers in the process of recruitment). In question six, respondents are asked for an opinion as to whether or not they felt the recruitment process was fair (i.e. without discrimination on grounds other than technical competence to match the requirements of a role). Probing the fairness issue further, a seventh question in this section of the questionnaire asks whether the seafarer had been asked to pay a fee during the recruitment and selection process (informed by allegations discussed in the literature whereby some shipping companies impose a charge on seafarers at recruitment – a practice which may be designated illegal).

4.3.3 Organisational Design Based on Decentralisation and Self-Managed Teams

To evaluate the incidence of organisational design based on decentralisation and self-managed teams, informed by indicators around teamwork, quality checks and decentralisation in decision-making, seafarers were asked about their responsibility in setting targets relating to their job performance. Evidence of quality circles or quality management teams on board vessels would provide the basis to infer organisational design intended to encourage self-managed team working. A second question in this section asks seafarers if they are encouraged by their seniors to work as a team, consistent with this type of organisational design.

4.3.4 Compensation – Level and Performance Contingency

Six questions were prepared, to ask respondents about the way seafarers are rewarded. To see if they are paid according to their performance, seafarers are asked about the policy of their company with regards to individual or team based performance related pay. Respondents are also asked about the incidence of sophisticated remuneration instruments such as merit pay, profit sharing, and/or stock sharing at company level. Given claims that pension and social security paid by the employer may be lacking in employment packages applied to seafarers working on board open registry vessels, respondents were asked about their company's policy in this regard. To test the allegation that some shipping employers (specifically those operating open registry conditions) operate double book-keeping systems, to escape minimum wage obligations under ILO or ITF provisions, requiring seafarers to keep the rate of pay received confidential, respondents are asked for their views about the inclusion of a confidentiality clause in their employment contract.

4.3.5 Training Provision

To assess whether seafarers benefit from investment by their companies in training beyond compulsory courses required under international regulations, to help in skills formation likely to enhance career development, seafarers were asked whether or not their companies arrange and pay for technical courses and/or managerial courses. A question was asked also regarding company policy with regards to that element of seafarer training undertaken on-the-job, on board the vessel in which they work. To

assess the perceived seriousness with which training issues are taken, respondents were asked to assess the effectiveness of training provision. The survey also included a question to assemble information to evaluate the incidence of employer efforts to build functional flexibility through having multi skilled employees, where seafarers are trained to fill dual-purpose roles i.e. performing both navigational and engineering tasks. Finally, within the training section of the questionnaire, seafarers were asked about active support by their employer to maintain up-to-date knowledge and improve their ability to perform their duties in terms of job-related seminar and/or conference attendance.

4.3.6 Reduced Status Distinctions and Barriers

A question was included to evaluate the extent to which shipping company HRM includes initiatives to reduce status factors between managerial and non-management staff, by applying common principles to the establishment of employment terms and conditions. Seafarers' views are requested on any perceived differences in the conditions of employment comparing themselves and their (corporate) managers.

4.3.7 Sharing Financial and Performance Information

In this section, seafarers are asked if they are informed by their companies about the market position of the company, vacant positions, and/or important events impacting on the company and their employment on regular basis. Seafarers' views are requested also on the incidence of communication/consultation meetings with corporate management, and whether or not they have opportunities to get involved in setting performance targets for the company. A final question in this section tests respondents' awareness of company grievance procedures, something which may be especially salient for employees working at a significant physical distance from company offices.

4.3.8 Stress and Work/Life Balance

In addition to the 30 questions building on Hoque's (2000) survey instrument on HRM practices specified above, three more questions were designed to test predictions regarding the consequences flowing from the character of seafarer

employment conditions. Respondents' views are sought regarding satisfaction with work/life balance, levels of perceived stress associated with seafaring, and issues around the living as well as working conditions on board vessels.

4.4 Pilot study

A pilot evaluation of the questionnaire's intelligibility to potential respondents was carried out, involving students on courses related to the commercial operations of shipping at London Metropolitan University. Most of the students had either a seafaring or commercial shipping background. Some of them were masters and engineers working on board merchant ships. The evaluation of the study was positive although some minor modifications were made in the light of feedback, mostly with regards to the words and phrases used in the questions. For example, instead of asking about 'status differences' between management and seafarers (which may be regarded as a form of HRM jargon) the wording was changed to simply ask for respondents' opinion on perceived differences in the conditions of employment between the seafarers and managers in the company they worked for.

4.5 Interview Guide

Having considered methodological issues surrounding the survey of seafarer opinion, attention now turns to the basis for gathering qualitative views from among representatives of shipping company managements. The objective of conducting a face-to-face interview with managers of the shipping companies was to investigate the extent to which the companies apply modern HRM practices to manage the seafarers they employ.

A series of semi-structured interviews were performed, with the aim of giving respondents an opportunity to talk about corporate strategy and HRM in their companies, in their own words. The problem with all types of interviews is interview bias (McNeill and Chapman, 2005): interviews are interaction situations and the interviewees might act according to an interpretation of the situation they are in and the effect of the presence of an interviewer. Due care was made in designing the questionnaire to limit the possible influence on interviewee's answer apparently

resulting from the interviewer's attitudes and opinions in the way questions were phrased. A total of thirteen thematic questions/prompts were designed to guide the interviews. Each question was framed in terms of raising issues around employment and HRM practices in respondents' companies. Interviewees were not directed to talk about specific sub practices – the idea was to allow respondents space to talk around the area to see what detailed practices would be referred to, which could be identified in relation to the categories derived from Hoque (2000)/Pfeffer (1998) during the analysis stage. However, some probes were included in the interview guide that could be used to enquire about more specific practices if an interviewee did not volunteer the information. Details of the thematic line of questioning, area by area, are discussed next, and a copy of the complete interview guide appears at Appendix 2.

Business strategy: Respondents are asked to talk about the overall business strategy of the company. If the activities of the shipping company are confined to only one sector of the shipping industry, or if the manager does not talk about the business strategy of the company with regards to the different sectors, then the position is probed. Clarification is sought as to whether, in the respondents' view there should be a different business strategy for each sector of shipping industry, or not.

HRM principles in practice: Respondents are asked to talk about the overall people management policy of the company. With probes, information on different techniques used by the company to manage employees is solicited. If a respondent does not mention policy diversity with regard to vessel operations in different sectors of the shipping industry then a probe question seeks to clarify that. Essentially information is sought to assess whether or not the respondent's company operates different people management policies for different sectors in which it trades, e.g. liner versus tramp.

Employee hiring, development and retention: Respondents are invited to reflect on employee recruitment and selection procedure in their companies. It is supposed that the manager talks about the different techniques and sub practices used during the process. In case different sub-practices (specified in Hoque (2000) and Pfeffer (1998) are not introduced spontaneously, the position is probed along the lines of, for example, differences in sourcing masters (middle managers) and other officers (line

managers), in terms of company representatives involved in the recruitment and selection procedures and reflections on factors given most weight in identifying and selecting candidates. To find out if the company has a policy of internal recruitment for managerial positions, respondents are asked to comment on the career development, in terms of progression applicable to seafarers in the company. The issue of company policy and practices with regard to the retention of seafarers is introduced, to see if the company applies 'talent management' techniques as part of its HRM practices bundle.

Training policy: Respondents are asked about the training policy at their companies, as this applies to seafarers. The aim of this question is to find out whether progressive training practices, as described in the academic literature are used or not. Three probe questions are available in case an interviewee does not volunteer this information, covering differences in training policy between different levels of the workforce (on shore and seagoing), the objectives of training policy and also the ways in which the effectiveness of training programmes are evaluated.

Reward management: Respondents are asked about their company's policy and practices with regard to pay and benefits applicable to seafarers. Two probe questions are designed to ask about differences in the application of reward policy between different employee levels.

Performance management and team working: Respondents are asked about the performance management practices they might operate in their companies. The objective is to see if seafarers are appraised on their performance and whether that performance is related to their pay determination or not. If the respondent does not talk about communication practices related to performance management, or the performance management cycle within the organisation, the position is probed. A question is also introduced during the interview, designed to surface managerial views on ways to encourage seafarers to work as a team.

Work/life balance: The issue of work/life balance among seafarers is explored with managerial respondents, to assess this as a possible outcome the character and extent

of HRM practices in use within the company. The intention is to see if the companies have any policy in place intended to promote work/life balance among seafarers.

Onboard living and working conditions: Respondents are asked to describe their perception of living and working conditions of seafarers on board the vessels operated by their companies (complementing the survey question put to seafarers).

Stress among seafarers: Respondents are asked for their views on the incident and possible reasons for stress among seafarers. A probe question seeks to clarify if the company has got a formal stress management policy. The intention is to be able to explore the association between HRM and seafarer stress (similar to the issue of work/life balance).

To conclude the interview in each case, respondents were given an opportunity to talk about any aspect of strategy and/or HRM, practices they wished to raise not already covered within the range of themes in the interview guide.

4.6 Research Ethics Compliance

The importance of research ethics and the impact of research on the subject(s) or society have been emphasised in the research methods literature (e.g. Miles and Huberman, 1994; McNeill and Chapman, 2005). This research was designed and conducted in compliance with London Metropolitan University's Ethical policy and guidelines of the Research Ethics Committee. The research also meets the legal requirements of the Data Protection Act, 1998. To comply with the requirements of these regulations, participants in both the seafarers' survey and managerial interviews were informed about the research subject and were given the right to refuse to take part. The purpose of the research was explained to the participants and their identities were kept confidential. Research documentation has been securely stored.

4.7 Methods of Data Analysis

Data analysis was performed consistent with the types of data assembled to triangulate the primary research for this thesis. Statistical analysis of the quantitative data assembled from the seafarers' survey was facilitated by use of SPSS 14.0, using

Pallant (2007) as a source of detailed guidance in working through the procedures. The qualitative data set was organised and coded for evaluation following principles in particular articulated by Miles and Huberman (1994). Analytical procedures and reflections on how these were approached are discussed below, taking quantitative and qualitative aspects in turn.

4.7.1 Quantitative Analysis

The quantitative analysis was performed in three stages, moving beyond initial summary of descriptive statistics[27] to interrogate the data set to test for statistically significant associations between variables relevant to evaluation of the hypotheses specified in chapters 2 and 3. As noted above, in order to maintain the support of the 'gatekeeper' at NUMAST, advice was followed to 'keep the questions simple', following the route the trade union representative indicated had been successful in previous surveys with which he had been involved. The compromise inherent in this necessary tactic was that data type was limited to binary-categorical, and so imagination was necessary to organise the data set to facilitate analysis that was sufficiently sophisticated to achieve the goals of the thesis. The three analytical stages are now discussed in order.

4.7.1.1 Stage One

This initial focus of the statistical analysis, to evaluate hypotheses specified in Chapter 2, was on seafarer management and its consequences, as viewed from the seafarers' perspective. Issues concerned with, for example, living and working conditions, work-related stress, and possible associations with demographic characteristics of respondents were evaluated using a series of bi-variate chi-square test procedures. The chi-square test which is a widely used procedure in management research, working with categorical data (Saunders et al., 2000), cross-tabulates variables into categories and computes a chi-square statistic to explore the level of statistical significance comparing observed against expected frequencies in each category. So for example, it is possible to explore the extent to which a demographic

[27] Demographic characteristics of the survey respondents are summarised towards the end of this chapter.

variable, such as age or nationality of the employer appears, to have a statistically significant associated with, say, reported work-related stress level.

Predictions concerning a general relationship between shipping company practice and progressive HRM practices developed in Chapter 3 were evaluated following the same criterion as applied in Hoque's (2000) analysis, namely looking for reports by seafarers concerning possible bundles of HRM practices. The frequency of responses was compared to assess the extent to which the number of seafarers reporting awareness that 50% or more of practice areas (previously defined as representing 'progressive HRM' – e.g. employment security, careful hiring, training provision, etc.) was statistically significant compared with the number reporting awareness of fewer than 50% of the total number of practices in operation in the companies which employed them at the time of the survey. Again chi-square statistics were calculated to inform the analysis. The same statistical technique was used to evaluate reports of the implementation of the total of 30 HRM sub-practices within the HRM practice areas separately. The number of HRM sub-practices being implemented for each HRM technique (say, hiring policy) was calculated and tested for statistical significance to provide evidence to assess whether, using the same 50% adoption criterion, moves in the direction of being, in Hoque's (2000), terms an 'HRM company'. If a statistically significant proportion of seafarers reported that more than 50% of the sub practices had been implemented, said it may be possible to conclude that shipping companies are adopting progressive HRM practice in that aspect of people management. Finally, at this stage, a comparison was made to identify which progressive HRM sub-practices are indicated by respondents as perceived to be in use more than others. To achieve this, the arithmetic mean number of sub practices in each of the main progressive HRM practice fields (i.e. as specified by Pfeffer, 1998) was computed. Then the means were compared, to identify whether differences in the relative quantities of perceived practices were statistically significant.

4.7.1.2 Stage Two

Attention was then turned to an investigation of possible associations between demographic factors and reported perceptions of progressive HRM practices having

been implemented by merchant marine employers. In particular, the analysis was intended to help assess predicted associations between perceived implementation of HRM practices and type of company, nationality of the company, and type of vessel, as well as nationally of the seafarer, and the respondent's current position,. Additionally statistics were computed using age and gender. The principles of Binary Logistic Regression were applied (Siegel, 1959). This kind of statistical model is suitable when both dependent (in this study HRM practice) and the Independent variables (in this study the demographic factors) are categorical. The aim is to identify those factors that appear to be most influential, on average, in this case on perceived adoption of progressive HRM. At first, using SPSS data reduction techniques, groups and categories with fewer than 10 respondents were deleted. Then the factors with sufficient number of cases (251 cases in total) were included in the regression model. After running the model a 'goodness of fit' test was carried out to test the validity of the model for each practice (Siegel, 1959). The output from the model is interpreted in Chapter 5.

4.7.1.3 Stage Three

Finally, drilling deeper into the statistical data set, a further investigation into each of the factors, was undertaken to explore the perceived impact of implementing of progressive HRM practices. The objective of this stage was to find out the way HRM practices are affected by each of the factors identified during the previous stage. The categories in each factor were compared to test for statistically significant differences between them in the implementation of HRM practices. A chi-square test was carried out to identify possibly significant differences between each category in the implementation of each practice.

To evaluate hypothesised sector differentiation in the implementation of progressive HRM practices, different types of vessels were compared. At first four types of vessels with the highest number of respondents were selected (a total of 178 seafarers). Then the percentage of the seafarers in each type who reported that their companies implemented more than half of the total practices was compared to each other to see the difference. Another test for sector differentiation was performed by

dividing the total data into two categories, short sea and deep-sea shipping. The seafarers were put into these groups according to the type of vessel they were sailing on. In the case of vessels, such as Ro-Ro, where data was not available to identify whether respondents were working in deep sea or short sea were omitted. A total of 284 respondents were included in this stage of the analysis. Then a factor by factor comparison of the sub-practice implementation between the two groups was carried out to find out the differences. Again, a chi-square test was performed to test for statistically significant differences between the two groups.

Sector-based differentiation in the implementation of progressive HRM practices was further investigated to test for a statistically significant relationship with the business strategy of the companies by whom the seafarers were employed. The Porter five forces business strategy model, modified by Glen, unpublished; Alizadeh and Nikomos, 2005) was applied to structure the evaluation. The assumption was made that the few companies within each sector that do not follow the strategy as peer companies in their market sub-sector are exceptions that can be ignored for analytical purposes here. The markets were divided into two generic types from a business strategy point of view: liner and tramp shipping, as discussed in the literature review, where the expected business strategy divides between 'quality' in the case of liners and 'cost-leadership' in the case of tramp shipping. The data were tested for statistically significant differences in the use of progressive HRM practices, bearing in mind an underlying prediction that liner strategy would tend to favour progressive HRM. Responses from a total number of 85 seafarers working on board vessels, respectively, in tramp and liner markets were selected, according to the type of vessels they were working on. Again, vessels, such as Ro-Ro, which can be in both deep sea and short sea, were omitted, to control for seagoing demographic (i.e. the sample selected for comparative analysis was limited to deep-sea shipping).

The relationship between reported implementation of progressive HRM practices and the rank of seafarers was also tested for. The ranks of seafarers were categorised into middle manager (Master) and other officers. All 357 respondents in the sample were

included in this evaluation. A comparison was made of reported HRM practices to assess whether a significantly difference between the two groups was observable.

The comparison was then extended to test for difference in seafarers' reports of HRM practices associated with their job functions on board ship, comparing the two main departments on board ships, i.e. deck and engine. A total of 315 seafarers were included in this part of the analysis as some of the seafarers such as radio officers do not belong to either of deck or engine departments. The bivariate correlations procedure (Spearman's rho type) was used to explore for correlations between various HRM techniques and the characteristics of seafarers who responded to the survey. It measures how variable or rank orders are related. This test requires that both variables be measured at least on one ordinal scale. Therefore the variables were ranked in two ordered series.

4.7.2 Qualitative Analysis

Qualitative data assembled from managerial representatives of the 10 shipping companies were subjected to qualitative analysis, following a step-by-step approach in which themes were traced, summarised either in the form of indicative verbatim quotes or by paraphrasing remarks. The analytical procedures to transform the qualitative interview data in its raw form into meaningful explanations and interpretations of the issues under investigation, was informed by the work of Miles and Huberman (1994). To store data recorded interviews (which had been recorded for this purpose) were typed into word processing documents in the form of written transcripts. The next step was coding and further developing the categories inductively. This coding (sifting through the data set) was informed by reflection on the themes identified during the review of existing literature relevant to the field of study. The themes are of course not inconsistent with those informing the quantitative analysis discussed above. In total, 13 substantive categories were identified, with numbers allocated in each case to facilitate the detailed coding procedure (Table 4.1), and the content of the interview transcripts were coded accordingly. As Miles and Huberman (1994) argue the process of analysing a qualitative data set involved first data reduction, and then iterative process to build up a series of threads to help

interpret the principal messages contained in the empirical information. It is possible to criticise this approach as seeking to approximate quantitative analysis – the very reference to tasks such as data reduction are indicative of this character. Analysts such as Strauss and Corbin (1994) prefer a more 'grounded' approach where a priori categorisation is not introduced, and themes emerge from the primary data. This is not an unreasonable position. However, it is judged that there are benefits in terms of consistency of approach in the steps performed for this thesis to enable triangulation with the standardised data set from the seafarers' survey.

Table 4.1: Main Thematic Categories

Code	Category
100	Selective Hiring of New Employees
200	Reduced Status Distinctions and Barriers
300	Training Provision
400	Compensation – Level and Performance Contingency
500	Sharing Financial and Performance Information
600	Organisational Design Based on Decentralisation and Self-Managed Teams
700	Employment security
800	Work/life balance
900	Living Conditions on board
1000	Stress
2000	Female seafarers
3000	Business strategy
4000	Retention of seafarers

In the next stage sub-themes in each category were developed and coded accordingly. For example for the category coded 100, Selective Hiring of New Employees, seven sub-practices were selected as the themes describing managerial activity in this category. A complete summary of the sub-practice codes appears as Table 4.2.

Table 4.2: Themes in the Qualitative Analysis

Code	Theme
101	Attending interview/written examination in selection process
102	Making candidates familiar with the values of the company during the selection process
103	Discussing the details of job dirung the selection process
104	Internal Recruitment
105	Meeting department manager during the selection process
106	Fairness of recruitment procedures
107	Paying a fee during recruitment procedure
201	Difference in conditions of employment between corporate (shore-based) managers and other employees
301	Technical courses paid for by the company
302	On the job training
303	Management training
304	Effectiveness of training evaluated
305	Training for dual purpose job (e.g. deck and engine officer)
306	Seminar or conference attendance encouraged
401	Individual based performance related pay
402	Team based performance related pay
403	Benefits like profit sharing in addition to salary
404	Pension and social security
405	Confidentiality clause in the employment contract
406	Regular performance appraisal
501	Direct involvement in setting company performance targets
502	Employees regularly informed about market position and performance of the company
503	Regular communication/consultation meetings
504	Informing employees about important events and vacancies
505	Awareness of grievances procedures
601	Making employees responsible for setting own targets
602	Having quality circles or quality management on board
603	Teamwork encouragement

701	No compulsory redundancy
702	Long term contract (more than one year)
801	Flexible hours
901	Good standard living conditions on board
902	Difference in living conditions between masters and other officers
1001	Perception that seafaring is a stressful occupation
1002	Reasons for stress recognised
1003	Stress management policy in place
2001	Policy encouraging employment of female seafarers
2002	Recognition of reasons why the industry does not attract many female seafarers
3001	The business strategy of the company
3002	Different business strategies between different sectors of shipping In which the company is active
4001	Difficulties in retaining seafarers
4002	Company policy with regard to retention of seafarers

To be able to distinguish between the findings of each transcript, two more codes were added to the thematic codes. One of these was a code which was given to each company as illustrated in table 4.3; the other one was the line number of the transcript in which the theme was found. So the final code of each theme found in the transcript consisted of three numbers. For example, code 101 A 117 means that this is the view of the manager of company A about theme number 101 (Recruitment and Selection), which is located in line number 117 of the transcript.

Table 4.3: Company codes

Code	Company
A	A passenger company
B	A liner company
C	A crew agency
D	A short sea shipping company
E	A maritime training company
F	A short sea shipping company
G	A maritime training company
H	A liner company
I	A shipping company
J	A shipping management company

The final stage was to undertake careful reading and re-reading of the transcripts, and organising the qualitative data using the coding system developed for the purpose of the analysis. A data reduction process as a first stage of analysis was performed, to compile the coded themes into a matrix illustrating common views among shipping company managerial respondents. Using the matrix, comparison with predicted positions identified in the literature as well as with the findings identified in the quantitative data set was made possible, contributing to the overall study analysis.

4.8 Profile of respondents

In this section, the characteristics of, first, the shipping companies whose management agreed to an interview and, secondly, of survey respondents are described.

4.8.1 Shipping Companies

HR managers and senior managers in ten shipping companies, ship management companies, crew agencies and maritime training companies were interviewed. A brief description of each company and interview respondents is given in Table 4.4.

Table 4.4: Companies and Interviewees Characteristics

Company	Place of registration	Year established	Type of company	Number of employees	Financial situation	Interviewee(s)
A	UK	1972	Cruise Shipping Company	65,000	Revenue $11,839m	Senior manager in charge of fleet personnel recruitment, training and cadets Recruitment manager
B	UK	1992	Liner Shipping Company	350	Turnover $150m	Chief Executive
C	UK	1988	Crew Agency	n/a	n/a	Head of Training Head of Recruitment
D	UK	1908	Short Sea Shipping Company	300	n/a	Managing Director
E	UK	1978	Maritime training company	n/a	n/a	Training Manager
F	UK	1905	Short Sea Shipping Company	2000	n/a	Cadet Training Officer
G	UK	1914	Maritime training company	n/a	n/a	Director
H	UK	2002	Liner Shipping Company	1000	n/a	Junior Vice President HR Manager
I	Cyprus	1988	General Shipping Company	3591	n/a	HR Manager
J	Cyprus	1991	Shipping Management Company	n/a	n/a	Administrative Director

Company names are withheld to maintain anonymity - a condition of access.

4.8.2 Seafarers

As noted earlier, a total of 391 questionnaires were returned of which 357 were considered valid for the purpose of the thesis research[28].

4.8.2.1 Function and Rank of Respondents

The majority of seafarers who responded to the survey were deck officers. Among them, masters had the highest level of representation. In the engine department, the most senior rank, chief engineer also contained the greatest number of respondents. This is positive for the purpose of this study since these high ranking seafarers have long experience of working at sea and are therefore likely to be familiar with employment practices across the industry. Table 4.5 details respondents by rank.

Table 4.5: Rank of the Seafarers who Responded to the Survey

Rank	Number of respondents	Percentage
Master	109	30.5
Chief Mate	50	14.0
Deck Officer	47	13.2
Chief Engineer	64	17.9
Second Engineer	28	7.8
Engineer Officer	17	4.8
Others (Electrician, etc.)	42	11.8
Total	357	100.0

4.8.2.2 Nationality of Respondents

Most of the respondents in the sample gave their nationality as British, as would be expected from a sample was taken from among the membership of the main British seafarers' union. This sample demographic carries with it the expectation that being subject to protection under British employment law respondents' living and working

[28] It was explained in the Introduction that this research is about active marine merchant officers currently working on board a ship. Therefore any retired seafarers, shore based job seafarers, pilots and so on, were considered invalid for the purpose of this study and removed from the sample.

conditions on board the vessels they serve on will be of a high standard relative to seafarers working on other ships who are not covered by UK employment protection.

Combined with this situation report of difficulties being experienced by employers in recruiting and retaining British seafarers, it may be anticipated that respondents will have a tendency to report being subject to progressive HRM – at least in terms of attraction and retention. Table 4.6 lists the distribution of respondent nationalities.

Table 4.6: Nationality of Respondents

Nationality	Number of respondents	Percentage
British	343	96.1
EEA & EEU	5	1.4
Others	9	2.5
Total	357	100.0

4.8.2.3 Age of Respondents

Almost 80% of respondents are aged over 40 years. Table 4.7 lists the age profile of survey respondents. This finding is in keeping with the secondary data discussed in the literature review showing that the seafaring population is an aging one.

Table 4.7: Age profile of Respondents

Age Group	Number of respondents	Percentage
Under 21	2	0.6
21-30	38	10.6
31-40	33	9.2
41-50	109	30.5
51-61	146	40.9
Over 61	29	8.1
Total	357	100.0

4.8.2.4 Gender of Respondents

An overwhelming majority of respondents (98%) are men. The minority female seafarers are young low rank officers. While the industry may eventually have realised the need to attract women to work at sea, their arrival is very slow, as will be discussed in Chapter 6. Table 4.8 lists the gender profile:

Table 4.8: Gender Profile of Respondents

Gender	Number of respondents	Percentage
Male	350	98.0
Female	7	2.0
Total	357	100.0

4.8.2.5 Type and Nationality of Respondents' Employer

In response to the question asking about the type and nationality of the company they are working for, the results of the survey indicate that the sample of seafarers are employed either directly by shipping companies (the majority position), by shipping management companies, or through crew agencies (Table 4.9).

Table 4.9: Type of Companies Employing Respondents

Type	Number of respondents	Percentage
Shipping Company	217	60.8
Shipping Management Company	79	22.1
Others (Crew agency, etc.)	61	17.1
Total	357	100.0

Table 4.10: Nationality of the Companies

Nationality	Number of respondents	Percentage
UK based	224	62.7
EEA & EEU	65	18.2
Others	64	17.9
Unknown	4	1.1
Total	357	100.0

Table 4.10 demonstrate that the majority of the respondents are working for British companies. As with the details of respondents' own nationalities, for the purpose of this research it judged advantageous that a majority of seafarers who have supplied information work as a direct shipping company employee and that the company is headquartered in a traditional maritime nation. This adds weight to the anticipation that advanced forms of people management meeting high standards will apply, as a basis for testing for the incidence of progressive HRM practices. An interesting point in Table 4.10 is that four seafarers are working on board a vessel, without apparently knowing who the owner is. This is a particular characteristic of the shipping industry, where seafarers are employed through crew agencies to work on board vessels with little or no information on whom the ultimate employer may be.

4.8.2.6 Type of vessel

The seafarers who responded to the survey work in about 30 different types of vessels. These ships are in both deep sea and short sea shipping. Table 4.11 lists the type of vessels as well as the number and percentage of seafarers in each type. While

there are some concentrations – e.g. liners, passenger carriers, Ro-Ro, supply, tankers – there is a fairly wide spread of vessel/sub-sector types included in the dataset.

Table 4.11: Type of vessel

Type	Number of respondents	Percentage
Bulk Carrier	4	1.1
Tanker	53	14.8
Liner (General cargo or Container)	28	7.8
Passenger	24	6.7
Ro-Ro	73	20.4
Gas carrier	14	3.9
Buoy tender	5	1.4
DP vessel	2	0.6
Survey ship	9	2.5
Research	4	1.1
MODU	6	1.7
DSV	18	5.0
Supply	20	5.6
AHTS	13	3.6
PSV	7	2.0
Semi-sub Floater	6	1.7
FSU	4	1.1
MPOV	5	1.4
Fishery protection	5	1.4
Tug	14	3.9
Standby vessel	8	2.2
Offshore construction	4	1.1
Hovercraft	1	0.3
Mining	1	0.3
Nuclear	3	0.8
EPRV	8	2.2
Sailing vessel	2	0.6
Cable	4	1.1
Dredger	8	2.2
Car carrier	4	1.1
Total	357	100.0

4.9 Reflections and experiences

The complex nature of academic research implies that the investigator has to cope with a variety of practical challenges over and above those connected with theory development and empirical analysis. Work on the present thesis is no exception. Before concluding this chapter, some reflections on problems, which were experienced and resolved during the conduct of this research may be helpful to future researchers who wish to undertake similar work in the same field of study. These are presented in summary as an illustration (Figure 4.1), complemented by the following discussion of the 'research journey.'

From the outset it was evident that researching the way seafarers on board merchant marine vessels are managed constitutes a 'sensitive topic', defined according to reasoning offered by Lee (1993: 4) where, for example, the activity may be viewed as threatening to "the vested interests of powerful persons or institutions" – in this case, shipping industry employers. The not unusual problem of access to organisational settings for a management researcher (Saunders et al., 2000) may be perceived as amplified given the controversies reported about employment practices in the shipping industry, discussed in the first and second chapters of the thesis. The likelihood of managerial respondents seeing it as likely to advance their interests to reveal practice inside their firms is not readily obvious – even though the research orientation has been to discover evidence of progressive HRM practice. Lee (op. cit) makes the point that, where there is a risk that managerial activity that could be classified as 'deviant' (say, from 'best practice' norms) might be surfaced that might be "stigmatizing or incriminating", resistance to intrusive inquiry might be anticipated. Although a first approach to data collection was to mount self-administered surveys, following a standardised form of questioning to facilitate comparisons between the frequencies of responses by managerial respondents, on the one hand, and seafarers, on the other hand, it became evident that the intention was not going to be realised. As described earlier in the chapter, a sample of companies within the international shipping industry was identified and self-administered questionnaires distributed, and followed up by direct approaches. But the initiative was comprehensively ignored. Perhaps the barrier was attempting to capture an

internationally distributed sample; perhaps it was the standardised approach to data gathering, but the activity was clearly fruitless. Reflection on this major stumbling block to effective primary research activity and conversations with other researchers in the researcher's higher education institution opened up avenues, through existing network linkages. An introduction to the British Merchant Navy Training Board lead to the successful snowball sampling that has been described. While this meant narrowing the sampling frame from the initial 45 international companies, it may be judged as indicating the potential significance of cultivating relationships where goodwill may exist, provided the researcher is able to interest individuals in gate keeping roles to act as facilitators within their professional networks. The lesson is that, while there may be an aspiration to maintain detachment from respondent groups to maintain objectivity, the reality of gathering data, especially where the context may be sensitive as defined above, suggests that time invested in exploring interpersonal relations can be well placed. And, being forced to reconsider the practicalities of accessing primary research data can, as in this case, deliver valuable benefits in re-specifying how to understand a management research problem. The ability to undertake mixed methods research, incorporating qualitative interviews, has opened opportunities to secure insights described in respondents' own terms not immediately evident in extant literature, in what remains an emerging field of study. In short, research journey involved a shift from what may be perceived as an overly simplistic search for 'facts' to a search for 'meaning', accounting for research respondents' subjective sense making (Weick, 1995). The emergent issues during the process of data gathering prompted a return to the literature to guide the interpretative approach. In this way, the potential to confront empirical findings with arguments from the resource based theory of the firm and complementary HRM literature was recognised by the researcher. The lesson is that in tackling business and management research questions, especially where these are sensitive, there are benefits from a willingness to adopt an iterative approach, under which a naïve adherence to the temptations of linear thinking are to be resisted.

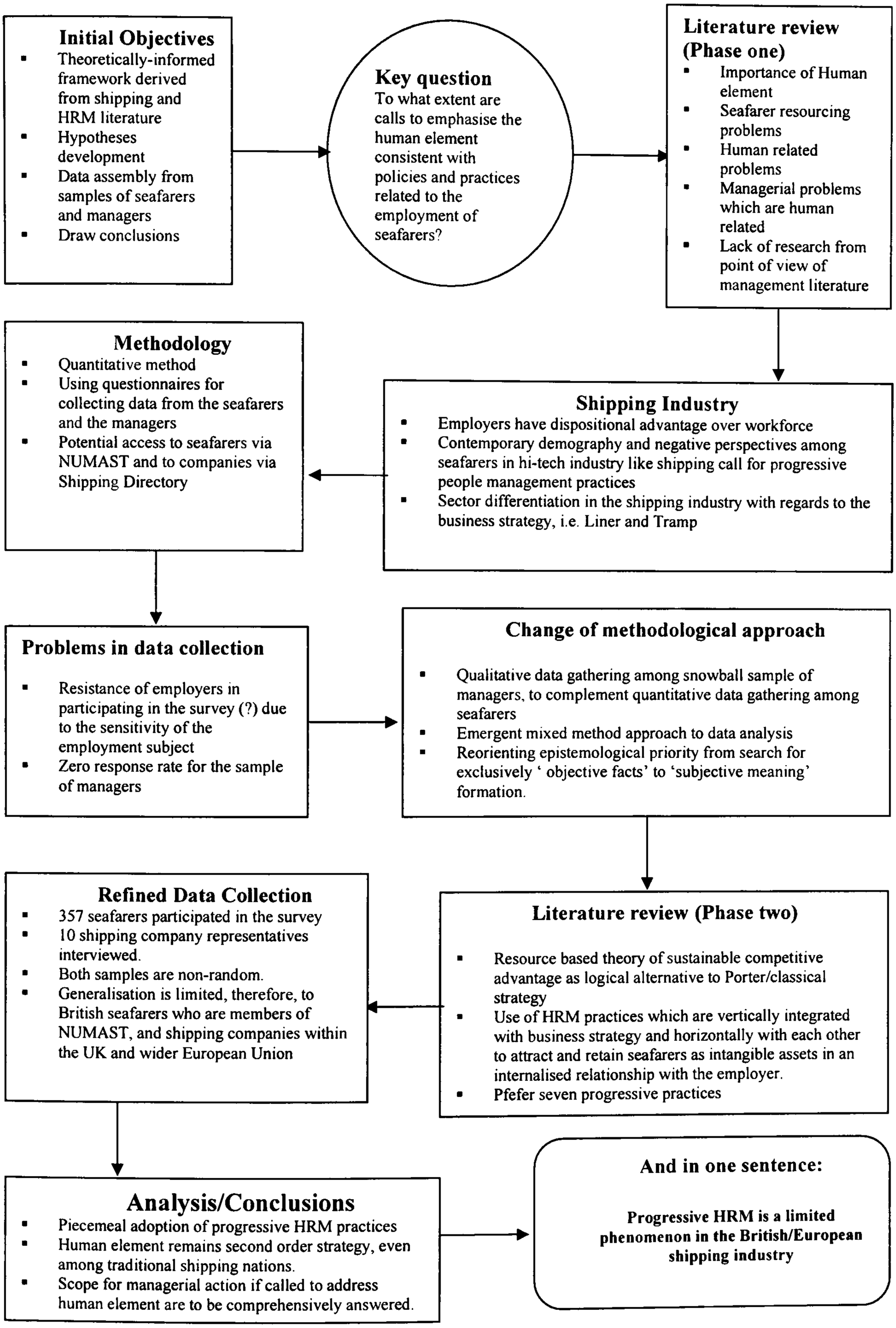
Another major issue with practical implications for obtaining empirical data related to the seafaring population, whose place of work is highly mobile. This introduced a

different set of considerations to that associated with accessing the managerial population, although clearly had the researcher been reliant on securing managerial consent to access seafarers that line of inquiry would also most likely have foundered on the apparent unwillingness to reveal organisational aspects to an academic researcher. While researchers studying people management in international settings are all likely to face problems in terms of the dispersion of potential respondents, as well as coping with diverse cultural and institutional characteristics, the fact that seafarers move around the world – in effect, with no fixed workplace address – adds a further layer of challenge. Methodological consequences flow from this in terms of the decisions to be made: if it was felt that, as in the ultimately successful approach to managerial representatives of shipping companies, a face-to-face encounter (or at least extended telephone conversation) was appropriate the costs securing access to a number of ocean-going vessels during operations would be significantly beyond he means of a sole researcher. This is the case even if the barrier were simply limited to the sheer time required for such activity. Arguably, approaches could have been made to seafarers during shore leave; but given the reported pressures on the individuals concerned it was judged that an insufficient number would be willing to sacrifice precious 'home' time to participate in research interactions. Given the line of inquiry it was deemed acceptable, as well as cost-effective, to seek seafarer opinion on their employment experience following a standardised data capture instrument. To overcome the access barrier, institutional relationships facilitated an introduction to a leading UK seafaring trade union, where a gatekeeper union official was interested in the project and willing to facilitate the means to seek responses from a seafaring population that in effect was consistent with the primary headquarters country of most management respondents. But there was a cost (or trade-off) in research terms. The trade union representative argued forcibly in favour of 'keeping questions simple', to accord with past practice in union-sponsored surveys of their members. To retain the goodwill of this key facilitator, it was accepted that the data type would be limited to binary data – although there was scope for some open-ended responses where qualitative opinion could be written in by respondents willing to augment their standardised answers. Indeed, this was fortunate in illustrating for example perceived sources of stress, as will be reported in the next chapter. Thus, on reflection

subsequent to the initial round of data analysis, imagination was required to discover data analysis techniques (e.g. the factor analysis undertaken) to enable more sophisticated inferential evaluation of the data set. The lesson learned in this regard is that, while critical in respondent access terms, the relationships that must be cultivated and exploited constitute a mixed blessing, necessitating compromise and hence limitations to generalisation from academic inquiry.

Figure 4.1: Research Journey

(Source: Author)



4.10 Summary

The research design underlying this thesis has been defended, including a review of considerations pertaining to the adoption of a mixed methods methodology. Details of sampling and data collection instrument composition have been articulated, along with the practical aspects of securing access to conduct a self-administered survey of seafarers and interview a group of shipping company management respondents. Details have been set of concerning the quantitative and qualitative analysis performed to evaluate the research propositions, to enable primary data to be confronted with theoretical and empirical material identified in and organised from relevant academic and shipping industry sources. Issues around research ethics as well as lessons learned in undertaking the research for the thesis have been described. Finally, demographic statistics covering the empirical samples arranged for the research study have been described in summary. Detailed findings and analytical results are presented and discussed in the two chapters that follow.

Chapter Five: Findings

5.1 Introduction

In this chapter, qualitative and quantitative empirical research findings are presented. The material is organised following the hypotheses, and illustrated by reference to operational indicators, developed in Chapters 2 and 3, informed by the review of relevant literature on the shipping industry, seafaring, and HRM ideas and practices. The chapter paves the way for analytical discussion, to evaluate the research hypotheses, in Chapter 6. References in what follows to 'shipping company respondents' mean the representatives of management in the sample of shipping companies accessed for data gathering using qualitative interviewing. References to 'seafarers' means respondents from among the sample of seafarers who responded to the survey questionnaire.

Principal findings (developed in detail over the remainder of the chapter) are as follows. First, in the case of shipping company respondents, differences in business strategic orientations are evident, comparing industry sub-sectors. Quality of customer service emerges as a principal driver in liners markets. In relation to people management priorities, shipping managements appear to be especially concerned about seafarer retention. Implying a greater interest in long-term relations with core workforce members, cadet-training features in responses as one route selected to tackle the problem. A counter-trend is willingness to rely on short-term outsourcing to balance seafarer demand and supply. In response to reported inadequacies in the employment relationship on offer to seafarers generally, however, while institutional regulation features in shipping company respondents' observations, limited evidence emerges to suggest a strategy of implementing terms and conditions beyond those required to meet minimum levels under international regulations.

Among seafarers, the data sample evidence suggests that flag of registration and employee nationality are the principal factors influencing the quality of 'employment offer'. A second line of association appears to exist between the vessels seafarers sail in and their employment experience, indicated in terms of satisfaction with contractual terms, and in the incidence of reported 'progressive HRM practices' (as

defined in Chapter 3). Three issues surface in the data set as major concerns among seafarers: reward levels and basis for their determination; occupational status distinctions; and employment tenure. Seafarers claim high work-life stress levels, a contemporary concern acknowledged among shipping management respondents. However, little evidence emerges from the interviews suggesting managerial confidence in having policies in place to resolve this pressing concern.

The chapter is organised sequentially according to the 16 hypotheses, but divides into two primary components: (1) the issues developed theoretically in Chapter 2 about seafarer employment management, its influences and consequences; and (2) considerations resulting from the shift of emphasis in predictions for HRM in the shipping industry developed in Chapter 3. Findings are triangulated by the combination of survey evidence from seafarers, on the one hand, and qualitative interview data from shipping company representatives (in managerial roles), on the other hand. Although the seafarer perspective is primarily quantitative, the statistical analysis is complemented in places not only by the managerial view from interviews, but also from the non-standardised material collected as part of the survey, when seafarers added supplementary commentary in their own words.

To inform inferential statistical work on the survey findings, data are reduced using quantitative tabulations, and associations are then explored using various non-parametric tests (e.g. Chi-square and Spearman) to assess the statistical significance of relationships identified when organising sub-sets of the data in particular ways. Qualitative data are also reduced and tabulated thematically (using either issues to do with the seafaring employment experience (Matrix 5.1) or grouped according to the Pfeffer (1998) seven HRM practices from (Matrix 5.2) . In each qualitative tabulation, the matrix is composed based on reviewing both substance and process indicators, so as to offer a more rounded picture of how as well as what is observed. The logic for organising the qualitative data using a matrix approach is that, on the one hand, reducing the interview transcripts to key themes that may be displayed in a single table enables an overview to be grasped of the underlying issues and their possible interconnection (Miles and Huberman, 1994). In Matrix 5.1, comments

reflecting shipping company respondents' views, for example, of perceived living and working conditions on board ships ('the experience of being a seafarer') may be observed simultaneously with perceived outcomes in, say, levels of stress ('consequent on the experience of being a seafarer'). The examples helps to defend the choice, on the other hand, of organising the rows of the matrix between the substantive aspects distilled from what shipping company respondents said about each of the issues described in the columns and the processual aspects. Not only what may be claimed in terms of corporate policies and practices but also summaries of how the managers concerned apparently viewed the policies and practices being operated. The two dimensions enable a more comprehensive view to be presented not only of the range of features framing the experience of being a seafarer and its potential outcomes, but also to offer depth to complement this breadth in the way, according to managerial descriptions, processes work – enabling reflection on ways substance and process appear to be positively aligned and where tension between policy ideals and practical outcomes may be present. The same logic applies in the case of Matrix 5.2, in this case specifically reflecting longstanding normative HRM commentary that emphasises the need for an holistic view (e.g. Beer et al., 1984; Fombrun et al., 1984; Guest, 1987), repeated in the way Pfeffer (1998) presents his seven practice-bundle that operates against the ideal not only in terms of substance (what practices) but process (how managers interpret and act on the policies during implementation).

The focus of what now follows, in the first of the two core components making up this chapter, is placed on exploring influences that have been predicted between business strategy, vessel type, regulatory context, flag of registration, and seafarer nationality and the character of employment experience on offer to seafarers. Demographic issues related to seafaring resource management are investigated to identify how supply and demand appears to be being managed, as seen through the eyes of both the seafarers and managers in the samples. Attention in this component then turns to views on the seafaring employment experience, consequent on the way it is being managed, informed by the triangulated findings from the survey responses as well as the interview data.

Matrix 5.1: Thematic Issues Matrix

	Business strategy across core shipping sub-sectors	Living conditions on board	Retention of seafarers	Employment of female seafarers	Stress at sea	Work/life balance
Substantive	- There are different business strategies for different sub-sectors - Liner sector is different from tramp - Liner market is different from tanker and chemical	- Living conditions on board are excellent - Living and working conditions depend on the flag of the vessel, ILO rules and ITF guidelines - For British ships we have to have higher standards - Masters have more facilities due to nature of their duties - Higher ranks have larger cabins - Like a boss in the company who has a bigger office, masters have bigger room and a separate office	- With the life style ashore today it is difficult to retain seafarers at sea - Visiting other countries is not an incentive anymore - Seafarers have opportunities to be at home with their family - The image people have of seafaring is not good	- There is an equal opportunity policy - There is no sex discrimination - There are female seafarers in junior ranks - It is just the physical fact that women have to have babies so cannot be at sea - The inflexibility of the job makes it difficult for females - It is a male environment so difficult for women - Male seafarers sometimes are not happy having females on board	- Seafaring is a very stressful job - It depends on the person - The environmental aspect of the job makes it stressful - Work intensity is the problem - Living and working with small group of people and being away from family for some time are the reasons - Short passages and quick port turnaround are the causes of stress - Legislation and time pressure bring stress - Lack of enough rest is the cause of stress - Too much paperwork causes stress	- They should know this is the life of seafaring
processual		- Upgrading the current ships - Building new ships	- Cadets need to go on ships at early stages to see if they like the job or not - attractive reward package and good training to retain the seafarers - Giving them a sense of loyalty to the company - Giving them the assignment to return to - A proper recruitment process improves retention	- Encouraging females to join the company - Changing the image takes time	- Monitoring the extra pressure - Bringing social happiness in order to control the stress - Medical treatment in cases where seafarer request it - Seafarers can contact a government agency for counselling - Colleges must have some sort of training - It should be done through STCW - It is down to the safety department	- Agreement on flexible working hours - Having two or three sets of crew in order to be flexible with seafarers

Matrix 5.1 (above) offers a summary display of views expressed by shipping company respondents across a range of thematic issues: living conditions on board, stress at sea, the employment of female seafarers, business strategy across the sub- sectors of the shipping industry (reflecting markets and vessel types), retention of seafarers, and work/life balance. Content from the display is drawn on and expanded to complement discussion in sections 5.2 – 5.13 below of relevant aspects from the survey of seafarers summarised in statistical terms. Interestingly, one aspect common to the themes of retention, stress, and work/life balance, considering the views of both managers and seafarers, in the non-standardised survey data summarised below, covering how seafarers feel about the sources of satisfaction and tension (or 'stressors'), greater weight seems to be placed by respondents on the work-related aspects as the job becomes more complex, more subject to paperwork, and more time-pressured to address customer service demands. Issues in the literature that may be related to the traditional sources of dissatisfaction (isolation for example in a life at sea) appear to be downplayed in the rank order of issues volunteered by seafarers when asked to comment in the survey.

5.2 Evidence regarding whether or not shipping operators adjust their position on the cost-quality strategic continuum across market sectors contingent on issues such as the cargo specialisation, financial liability exposure risks, and scope to 'manage' customer relations

Asked to comment on business strategy, shipping company respondents mentioned the following as key themes: achieving market leadership in worldwide shipping, protection of the environment, safety of operations, and training of young seafarers[29]. Attention to cost reduction and quality issues was indicated in the views expressed. While reasons offered varied to some degree, the position among respondents was that a different business strategy was required to match the market and operating conditions across the different sectors of the shipping industry. The inference was that, due to customer demands, the liner market was a more challenging management proposition than tramp shipping. For example, the chief executive of a shipping company said:

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[29] In one instance an HR and Training manager interviewed admitted ignorance of the company's business strategy, referring the researcher to the managing director for an answer to the question. While the situation may be anomalous, perhaps it is suggestive of the lack of integration in some shipping companies between HR functions and other corporate activities, suggesting possible limitations on specialist input into business aligned HRM strategy.

> *...definitely, liner is more demanding ... in the liner business you know you are really talking to varieties of customers, and on your ship you may have two hundred customers; whereas in tramp you may have one or two customers.*

Adding some texture to this general statement the manager of a liner company said:

> *I think the container ships are different than, for example, tanker or chemical ...the container is more dangerous than with other vessels, [and] ... the time in ports is very short, very quick, not so many people on board only just to the regulation, minimum requirements...*

Potential hazards and speed of turn around in port combine with high value cargo risks and 'just-in-time' delivery expectations on the part of customers. As another shipping company respondent stated:

> *...container ships are very, very tightly controlled, you know; some of the cargoes are a lot more expensive [than those carried by tramp vessels], perishable you know in refrigerated containers ... you just see the deadlines. Ten hours in port; turn around back to Europe, you know, three months turn around. Probably at the start of being at sea,[unlike today] in that little ship the cargo was not so valuable and, if it arrived a bit late, it did not really matter.*

Shipping company respondents cited customer demand as the primary force governing business strategic emphasis, vessel by vessel, even within a single company. For example in a cruise company, which operates vessels in different lines, the business strategy varies according to the type of passengers served. For example, one company in the sample runs cruises demand for which tends to be among elderly British passengers. The strategic emphasis is quality of service, defined in terms of satisfying expectations among this type of passengers for a very 'traditional', 'British-flavour' offering. On another line whose service is targeted more towards young passengers, the orientation is different. As stated by a company representative:

> *The officers are very mixed nationalities, British, Italian, Eastern European, [which is acceptable] because contact with the passengers is informal: you know, very little in the way of uniforms on board and cocktail parties [in contrast with expectations among traditionalist 'senior citizens'].*

This 'high-touch' strategy was emphasised by respondents in sectors where direct contact between seafarers and a vessel's immediate 'customers' is the norm. The point was stressed by a senior recruitment manager of a passenger company, comparing cargo

ships with passenger ships, based on direct personal experience working across the market sub-sectors:

> *I worked long time ago in a general cargo ship company and their business was based on time and product damage – and accepted damage. [In the present liner company] we do not really accept 'damage'; and every single thing we do is customer focused. [The comparative position] changes our business quite considerably.*

Competitive edge to sustain market share in liner sub-sectors such as the cruise market depends totally on the quality of service rather than the cost, as the senior manager of a cruise company observed:

> *I think once you've damaged your reputation it is very, very difficult to come back. You know our passengers have a big choice: they pay a lot of money to go on a ship for vacations and they have got a lot of choice to go to different lines...*

While not as 'hands-on', respondents from management companies, which manage ships on behalf of the ship owners, also indicated that they tailor strategic orientation according to their clients and type of market the client, in turn, is working in.

The factors determining business strategy mentioned by shipping company respondents are, therefore, a reflection of customer demand, type of service and characteristics of the market. Safety of navigation and prevention of pollution also feature in reported rational for selecting business strategy. Comments by shipping company respondents contained no evidence suggesting active management of an oligopolistic relationship with customers, to the advantage of shipping companies.

5.3 Relative quality of contractual terms reported by seafarers associated with place of vessel registration

Shipping company respondents reported that their companies apply different policies to specify employment contracts applicable to seafarers they employ, according to their nationalities and the flag of registration of the vessel they work on. According to one shipping company respondent:

> *The packages [applicable to seafarers in vessels managed by this company] are slightly different because of different nationalities [of seafarers employed] but ..., if the company is making a profit then they*

> *can share a little bit – like a pension fee. The package depends on their country standard of living. It would never be the same.*

Seafarers' compensation levels reflect the standard of living in their country of origin. An officer from a developing country, for example, is paid less than a seafarer occupying a similar position from a developed country. In the same company, then, different pay and other employment conditions vary between the seafarers employed according to the flag of registration of the ship they are working on. For example, a manager interviewed in one of the companies that operate ships under British and other flags confirmed that the standard of working and living conditions of seafarers is higher in British flag vessels than others in the fleet:

> *Definitely, the standard of the flags is different. For British ships of course we have to keep to a higher standard [due to registry regulations]. We are using the British ships, for example, in UK coastal operations where the quality of that kind of ship is more in demand.*

The final sentence in this quote suggests that operating market is reflected too in seafarer sourcing and contractual terms. Under open registry flags, respondents indicate terms limited to basic pay with no other additional benefits. Training is usually not provided or paid by the company and no planned career path is offered to seafarers, under a long-term tenured employment relationship. In contrast shipping company respondents with vessels registered under flags of traditional maritime nations claim that their firms apply comprehensive training programmes, clear career paths and an attractive employment reward package, including union-based payment, social security, profit sharing, and retirement pension. They also provide flexible hours of work and shorter periods of working at sea.

In the case of reward packages, there is a disparity in the evidence assembled, between managerial claims and responses from seafarers, which suggests anomalies, given the demographics of survey respondents – mainly European nationals working for European companies. The vast majority of seafarers (81.5%) state that their companies do not pay any additional benefits such as profit-sharing or stock based awards. A majority (57.4%) also state that they do not have any form of social security or retirement pension scheme.

5.4 Opinion among seafarers regarding quality of employment relationship, accounting for market and vessel types

Seafarers working in different shipping market sub-sectors express different views regarding the quality of their employment contract. For example, 80% of the seafarers on board tanker vessels report disparities in contractual terms between themselves and their managers ashore. The figure reported among seafarers in Ro-Ro vessels and passenger ships is 59% and in liner vessels 50%. Another difference among seafarers occurs in relation to pension and social security, where 100% of seafarers working on board research vessels report that their companies provide these employment package elements, while all seafarers employed on board gas carrier ships say that their companies do not cover these contractual elements. 67% of seafarers on Ro-Ro- vessels, 18% of those on tankers and 42% of liners reported that they do not have this benefit.

5.5 The link between market- and vessel-contingent business strategy and people management orientations

As reported in section 5.2, shipping company respondents indicate a match between business strategies and market sub-sector. With regards to people management strategy, some respondents appear to believe that differentiation should not extend to treatment of workforce members. For example, one manager stated:

> *No, no. Humans are humans. So I need a, I need a high performing talented individual either in one sector or in the other. You know you cannot have double standards for human beings.*

This is not a consistently held viewpoint, however. Other shipping company representatives argue in favour of varying recruitment, training, and contract terms contingent on the characteristics of each sub-sector and vessel type. The manager interviewed in a cruise company justified this on the basis of characteristics sought among seafarers. The type of seafarer recruited to work on a cruise liner is one who "can interact with the passengers and be sociable" - characteristics that are unnecessary in the case of a seafarer sailing on a tanker vessel:

> *We have to recruit people who we think can work on a passenger ship not just for their skills, I mean to be a very good officer or a very good engineer. I think if you work in the tanker trade you can just recruit somebody who is a good engineer; you don't care about their personal*

skills or how they look or how they perceive themselves towards passengers - they do it [customer orientation] as an addiction.

With regards to training, another shipping company respondent reported that different sectors of shipping need special training for the seafarers employed, according to the type of vessels in that sector. An illustrative distinction was made between tanker, liner and bulk vessels. Employment conditions extending to aspects such as the length of service at sea and leave periods are also reported as differentiated according to the type of market a vessel operates in. For example, in coastal shipping where the voyages are short the crew work three weeks on and three weeks off. This contrasts with deep sea markets where, in some cases seafarers serve nine months on and two months off.

5.6 Regulatory influences on business and employment policies flowing from global maritime industry socio-political institutions

Shipping company respondents referred to regulations administered by international maritime bodies such as the IMO, ILO, ITF and national unions such as NAUTULIS (UK), when describing employment policies in their companies. The STCW convention was recurrently mentioned during interviews as the base for seafarer training programmes. Shipping company respondents report that they provide training for statuary courses under the requirements of this convention. These were referred to as mandatory courses, which the seafarers need to attend to obtain the forms of certification necessary to serve on board the ships. IMO regulations also featured when interviewees discussed recruitment policy, in terms of requirements to check certificates of competence to serve held by seafarers. Reference to international regulations also arose when shipping company respondents discussed issues such as stress, work-life balance, and onboard living and working conditions. One respondent made a particular connection between work/life balance and ILO requirements, as well as demands by the ITF. Regulation anticipates limiting seafarer working time to a maximum 14 hours per day. Another shipping company representative expressed the following view about stress at work among seafarers:

According to 'ILO Form 180', a crewmember is entitled to rest for 10 hours a day. So that means he is allowed to work 14 hours a day. So it goes, as I said before, that a seafaring life is very, very stressful ... Very, very often you are working two or four or five days without much sleep.

Shipping company respondents said that seafarers' pay was based on agreements reached with the relevant national or international unions. Respondents in companies with vessels sailing under the British flag said pay levels were in accordance with standards agreed with UK seafaring union NAUTULIS.

5.7 Seafarer satisfaction with living and working conditions aboard the vessels on which they are employed

Survey results show 71.4% of seafarers as satisfied with the living conditions on board the vessels they sail in compared 26.6% mentioned (2.0% give no answer). Table 5.1 summarises the findings.

Table 5.1: Living Conditions on Board

Comment	Frequency	Percent	Cumulative Percent
Satisfied	255	71.4	71.4
Not Satisfied	95	26.6	98.0
No Answer	7	2.0	100.0
Total	357	100.0	

Test Statistics: Chi-square=265.681, Asymp. Sig. = 0. 000

The Chi-square test was carried out which shows that the result is significant.

5.7.1 Living Conditions on Board Vessels and Rank of seafarers

It is understood that the senior ranks of seafarers have better on board facilities, such as bigger rooms, in comparison with lower ranks. Therefore, a bivariate association was tested for (using Spearman's rho for variables arranged in rank order) to identify whether or not any statistically significant relationship exists between the rank of seafarers and their view on living conditions while at sea. Based on the results displayed in Table 5.2 and Table 5.3 applying the procedure to data from seafarers in deck and engine departments, no significant correlation between rank and satisfaction of living conditions on board vessels was found. Indicating possibly reduced satisfaction among high rank seafarers compared with lower ranks, however, qualitative observations by masters and chief engineers compared current conditions adversely with facilities enjoyed by high-ranking officers in the past. Living conditions on board the new vessels are perceived to have deteriorated, expressed by references to smaller rooms, poorer quality of food, and reduced time for social life.

Table 5.2: Living Conditions on Board Vessels Correlated with Rank of seafarers (Deck Department)

			Rank	Living Conditions
Spearman's rho	Rank	Correlation Coefficient	1.000	.500
		Sig. (2-tailed)	.	.667
		N	3	3
	Living Conditions	Correlation Coefficient	.500	1.000
		Sig. (2-tailed)	.667	.
		N	3	3

Table 5.3: Living Conditions on Board Vessels Correlated with Rank of seafarers (Engine Department)

			Rank	Living Conditions
Spearman's rho	Rank	Correlation Coefficient	1.000	.500
		Sig. (2-tailed)	.	.667
		N	3	3
	Living Conditions	Correlation Coefficient	.500	1.000
		Sig. (2-tailed)	.667	.
		N	3	3

5.8 Conditions on board merchant shipping vessels and flag of registration

Two shipping company respondents specifically talked about the relationship between the flag of the vessel and the working and living conditions of the seafarers on board. Their comments may be read as suggesting that when considering onboard conditions affecting seafarers, vessel registration is a factor taken into account. One of the respondents, working for a company having vessels in its fleet registered under different flags made the following statement:

> *... you have a working standard based on the flag of the vessel. So for example in relation to our ships which are Liberian flag, Liberia is running a kind of very strict rules on quality of life of seafarers so basically you have to follow that plus you have to again follow ILO, ITF wellbeing of the crew.*

The other respondent – this time a manager from a crew agency recruiting seafarers for different shipping companies said:

> *When we have a new client coming to us we always make sure that they are 'doing safe practice work' ... we have the theory of we won't place somebody somewhere that we won't to go ourselves. We always ask the flag of the vessel, the classification society*[30]*, and whether ISM is in place or is pending.*

No significant correlation was found between nationality of the company employing them and their assessment of on board living and working conditions, when testing seafarer survey responses (Table 5.4). Of course this may be explained by reference to the profile of respondents, who are mostly working for European companies.

Table 5.4: working and living conditions on board the vessels and flag of registration

Percentage of seafarers who are satisfied with living conditions on board (UK based company)	Percentage of seafarers who are satisfied with living conditions on board (non-UK based company)	Sig.
71	72.2	0.811

5.9 Strategic managerial action to balance Seafarer demand and supply

Shipping company respondents mentioned different strategies followed to balance the demand and supply of the seafarers. One of them is to retain their current seafarers by creating various attractive incentives. One of the respondents said that his company offers generous reward packages, competitive terms and conditions, very strong training programmes, clear career development path and so on in order to keep their talented seafarers and avoid shrinkage. They believe that this can stop the seafarers leaving the industry as one of them states:

> *I think the pay and terms and conditions [of the contract] will stop the slide of people who are leaving [the company] ...*

The other strategy mentioned by the shipping company respondents is to increase the supply by producing officers using cadetship programmes. One of the companies has

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[30] In the shipping industry, classification societies are non-governmental organizations or groups of professionals, ship surveyors and representatives of offices that promote the safety and protection of the environment of ships and offshore structures.

now a training programme of two hundred cadets, which they believe, can compensate the shortage in supply of seafarers if followed by others. In order to attract these young people to seafaring profession different ways were suggested such as marketing the profession and changing the image of the people towards seafaring:

> *you have to train young people you have to get young people of the schools and also announce and market the seafaring life in the schools and it must be the goal of every company to set a goal at training because without that we will not be able to man our ships in the future with well trained crew and also powerful crew which want to do a very good job on board of our ships.*

Another solution for balancing the demand and supply of the seafarers, which was reported, by the respondents, is the use of female seafarers. The majority of them stated that they have equal opportunity policy in recruitment and selection of the seafarers. Some of them have programmes to encourage the female to join their companies as a cadet. Their objective is to increase the number of female seafarers and indeed balance their gender diversity. This will ultimately increase the supply of the seafarers, which can help balancing the supply and demand.

One of the strategies also mentioned as the way to balance supply and demand is the international recruitment. This means going to cheap labour countries in order to fill the gap between supply and demand of seafarers in the developed countries as one of the respondents describes:

> *We don't outsource to different agency but yes we have gone to that [International recruitment] as a necessity to stop the gap but it is not proposed that we want to, that should be stopped when we catch up again.*

5.10 Gender diversity

The result of this study indicates that the shipping industry is a male dominated industry as 98% of the respondents are male seafarers. Shipping company respondents claim that they have an equal opportunity policy but admit that they have failed in attracting females to this profession. Some of them believe that the nature of the job is the reason for having few women working on boards the vessels as one of them stated:

> *...is just a physical fact that females have to have baby, they have to have some time with that baby but for male you can have a family life and be a parent but still go to sea.*

According to other respondent, seafaring job is a tight operation, which demands physical strength which females lack. In the same concept another shipping company respondent gave a real example of testing female seafarers on board the vessel:

> *We had one girl in deck rating [female officer] but she didn't last for long. She didn't have the strength even to stand up in some situations [physical strength]. We changed her job to do something else eventually.*

In contradictory, some other respondents believe that female seafarers are capable of doing any job on board the vessel. They give other reasons for not having many of them on board. One of these reasons is the image of the industry which historically being a male dominated industry. They say that because of this image women do not believe that they can do this job but those who come perform very well.

Another group of respondents blame the male seafarers for not accepting the females on board the ships. They argue that the male seafarers, young ones in particular, do not like to have female colleagues on board the vessels. Some of these seafarers, mostly in high ranks, do not rely on the female seafarers. In one case there was a problem on board when the captain behaved unfairly with the female senior cadet. When they investigated the case they realised that the captain has three daughters and wanted to behave with this female seafarer as his own daughter.

The percentage of the female seafarers working on board the ships reported by the shipping company respondents is about 1% to 5%. But they believe that this proportion will increase in future as the trend is towards more use of females in the industry. They also admitted that it is a very slow trend and it takes time to change the attitude of the women towards seafaring profession.

5.11 Ageing workforce

The result of this study confirms that the seafaring workforce is ageing as 71.2% of the seafarers are between 41 and 61 years old. 40.9% of them are over 51 years of age.

5.12 Stress at work

80.7% of the seafarers under survey (Table 5.5) and almost all of the shipping company respondents confirmed a perception that seafaring job is stressful. This finding lends weight to the views that seafarers stress is a major problem faced by shipping company management.

Table 5.5: Stress among Seafarers

Is your job stressful?	Frequency	Percent
Yes	288	80.7*
No	64	17.9*
Didn't answer	5	1.4
Total	357	100.0

* Test Statistics: Chi-square=374.639, Asymp. Sig. =0. 000[31]

To find out the 'stressors' (reasons given experiencing stress at work), the seafarers were also asked to comment, in their own words, about the possible causes of stress. Following analysis and coding of the qualitative data, the main causes of stress were identified to be "high workload", "time pressure" and "increased paperwork".

The full range of factors identified by seafarers in sources of stress at work is tabulated, listing coded categories in ascending order of frequencies and proportions of the total with which the factors were indicated (Table 5.6).

[31] This test has been explained in methodology. See Chapter Four.

Table 5.6: Causes of Stress Reported by Seafarers

Cause of Stress	Frequency	Percentage
High workload	38	13.47
Time pressure	33	11.70
Increased paperwork	29	10.28
Long working hours	26	9.21
Increased number of regulations	23	8.15
Lack of support by management	23	8.15
Nature of the job	20	7.09
Poor quality training	20	7.09
Reduced manning levels	17	6.02
High level of responsibilities	13	4.60
Poor physical working environment	8	2.83
Not enough shore leave	7	2.48
Commercial pressure	6	2.12
No appreciation for extra work	4	1.41
No social life on board	3	1.06
Difficulty in budget management	2	0.70
Job design	2	0.70
Lack of communication	2	0.70
Discrimination of crew by senior manager	1	0.35
Excessive e-mail and IT work	1	0.35
Job security	1	0.35
Loneliness	1	0.35
No participation in decision making	1	0.35
Routine tasks	1	0.35

The factor with highest frequency was 'high workload' (13.47%). Seafarers argue that the number of the tasks, which they do on board the vessel, has increased with the reduction in crew levels and that this has put them under more pressure. Some blamed inadequate training of new officers.

The second highest stressor was reported to be 'time pressure' (11.70%). Most of the seafarers working on board ferries[32] complained of the excessive pressure by the company on them to maintain tight schedules and a lack of understanding at management level. Another group of seafarers working on board shuttle tankers[33] argued that the fast turnaround in ports and short voyages has put them under severe

[32] Ships transporting people or vehicles between two ports and operate on a regular schedule.
[33] Tankers navigating between two ports back and forth over a short route.

pressure. They argue that there are a lot of jobs to be done in this quick turnaround, which does not give them time to rest. Some of the engineers also mentioned that short notice to make the engine ready and short stays at port meant that proper engine overhaul is not possible and this leads to more stress in their job.

The next factor is 'increased paperwork' (10.28%). Following the introduction of the ISM code, the amount of paperwork required from seafarers has increased considerably. Seafarers mentioned that this time consuming task represents an additional duty and has considerably increased their workload. The majority of the respondents who mentioned excessive paperwork as the main stressor are the masters. This might be due to the fact that one of the main jobs of the masters on board ships is the paperwork, which is communicated between shore and the ship.

26 respondents (9.21%) cited 'long working hours' as a major cause of stress at sea. Some of the seafarers claimed that they usually work 12-14 hours per day with inadequate rest periods.

Seafarers argue that the number of regulations has increased tremendously during the past decade. These include company regulations, IMO requirements, national laws, and port state control. The fifth stress-causing factor according to 23 seafarers (8.15%) was 'increased number of regulations'. Compliance with these regulations and the fear of vessel detention in case of non-conformity with them has put an ongoing pressure on the crew.

'Lack of support by management' was mentioned by 8.15% of the seafarers as the reason for having stress at work. They believe that problems such as workload, time pressure and excessive amount of paperwork are not understood or recognised by the managers ashore and consequently little support is given to the seafarers.

7.09% of the seafarers believe that it is the nature of the seafaring job, which is stressful.

7.09% of the seafarers, mostly the senior officers and engineers, blamed poor quality training especially for new seafarers as a reason for increasing stress levels. They argue that newcomers do not have the necessary knowledge despite having a certificate of competency in their hand. The senior officers cannot trust their ability and therefore are

in ongoing fear that an accident can happen at any times. This has increased their level of stress.

A total number of 17 respondents (6.02%) claimed 'reduced manning levels', leading to increased workload for the remainder, as a reason for increased stress in the seafaring job. Others were concerned that having fewer crew (co-workers) had eliminated their on-board social life. The feeling of loneliness and lack of entertainment and interaction with other people have added to their stress at work.

Some of the masters and other senior officers (4.60%) reported the 'high level of responsibilities' as a stressor on board the vessels. In their belief, commercial decisions, which they must take, social problems of the crew on board the ships, their responsibility for high value ships and cargoes, and costly accidents has increased their general level of responsibility. The criminalisation of seafarers in the case of accidents particularly involving pollution was also mentioned a significant stressor.

A few of seafarers mentioned 'poor physical working environment' (2.83%), 'not enough shore leave' (2.48%) and 'commercial pressure' (2.12%) as their reasons for experiencing stress at work. Low on the list were issues of 'no social life on board', 'lack of communication', 'job security' and 'loneliness'.

5.12.1 Stress and Age of the Seafarers

The possible relationship between stress and age of the seafarers was tested using Bivariate Correlations procedure (Spearman's rho type). The result shows no significant relationship between age and level of stress among seafarers.

Table 5.7: Correlations between Stress and Age of Seafarers

			age	stress
Spearman's rho	age	Correlation Coefficient	1.000	.486
		Sig. (2-tailed)	.	.329
		N	6	6
	stress	Correlation Coefficient	.486	1.000
		Sig. (2-tailed)	.329	.
		N*	6	6

*This is the number of groups and not the number of respondents. For more information see Chapter Four.

Table 5.7 shows the correlation is 0.486 with a rate of significance of 0.329. The acceptable rate of significant is a range of 0.0 to 0.03. Therefore in this case the age and stress are not significantly correlated.

5.12.2 Stress and Rank of the Seafarers

To see if stress is different among various ranks of seafarers an analysis of relationship between stress and rank of seafarers in each department was carried out. . To compute the data the Bivariate Correlations procedure (Spearman's rho type) was used. In deck department masters reported more stress than the other two ranks. But, as can be seen from table 5.8, statistically there is no correlation between the rank and the level of stress (Sig. =0.667).

Table 5.8: Correlations between Stress and Rank of the Seafarers (Deck Department)

			Rank	Stress
Spearman's rho	Rank	Correlation Coefficient	1.000	-.500
		Sig. (2-tailed)	.	.667
		N	3	3
	Stress	Correlation Coefficient	-.500	1.000
		Sig. (2-tailed)	.667	.
		N*	3	3

* This is the number of groups and not the number of respondents. For more information see Chapter Five.

In engine department, table 5.9, there is significant positive correlation between rank and level of stress (sig. = 0.000). It shows that stress is highest among chief engineers and lowest among engineer officers.

Table 5.9: Correlations between Stress and Rank of the Seafarers (Engine Department)

			Rank	Stress
Spearman's rho	Rank	Correlation Coefficient	1.000	1.000(**)
		Sig. (2-tailed)	.	0.000
		N	3	3
	Stress	Correlation Coefficient	1.000(**)	1.000
		Sig. (2-tailed)	0.000	.
		N*	3	3

* This is the number of groups and not the number of respondents. For more information see Chapter Five.

** Correlation is significant at 0.01 (2-tailed).

5.12.3 Stress and Length of voyage

A comparison between the seafarers working in deep sea shipping and those working in short sea shipping was made to see if the length of voyage is a significant factor in level of stress or not. The stress was reported significantly more (sig. = 0.05) among seafarers working in deep sea than those in short sea shipping (see table 5.10).

Table 5.10: Stress among Seafarers in Deep Sea and Short Sea Shipping

	My job is stressful
Seafarers working in Deep Sea Shipping (N= 144)	84.7
Seafarers working in Short Sea Shipping (N= 140)	75.7
CHI Sig.	0.056

5.12.4 Stress and Nationality of the Company

The findings show that stress is significantly more (sig. = 0.032) among the seafarers in the Non-UK based companies than those working for the UK-based companies. (See table 5.11).

Table 5.11: Stress among Seafarers in UK based and Non-UK based Companies

	My job is stressful
Seafarers working in UK based companies (N= 224)	77.2
Seafarers working in Non-UK based companies (N= 133)	86.5
CHI Sig.	0.032

5.12.5 Stress management policy

Based on shipping company respondents' observation, there is no evidence from the informed data that any of the companies have systematic stress management policy in place. Some of them mentioned that they try to minimise the stress by providing social entertainment on board the vessels. One of the shipping company respondents said that his company tries to help the seafarers have fun with their families when they are on shore leave to release the stress:

> *Seafarers given vouchers and these vouchers can be used in agencies, airlines, hotels, you know. So when they are at leave they can take families to hotels or holidays.*

In some cases, shipping company respondents said, their companies notified seafarers of how to contact specialist government agencies (by telephone) to receive stress

counselling. In other cases shore-based contacts in the company were available to discuss stress issues with seafarers. However support provision appeared fairly limited and informal.

The shipping companies, which employ the seafarers through crew agencies, believe that it is not their responsibility to deal with the issues like stress. One of the shipping company respondents mentioned:

> *We don't [have stress management policy] because as I mentioned we are trying to create as much as you know social happiness as we can and also relieve the pressure from the person but it is the responsibility of the crew agency [to deal with stress].*

A shipping company respondent suggested having training courses for the senior officers on how to deal with the stress on board as a possible way of controlling the stress. Another respondent believes that not training but education can help. He stated:

> *The college must have something not training but education on how to recognise and cope with fatigue which of course includes all these issues because stress causes fatigue and we have to be able to cope with it.*

The other shipping company respondent argued that the seafarers must cope with the stress themselves and the company cannot help in this matter. Some of the respondents also said that they are complying with the international regulations made by ILO and IMO with regards to the conditions of the work so it is not their job to be concerned about issues such as stress.

5.13 Length of employment tenure

Among seafarers, 61.9% reported that they are employed under a contract of more than one year with their companies. On the other side the shipping company respondents reported that the length of contract of their seafarers is a maximum of nine months. But they try to retain individuals on an extended basis by renewing their contracts. So it seems that what the seafarers have reported means that they stay with their companies for a long time but on an extended short contract basis. This finding serves as evidence

that companies do not guarantee continuous employment, a theme taken up in greater detail below.

Summary sections 5.2 – 5.13: Findings reported so far, indicate that in describing the business strategy, shipping company respondents talk in fairly simple terms about cost reduction and quality issues. They also mention market leadership, protection of the environment, safety of navigation, and cadet training as strategic features. With regard to the relative quality of contractual terms the results indicate that different policies are applied according to the nationality of the seafarers and the ship's flag of registration. Seafarers within various sectors of the shipping industry expressed different opinions regarding the quality of their contract relationship and a link was found between sectors contingent on business strategies and people management orientations. The results also indicate regulatory influences on business and employment policies from socio-political institutions in the shipping industry, albeit indicative of a 'minimum compliance' orientation. Findings reveal that seafarers are satisfied with their working and living conditions on board the vessels and no correlation was found between the rank of seafarers and their satisfaction with living conditions on board. But evidence was found of a link between the conditions on board the ships and flag of the registration of the vessels. In respect of the widely reported view of a shortage of qualified officers, shipping company respondents volunteered comments on what is being done to balance the demand and supply of seafarers. Although, for example, respondents claimed to have an equal opportunity policy with regards to female recruitment to seafarer jobs, in practice there are no signs that the shipping industry is anything other than still male-dominated in terms of the relative gender balance in employment. And the study confirms views that the seafaring workforce is ageing. Reported findings show that the seafaring job is stressful with main stressors listed as high workload, time pressure, and increased paperwork. No correlation was found between stress and the age of seafarers. Finally, apparently conflicting reports between shipping company respondents and seafarers regarding employment tenure may be explained in terms of the measure used: while survey respondents answered in a majority when asked if there employment lasted for one year or more, shipping management companies explained that, in the interest of keeping the people resource 'flexible' in numerical terms, their preference is to employ

seafarers over a series of renewable but not 'permanent' contracts of around nine months duration as a benchmark.

Having reported findings organised in accordance with the research hypotheses developed in chapter two, in the second component of the chapter, attention shifts to exploring empirical findings from data gathered to evaluate the extent to which a move may be evidenced in the samples towards progressive HRM associated with the internalisation of employment relationships accompanying a resource-based view of corporate strategy. Statistical analysis is performed to measure the extent to which -- across broad practice areas and in terms of their sub-components -- progressive HRM as defined using the Pfeffer(1998)/Hoque (2000) categories is perceived to be evident. The statistical analysis is complemented by qualitative material from the matrix compiled from the interviews with shipping company respondents (outlined in data reduced form in Matrix 5.2). Statistical testing is performed to assess whether or not the 50%+ benchmark proposed by Hoque (2000) as characterising 'an HRM employer' is exceeded -- and whether the results are statistically significant. These findings are triangulated using the qualitative data with an accent on seeking support for the prediction that integration across the normative practice bundle will be evident. In overview, there seems to be limited evidence either quantitatively or qualitatively that more than a small shift in the direction of progressive HRM is taking place in the sample of the shipping industry samples, even though there may be pockets where this is a stated managerial aspiration.

Matrix 5.2 summarises the views of the shipping company respondents regarding the implementation of progressive HRM practices in their companies, complementing observations that may be classified, respectively, as indicative of the substance (what) and process (how) the Pfeffer (1998) seven practice bundle appears to be evidenced in the qualitative data set.

Matrix 5.2: HRM Practices Matrix

	Employment Security	Selective Hiring of New Employees	Organisational Design Based on Decentralisation and Self-Managed Teams	Compensation – Level and Performance Contingency	Training Provision	Reduced Status Distinctions and Barriers	Sharing Financial and Performance Information
Substantive	-Assignments given to seafarers for their return. - It depends on the culture. -We encourage our people to stay and they like to.	- Outsourcing recruitment abroad - Recruitment through the HR department - Promotion within the company - Direct recruitment of officers - Cadetship recruitment - Recruiting shore staff from seafarers -No unjustified discrimination between employees - No payment required from seafarers during recruitment process	-The manager sets up the objectives for each person. -We encourage team meetings. - Master is responsible for teamwork.	- For junior officers compensation is based on appraisal. -There is no performance related pay. - The pay is according to NATULIS contract plus extras like bonus and profit sharing. - There is a programme called 'senior officers incentive programme'. - There is a civil service-type pension scheme. - There is a voluntarily bonus scheme called retirement fund. -There is a fair transparent policy.	- Statuary courses only - According to STCW requirements - Courses are paid for by companies - A shipping company: Because we recruiting through an agency we don't really undertake the training operations ourselves." - A Crew agency: "Again we won't be responsible for the observation of any training that is entirely up to the client as we are an agency more than anything else." - Not only statuary courses but also personal development training. - Training is done on board as well - Due to reduction in size of crew on board training is difficult today - There are management courses for masters in some companies.	-Senior officers have better conditions of living -Senior officers have bigger cabins and an office -Some specific training purely for senior officers -The rewards package is the same but salary different	- There is no set of objectives set up for seafarers like shore staff. -There is a communication cycle. -There is grievance procedure.
processual		- Interview - Technical written examination - Psychometric tests - Company presentation - Balanced decision-making whether to be internal or external - Transparent procedure - Informing candidates about the job description - Interview panel consists of HR representative and line managers	- To encourage teamwork all the officers are invited to a social event ashore. - Self-managed teamwork facilitated through training. - It is done through bridge team management.	- It depends on the result of each voyage. - There is a pot of money within the organisation which everybody receives a share of it according to his/her performance. - Appraisal is twice a year. - Appraisal is based on scoring system. - There is annual performance appraisal.	- Pre-planned programme - Whenever a new equipment is introduced - It is done when they are on leave. - It is done and paid for by government of Taiwan. - The effectiveness of training is assessed by feedback from officers, key performance indicators, reports from colleges, internal audit.		- There is a company manual, which the seafarers follow. - Every six months we set up the objectives. -There are meetings on board so everybody can be heard. -Shore manager regularly meets the seafarers on board. - Seafarers can complain through crew agency because the shipping company does not employ them.

5.14 Shipping Management and internalised relationship with the seafarers

It was explained in the methodology chapter that the HRM techniques used by shipping companies were to be compared with those progressive people management practices identified by Pfeffer (1998) as applied in Hoque's (2000) analysis to evaluate the hypotheses developed in chapter three. At first, in sections 5.14.1 to 5.14.7, the evidences of implementation of these seven progressive HRM practices in the shipping industry are discussed by looking at the number of sub practices, which have been used as reported by the seafarers and the shipping company respondents. Then, in section 5.14.8, a comparison of all these seven practices have been made to see which practices has been in use more than the others. The findings with regards to the factors affecting the implementation of progressive HRM practices in the shipping industry are presented in section 5.13.9 and in the rest of the section each of these factors are discussed in detail.

5.14.1 Employment Security

Table 5.12 shows the number of sub practices reported by the seafarers that are used in their companies. The second column shows the number and the third column shows the percentage of the seafarers who have confirmed the implementation of the sub practices.

Table 5.12: Employment Security

Number of practices implemented	Frequency	Percent	Cumulative Percent
0	122	34.2	34.2
1	164	45.9	80.1
2	71	19.9	100.0
Total	357	100.0	

65.8% of the respondents (45.9% plus19.9%) believe that at least one of the sub-practices has been implemented. This significant result (Sig. =0.000) means that from the seafarer's point of view this technique has been performed in their companies[34].

[34] This is for this sample of seafarers who are working for British companies. Since the British companies have limitation on number of foreign crew and there is shortage of British seafarers they retain these seafarers. Otherwise generally in shipping industry the length of contract with seafarers is about six month. Although in some cases the contract is renewed but in many cases the companies each time select a group of seafarers from a pool of cheap labour. This means seafarers have got no job insecurity.

The longest period of the employment contract mentioned by the shipping company's respondents was nine months. So, none of them make contract with any of their seafarers for more than one year. But some of these seafarers return to these companies and renew their contracts. So there might be a seafarer working for a company for many years but on short-term contract basis. Some of the companies encourage their seafarers to stay with them by sending them a letter of assignment when they are in their leave. Since the contract is not permanent the question of some of the terms and conditions such as compulsory redundancy and pension scheme is pointless.

5.14.2 Selective Hiring of New Employees

To assess the condition of this practice, the number of implemented sub practices has been studied as illustrated in table 5.13. The third column shows the percentage of the seafarers who reported that the sub practices have been implemented. The result illustrates that the majority of the sub-practices have been implemented. Only 27.2% (sum of 2% and 8.45% and 16.8%) of the seafarers reported that less than four practices out of seven have been implemented which significantly (Sig. =0.000) indicates that the shipping companies use this practice. By looking at table 5.38 it can be seen that the weakest practice in this section is the involvement of line managers in the process of recruitment. Only 54.9% said that this practice is used in the process of recruitment. Another sub-practice which seafarers were asked about in this section was the written examination in the process of recruitment. Although the majority of them reported that they passed a written examination or an interview during the recruitment process, but the same table shows that about 37% of the seafarers indicated that they did not attend any form of assessment. With regards to functional flexibility, only 9% (table 5.38) of the respondents said that they have been trained for a job rather than their own. The last practice to be mentioned here is the familiarisation of employees with the objectives of the company. Again looking at the same table it can be seen that around 40% reported that this technique is not practiced in their companies.

Table 5.13: Number of Sub Practices implemented in Selective Hiring of New Employees

Number of practices implemented	Frequency	Percent	Cumulative Percent
1	7	2.0	2.0
2	30	8.4	10.40
3	60	16.8	27.20
4	34	9.5	36.70
5	61	17.1	53.80
6	78	21.8	75.60
7	87	24.4	100.00
Total	357	100.0	

The company's policy with regards to recruitment and selection of seafarers varies depending on the type of company, nationality of the company, business strategy and size of the company.

Some companies prefer to do internal recruitment and promote from within the company rather than employing people from outside due to the type of business they have. One of the shipping company respondents in a short sea shipping company stated that:

> *You can't take a chief officer from the bridge of a tanker and put on the bridge of one of our ships [e.g. Buoy tender] and expecting to perform the jobs that we have to perform. He wouldn't be comfortable with it and I certainly wouldn't because there are a lot of risk elements.*

These companies believe that the speciality of the jobs in some type of companies make it difficult to recruit seafarers directly for high ranks. Therefore they prefer to promote their own seafarers within the company rather than going for external recruitment. The other reason for having this policy was found in liner sector. One of the respondents from a liner shipping company believes that liner sector is different from tramp sector in the sense that the passages are much quicker and the port turnaround is shorter and therefore there is no time for familiarisation of the crew with the ship. This makes it difficult for the company to recruit new employees and they try to keep the same seafarers for each ship. He states that:

> *Basically for liner shipping you have two or three squads allocated for one ship, and they are working on board the ship on rotating basis, because you don't have time for the familiarisation of the crew on board.*

It was also mentioned that there are some benefits for liner vessels if they retain their master for long time. One of these benefits is the pilot exemption. This means that if a master continuously visits a port for several times the vessel can be exempted from pilot dues.

According to the place of registration of the companies they have different source of recruitment and selection of the seafarers. For example, one of the shipping company respondents mentioned that the European flag ships must have European master. If the regulations of the country of registration allow them to use the cheaper labour from developing countries they might consider that according to their business strategy. Therefore the nationality of the company has a direct effect on the recruitment and selection policy of the company.

Business strategy is another factor, which is considered when setting up the company's policy with regards to the recruitment and selection of the seafarers. One of the shipping company respondents in describing why they have different sources of recruitment explained that depending on the strategy of the company, which is very customer focused, they select different nationalities to work on board their vessels. Some companies in cruise market have focused on the old British passengers and traditionally these types of passengers like to see everything British. He stated:

> *... but old British [passengers] stuck in the way. They want to see things like hundred years ago. They want to see everything British, the captain to be British.*

Therefore the company decided to recruit only British seafarers for their vessels. But another company in the same group dealing with younger passengers employs multinational crews. So according to the type of business strategy, the companies decide to go to different sources of the seafarers available to them.

Size of the company is another issue, which affects the way companies recruit and select their seafarers. Some large companies have their own training centres and they recruit cadets and develop them to the officers while small companies employ officers directly.

One of the respondents from a relatively small shipping company had this comment about the reason why his company do not have any career development plan:

> *...for these kind of organisations [small companies] we cannot really plan for such a thing [career development path]. But simply the business is not big enough.*

This does not mean that all big companies have the cadetship programme. Obviously it depends on the policy of the company. But it can be concluded that the size is a factor to consider when deciding on investment in cadets.

With regards to the use of modern HRM practices in the process of recruitment and selection, most of the companies interviewed responded positively. They use interview or written examination as a means of assessing the candidates. The interview panel usually consists of a representative from deck or engine department. So it means the employees meet their line manager during the recruitment process. Some of the companies make the candidates familiar with the values of the company and the atmosphere where they are going to work. A company respondent mentioned one of the ways by which they perform this practice:

> *We have a company presentation that last about 40 minutes to an hour, which gives an idea about the brands all the vessels that we have.*

Job preview and describing the details of the job for the candidates is another practice in recruitment process. One of the respondents explained that it is important to describe the job for the employees if we want to decrease the rate of staff turnover. He stated:

> *People were coming through the training then suddenly saying this is not really what I wanted.*

This problem also was raised by another respondent from a training company which mentioned that the cadets needed to visit the ship in early stages of their cadetship in order to see what their actual future job is going to be and this is not happening. Although the officers are supposed to know the type of the job they have applied for but having different types of vessels make it necessary to describe the actual duties that the seafarers are going to undertake. As another shipping company respondent mentioned, it is difficult to remove a third officer from board of a passenger vessel and put him/her

directly on board a dredger for the same position. There might be some general duties, like navigation, which are the same but there are some others, which are totally different.

Internal recruitment was reported as widely used by the companies but only for the jobs at sea. This means the promotion of junior ranks to higher positions up to the master. As it was mentioned earlier this also depends on the type of company. Only one of the respondents mentioned that they use the seafarers for managerial positions ashore.

With regards to the fairness of the recruitment procedure the majority of the shipping company respondents claim that they have an equal opportunity policy without any discrimination. They mentioned that they have no age, sex or nationality discrimination with regards to the recruitment and selection process. One of them had this statement:

> *...you know we have a fair policy, a fair transparent assessment centre policy. We are the same in UK and the same at any country in the world that we operate. So it is our principle that our policy and our interpretation are without discrimination. We have fair, honest and open policy.*

With regards to the same issue they also mentioned that they do not charge the seafarers any fee during the recruitment and selection process.

5.14.3 Organisational Design Based on Decentralisation and Self-Managed Teams

The table 5.14 shows the results as reported by the seafarers:

Table 5.14: Number of sub practices implemented in Organisational Design Based on Decentralisation and Self-Managed Teams

Number of practices implemented	Frequency	Percent	Cumulative Percent
0	54	15.1	15.1
1	132	37.0	52.1
2	109	30.5	82.6
3	62	17.4	100.0
Total	357	100.0	

It was explained in the methodology chapter that if more than 50% of the respondents report than half of the sub practices being implemented then that practice is used by the shipping companies. As can be seen from the table 52.1% of the seafarers (sum of

15.1% and 37%) who responded have reported that fewer than half of the job design sub-practices (fewer than two) are implemented. Although this percentage is not statistically significant (Sig. = 0.410) but it can suggest that this practice is not exercised properly in the shipping industry. The majority of the seafarers responded in this research (58%) say that they have no role in quality management.

Very few number of the shipping company respondents mentioned that they set up objectives for the employees in their jobs but no involvement of the employees in this matter was reported. Nothing was mentioned by any of them with regards to the quality circles or quality management.

Teamwork and team building, as part of job design, was emphasised by some of the companies as the nature of the seafaring job. One of the shipping company respondents had this statement:

> *...they [ships] are quite small unit. They [seafarers] tend to bind to the physical location of where they are [ships], be on board and confined area tends to bind the team pretty well, there is nothing really extra to that.*

Every company has its own way of encouraging the seafarers to work as a team. Some of them by having training programmes such as "Bridge Team Management" try to teach teamwork. Others have made the master responsible for creating an environment in which seafarers work as a team. For example one of the respondents mentioned this:

> *We allocate you know, certain cash to the master where he can spend in order to bring a kind of entertainment for the crew to get them together [to encourage teamwork] during social life and things like that.*

The other way, which was mentioned by another respondent from a short sea shipping company, was to gather the seafarers for a social event ashore to have entertainment away from the ship's atmosphere. Obviously this way is only possible for these types of companies and might not be practicable for deep-sea shipping.

5.14.4 Compensation – Level and Performance Contingency

Table 5.15 illustrates the results for this study with regards to the use of this practice as reported by the seafarers:

Table 5.15: Number of sub practices implemented in Compensation – Level and Performance Contingency

Number of practices implemented	Frequency	Percent	Cumulative Percent
0	16	4.5	4.5
1	75	21.0	25.5
2	132	37.0	62.5
3	78	21.8	84.3
4	38	10.6	94.9
5	16	4.5	99.4
6	2	0.6	100.0
Total	357	100.0	

The last column of the table shows the cumulative percentages of the seafarers who have reported that each practice has been used. As can be seen from this column 84.3% of the seafarers reported that fewer than half of the sub-practices (fewer than 4 sub practices) are implemented in their companies. This significant result (Sig. = 0.000) shows that the managers in the shipping industry have not considered this practice properly. The worst result in this section is for team-based reward (table 5.38) in which only 13.7% of the seafarers have reported that their companies use this practice. From the same table it can be seen that the individual performance pay also has got no better result with only 18.5% of the respondents confirmed the use of this practice. So it can be said that the performance related pay in general is not applied in the shipping industry. The majority of the seafarers (81.5%) reported that their companies do not pay additional benefit such as profit sharing and social security (table 5.38).

The survey of the shipping companies shows that the reward packages offered by the companies to the seafarers vary according to their rank and nationality. It was also emerged that the items included in the packages depends on the type of company. Some of the shipping companies which directly employ the seafarers have got things like profit sharing and bonus scheme in their packages. Crew agencies, some shipping management companies and those shipping companies which employ through these agencies just pay the salary. This might be due to the fact, which was explained in chapter two, that there is no direct relationship between these sorts of companies and their seafarers.

Exceptionally in one case the profit sharing was included but only for the senior officers and the rest of the officers were excluded. This was mentioned by one of the shipping company respondents from a crew agency:

> *If we are looking at one of our largest clients then they have what they call it "senior officers incentive programme" which is based for captains, chief officers and chief engineers [senior officers] and basically give them a bonus on the profit of the company that has made through the year which they are the only people who are entitled to that.*

Only those companies which are owned partly or entirely by the government have the pension scheme or social security for their employees.

The majority of the respondents claim that they are very transparent about their contract with the seafarers. They also mentioned that they are happy if the seafarers want to become a member of the union and they even encourage them to do so. Therefore there is no confidentiality in the contract.

With regards to the performance management practices, the evidences indicate that most of the companies do have a regular appraisal of the seafarers but very few of them are related to the pay. So individual or team based performance related pay are not practiced in these companies.

5.14.5 Training Provision

As can be seen from the table 5.16, 63.9% (the last column) of the respondents reported that fewer than 50% of the sub-practices (fewer than four) are implemented. This result is significant (Sig. = 0.000) and indicates that this practice is not used by the shipping companies. The shocking result is that 10.4% of the seafarers reported that none of the six sub-practices are implemented. With regards to the training courses the result show (table 5.38) that statuary courses are organised and paid by the shipping companies as 72.5% of the seafarers indicated. But companies do not pay for the non compulsory courses such as management training as the majority of the seafarers (64.3%) reported.

Table 5.16: Number of sub practices implemented in Training Provision

Number of practices implemented	Frequency	Percent	Cumulative Percent
0	37	10.4	10.4
1	51	14.3	24.7
2	60	16.8	41.5
3	80	22.4	63.9
4	67	18.8	82.7
5	54	15.1	97.8
6	8	2.2	100.0
Total	357	100.0	

As was explained in chapter two, seafarers need training courses to develop their career into higher ranks. They also have to be trained for new equipments being introduced or a new regulation that has been adopted internationally. These types of courses are mandatory and are enforced by the regulations ratified internationally through organisations such as IMO or ILO. The evidences from the shipping company respondents show that the extent to which these trainings are supported by the companies varies according to their size, type and nationality. Small companies seem to leave the training requirements for the seafarers themselves to arrange and pay. One of the respondents working for a company of this type in answering the question about career development of the seafarers stated that:

> *If we have a pool of crew of five thousands or six thousands people [a large company] so you can have that kind of opportunity but we have only two hundred and fifty crew members [a small size company] so for these kind of organisations we cannot really plan for such a thing [training programmes]. But simply the business is not big enough.*

The companies which directly employ their seafarers have shown a better concern of their training programme than those employing through crew agencies. Most of these companies plan and pay for at least the mandatory courses which the seafarers need to attend in order to fulfil the requirements of their jobs. But the others which recruit through crew agencies believe that it is not their responsibility as one of them stated:

> *...for sea staff as I mentioned because we are doing recruiting through agency so we don't really undertake the training operations ourselves.*

The interesting point is that one of the respondents from a crew agency mentioned something contradictory to this:

> *It largely depends on the client [the shipping company] but many clients have their own internal training and they arrange through various training organisations either in UK or America.*

And the same respondent with regards to the evaluation of seafarers' training stated:

> *Again we won't be responsible for the observation of any training. That is entirely up to the client [the shipping company] as we are an agency more than anything else.*

Among those companies which arrange and pay for the training of their seafarers there are few companies which not only consider the mandatory courses but also the courses which the seafarers need for their career development. These types of trainings give them the opportunity to find jobs ashore whenever they want to leave the seafaring job. This is the statement of one of the respondents from this sort of companies:

> *We got probably one of the biggest budgets for training of any organisation I have certainly being involved with and it is not only statuary training [mandatory courses], statuary training meaning, fire fighting courses, survival courses, you know those sort of things but also personal development training[e.g. management courses].*

Another factor which affects the training policy of a company is the nationality of the company. Sometimes a company is obliged to train cadets according to the regulations of the place of registration. For example, according to one of the shipping company respondents, in UK in order to use tonnage tax benefits the registered companies must train some British cadets annually. So the respondent mentioned that they have British cadets on board their ships but they have no British seafarers:

> *... at the moment we have only about seven cadets [British]. They go to other companies to work [when they get the certificate].*

With regards to the on the job training, some of the shipping company respondents, in describing their training programmes, mentioned that they have a sea stage training plan.

Obviously those companies which do not undertake the responsibility of training for their seafarers have got no programme whether in college or on board the vessel. So once again it depends to the factors which were explained earlier in the previous section. One issue, which was raised by a shipping company respondent about on board training, was that nowadays training on board the vessels is a difficult task to do. He justified his view by giving this statement:

> *I think the main change [in training programmes] is because of the reduction of crew size that there is less time on board for the people to assist in training [on the job training].*

He also mentioned the consequences of this as:

> *...some of the cadets have difficulty actually completing their sea course because on some ships there is a lack of interest in training.*

As it was mentioned earlier in this section, the type of training given to the seafarers by the shipping companies is mostly limited to the statuary or compulsory courses. Therefore the objective is to assist them in performing the job for the company rather than their own career development. This is the statement by another shipping company respondent in this regard:

> *It is very few non technical courses [e.g. management courses]. There is nothing in terms of personal development.*

There are some sort of non-technical training courses given only to the masters, which once again is for the purpose of their job rather than their own career development. This is the statement given by a shipping company respondent in this regard:

> *There is specific items of the training would be purely for masters. There are things like dealing with media, dealing with grievances, higher level management aspects like business awareness [all job related courses].*

One of the issues, which the shipping company respondents were asked was whether the training programme has been effective or not. The research did not find any indication to show a systematic evaluation of the effectiveness of the training among the shipping companies. The result of examination, performance of the seafarers on board and feed back from the seafarers who attended the courses are the ways mentioned by the shipping company respondents for evaluating the training programmes.

Among the training programmes and career development plans for the seafarers described by the respondents, attending seminars or conferences related to their job was not mentioned. Only one of the respondent indicated that if there is a case then the masters come together in form of a conference to discuss the matter. It was also emerged that the objective of the training is related to their specific job and not any additional job like dual purpose officers.

5.14.6 Reduced Status Distinctions and Barriers

As can be seen from table 5.17, a significant number of the seafarers (63.6%) reported that there is a difference in the conditions of the employment between managers and other employees.

Table 5.17: Number of sub practices implemented in Reduced Status Distinctions and Barriers

Difference in Conditions of employment between managers and non-managers	Frequency	Percent
Yes	227	63.6*
No	130	36.4*
Total	357	100.0

* Test Statistics: Chi-square=26.356, Asymp. Sig. =0. 000

This significant result indicates that this practice, from seafarer's point of view, is not implemented in the shipping industry.

On the other side the shipping company respondents claim that they treat all their seafarers the same without any discrimination. They acknowledge the differences between masters and other officers, particularly in training, rewards and living conditions on board but they believe that it is due to the nature of the job which they do. For example masters on board the ships have bigger rooms, separated bedroom and dayroom and also an office. Among the other officers only chief engineer has got, more or less, the same facilities. Some of the respondents mentioned that because the master has got lots of paper works to do, receives lots of guests, entertains the passengers and so on, he/she needs more space. Others believe that it is the rank of the master which is different as one of them stated that:

> *I think the master, traditionally, has always in a different you know treatment like the boss in our company. He does not have the same office [as us].*

With regards to the training, the differences between masters and other officers are confined to the special courses which the shipping company respondents believe that they need to be trained for in order to perform their duties. These include for example the management and leadership courses and the use of computers. The other technical courses are said to be the same as the others.

There are also differences in reward packages for the seafarers depending on the nationality and rank of the seafarer. This brings ambiguity about the companies claim that they have harmonised terms and conditions and they treat everybody the same. One of the shipping company respondents had this statement about the reward package for their seafarers:

> *The packages [reward packages] are slightly different [for each seafarer] because of different nationalities [of the seafarers].*

This means that employees having the same rank, same qualification and same experience receive different pay because of their nationalities. Some other companies have separated the senior officers from the rest of the seafarers and give them extra benefits. In some cases even the pay is different as one of the respondents mentioned:

> *We separate what we call executive committee out which is the name of senior people on board [senior officers]. The executive committee are outside the collective bargaining of the union and they are given special terms and conditions to reflect their rank. It will be the NATULIS [trade union] contract plus few extras like executive options, health benefit, profit sharing, bonuses and things like that to reflect their management position on board.*

5.14.7 Sharing Financial and Performance Information

Table 5.18 shows the result of the number of sub practices which are implemented by the shipping companies with regards to this practice as reported by the seafarers.

Table 5.18: Number of practices implemented in Sharing Financial and Performance Information

Number of practices implemented	Frequency	Percent	Cumulative Percent
0	27	7.6	7.6
1	92	25.8	33.3
2	87	24.4	57.7
3	109	30.5	88.2
4	42	11.8	100.0
Total	357	100.0	

As can be seen from this table (the last column) 57.7% of the seafarers believe that fewer than half (fewer than three) of the sub-practices are performed in their companies. This significant result (Sig. = 0.000) indicate that this technique is not implemented in these shipping companies. The worst result among the sub practices is for communication/consultation meetings, which the majority of the seafarers (72%) reported that their shipping companies do not use this practice (table 5.38).

The shipping company respondents reported that the communication practices with regards to the performance management have been limited to the use of the company manual on board the ships in which the objectives of the seafarer's job has been explained. One of the respondents explained that the role of each seafarer is clear and there is no need for setting up any objective. He had this statement:

> *There is no actual set of objectives [performance target]. It is not really like shore side appraisal where we set objectives and then follow it. Here the objectives are set more in the documentation of their role on board [seafarer's manual of job description].*

So seafarers not only are not involved in setting up the performance targets of the company but also are not aware of it.

The shipping company respondents did not show any indication that they have communication or consultation meeting on board for the seafarers. Only in one of these

companies the respondent mentioned that in order to encourage teamwork they have meetings on board the ship and in these meetings the seafarers have the opportunity to be heard. So with this form of communication it is not clear how often seafarers gets the opportunity to communicate with the managers if there is any problem. Only one of the respondents from a crew agency pointed out about the grievance procedure:

> *There is a grievance procedure that we follow with regard to our major clients [shipping company] that we deal with.*

5.14.8 The comparison of Seven High Performance Practices

It was explained in the methodology chapter that to be able to compare the extent of implementation of HRM practices the arithmetic mean of the sub practices in each of the seven high performance practices would be compared. Table 5.19 rank the perceived adoption of progressive HRM practices based on average responses against each of seven factors. The findings suggest that, in case of compensation, reduced status distinction and employment security, seafarers receive limited adoption of progressive HRM practices.

Table 5.19: Comparison of the Seven Best Practices

Practice	Arithmetic Mean
Selective Hiring of New Employees	252
Organisational Design Based on Decentralisation and Self-Managed Teams	179
Training Provision	166
Sharing Financial and Performance Information	161
Employment Security	153
Reduced Status Distinctions and Barriers	130
Compensation – Level and Performance Contingency	129

These results indicate that although the seafarers are not satisfied with their reward packages offered by their companies. Discrimination between managers and the seafarers is another problem which the seafarers have complained about. The uncertainty of the seafarers about the continuation of their employment contract is the third top

concern of the seafarers. The tables 5.20 to 5.26 show the importance of each HRM practice and its relevant sub practices. The last row in each table shows the arithmetic mean for each practice which has been used in table 5.19.

As can be seen from the table 5.20, in "selective hiring of new employees", most of the seafarers are satisfied with the implementation of modern HRM practices. The only issue is the role of line managers in the process of recruitment. 54.9% of the seafarers reported that they have not met their department manager during the selection process.

Table 5.20: Selective Hiring of New Employees

Sub Practice	**Frequency of seafarers confirmed the implementation of the sub practice (out of 357)**
Did you attend any interview or written examination regarding your technical knowledge and competence related to your job during recruitment procedure?	225
Did they make you familiar with the values and objectives of the company before starting your job?	227
Did the company discuss the details of your job with you?	260
Is it the policy of your company to use its own employees for managerial positions?	245
Did you meet your department manager during your recruitment procedure?	196
Do you think the recruitment procedure in your company is fair and without any discrimination?	262
Did you pay any fee during employment procedure?	350
Arithmetic Mean	**252**

The lack of quality circles and non involvement of the seafarers in setting up their own targets are the sub practices in the practice of "organisational design based on decentralisation and self-managed teams" which have not been considered widely by the managers in the shipping industry as the seafarer's survey shows. This can be seen in table 5.21.

Table 5.21: Organisational Design Based on Decentralisation and Self-Managed Teams

Sub Practice	Frequency of seafarers confirmed the implementation of the sub practice (out of 357)
Has the company made you responsible for setting your own targets relating to your job?	102
Do you have any quality circle or quality management team on board ship?	150
Do your managers (senior officers) encourage and facilitate employees to work as a team?	284
Arithmetic Mean	**179**

In "training provision" practice, the focus of the companies in the industry is to train the seafarers only for the technical job they do as the seafarers reported. Table 5.22 shows the frequency of the seafarers who indicated the implementation of each of the sub practices.

Table 5.22: Training Provision

Sub Practice	Frequency of seafarers confirmed the implementation of the sub practice (out of 357)
Have you had any technical training courses paid by your current company since you have been employed?	259
Do you have any organised on the job training for new equipment or rules and regulations?	207
Does your employer provide you with any management training?	131
Do you think the training provided to you by your employer were effective?	215
Has the company trained you for any other job in addition to your professional job? (e.g. dual purpose officers)	32
Have you ever attended any seminar or conference related to your job?	153
Arithmetic Mean	**166**

In "sharing financial and performance information" technique, lack of consultation meeting with seafarers and not involving them in setting the performance targets of the company have been reported by the majority of the seafarers. The highest score in this section is for grievance procedure which the vast majority of the seafarers have reported that they are aware of it. These are displayed in table 5.23.

Table 5.23: Sharing Financial and Performance Information

Sub Practice	Frequency of seafarers confirmed the implementation of the sub practice (out of 357)
Are you directly involved in setting the performance targets of the company?	45
Are you regularly informed about the market position and performance of your company?	193
Do you attend the communication/ consultation meeting on a regular basis?	75
Are you frequently informed about vacant positions, important events, etc.?	194
Are you aware of the grievance procedure in your company?	299
Arithmetic Mean	**161**

In "employment security", as can be seen from table 5.24, the main concern is the compulsory redundancy although the length of contract has also been reported as an issue.

Table 5.24: Employment Security

Sub Practice	Frequency of seafarers confirmed the implementation of the sub practice (out of 357)
Is there a "No compulsory redundancy" in your contract?	85
Have you got a long-term contract (more than one year) with your company?	221
Arithmetic Mean	**153**

Table 5.25 shows that in "Reduced status distinctions and barriers", the main point is the discrimination in the employment contract between those of the seafarers and their managers.

Table 5.25: Reduced Status Distinctions and Barriers

Sub Practice	Frequency of seafarers confirmed the implementation of the sub practice (out of 357)
Have you seen any difference in conditions of your employment contract with those of managers?	**130**

In "compensation – level and performance contingency", issues such as performance related pay and benefits like profit sharing are the most important of all. These techniques have not been taken seriously in shipping industry. Table 5.22 illustrates this.

Table 5.26: Compensation – Level and Performance Contingency

Sub Practice	Frequency of seafarers confirmed the implementation of the sub practice (out of 357)
Does the company pay you in accordance to your individual performance?	61
Does your team-based performance affect your payment?	49
Do you receive any other benefit (e.g. profit sharing or stock sharing) in addition to your wages?	66
Does your company pay for your pension and social security?	152
Do you have confidentiality clause in your contract?	160
Does the company conduct a regular performance appraisal of staff?	284
Arithmetic Mean	**129**

5.14.9 Factors affecting HRM implementation

A factor analysis was performed to identify the factors affecting the implementation of HRM practices in the shipping industry. The aim was to surface evidence that might indicate an association between various sectors of the shipping industry, or different ranks, age and nationality and seafarers' views on the use of HRM practices in their companies. The finding showed a significant impact from type of company, nationality of the company, type of vessels and current position of the seafarers on the implementation of HRM practices. Findings are presented in detail below, making reference to regression coefficients in each case presented separately in Appendix 3.

Sub practice number one: Did you attend any interview or written examination regarding your technical knowledge and competence related to your job during recruitment procedure?

Table 3A.1[35] shows the regression analysis for the effect of the above explained factors on implementation of this sub practice. As can be seen from this table only two types of vessels have significant effect, Tanker and DSV. The rest of factors are not effective enough.

[35] In each instance this refers to the relevant regression table which appears in Appendix 3.

Sub practice number two: Did they make you familiar with the values and objectives of the company before starting your job?

Table 3A.2 illustrates the effect of the factors on implementation of this sub practice.

Ro-Ro and supply ships were significantly different from other type of vessels in implementation of this sub practice. Nationality of the company showed a very significant factor in this practice. Seafarers on board the vessels of UK based companies reported a better implementation of this practice in their companies than those in other companies. Age groups 21-30 and 51-60 also were significantly different from other age groups.

Sub practice three: Did the company discuss the details of your job with you?

As can be seen from table 3A.3, the liner vessels have been different from the other type of vessels in implementation of this practice. The findings also indicate that chief mates, deck officers and second engineers have significantly different views about using this HRM technique in their companies than other seafarers.

Sub practice Four: Is it the policy of your company to use its own employees for managerial positions?

Table 3A.4 illustrates those seafarers on board the Tankers, Ro-Ro and Supply vessels have reported significantly different about the implementation of this technique. They reported that they are not being used for the managerial positions in their companies. Shipping management companies also have been significantly different from shipping companies.

Sub practice Five: Did you meet your department manager during your recruitment procedure?

The senior managers on board the vessels have given a significantly different report on the implementation of this sub practice. The nationality of the company also showed to be a significant factor in implementation of this technique. The seafarers of UK based companies have reported more positively about the use of this practice by their companies than the others.

Sub practice Six: Do you think the recruitment procedure in your company is fair and without any discrimination?

Although two of the age groups show a statistically significant effect in implementation of this sub practice but the goodness of fit test is not significant enough. Therefore this model is not useful in this practice and no conclusion can be drawn.

Sub practice Seven: Did you pay any fee during employment procedure?

Table 3A.7 shows no significant factor for sub practice number seven. The goodness of fit test also is not significant enough and so the model is not perfect to use.

Sub practice Eight: Have you seen any difference in conditions of your employment contract with those of managers?

Non-European based companies have shown a significant difference with European based companies in using this HRM technique. Seafarers on board the Liner and AHTS vessels also have given a much better report on implementation of this practice.

Sub practice Nine: Have you had any technical training courses paid by your current company since you have been employed?

Although type of company, supply vessels and engineer officers are showing significant in table 3A.9 but since the goodness of fit test is not significant enough the model can not be relied on.

Sub practice Ten: Do you have any organised on the job training for new equipment or rules and regulations?

Age category of 21-30 is the only one which is significantly different from other age groups about the implementation of this practice. Masters and deck officers among the seafarers reported better programmes of on the job trainings on board their vessels than the others. Among different types of vessels, seafarers on board Ro-Ro and supply vessels have a negative view on the use of this technique by their companies in compare with other types of vessels.

Sub practice Eleven: Does your employer provide you with any management training?

Only type of vessel was found a statistically significant factor in implementation of this sub practice of training technique. Passenger, Ro-Ro and DSV vessels have reported differently about the management training courses for seafarers than the other types of vessels.

Sub practice Twelve: Do you think the training provided to you by your employer were effective?

Table 3A.12 illustrates the effect of the factors on evaluation of training programmes in the shipping companies. According to the results Liner, Ro-Ro and supply vessels have shown a different approach towards the implementation of this practice and therefore the type of vessel is significantly an effective factor. Type of company is another factor which affects the use of this technique. Seafarers on board the vessels in UK based companies have reported more effective training programmes than the other type of companies.

Sub practice Thirteen: Has the company trained you for any other job in addition to your professional job? (E.g. dual purpose officers)

As can be seen from table 3A.13, none of the factors showing a significant effect on this sub practice. The goodness of fit test also is not statistically significant so the model is not applicable.

Sub practice Fourteen: Have you ever attended any seminar or conference related to your job?

Position, type of company and type of vessels are statistically significant factor in implementation of sub practice number fourteen. With regards to position deck and engineer officers together with chief officers have reported significantly different than the other seafarers. Passenger and Ro-Ro ships also showed to be different from other types of vessels.

Sub practice Fifteen: Does the company pay you in accordance to your individual performance?

Seafarers on board the vessels of UK based companies have different view about the individual based related pay in their companies than the other seafarers. Type of vessel also showed to be an effective factor in implementation of this technique in shipping companies. Liner and Ro-Ro vessels are statistically different from other types of vessels.

Sub practice Sixteen: Does your team-based performance affect your payment?

Once again type of company and type of vessels indicated to be an effective factor. Tanker, Liner and Gas carrier vessels are different from other ships in implementing this practice. Chief mates are the only category in position factor which also have different view about team based related pay than other seafarers.

Sub practice Seventeen: Do you receive any other benefit (e.g. profit sharing or stock sharing) in addition to your wages?

The only influential factor in this sub practice is the category of gas carriers in type of vessels. The rest did not show any statistically significant effect.

Sub practice Eighteen: Does your company pay for your pension and social security?

As can be seen from the table 3A.18, there are many factors which affect the implementation of this HRM technique in shipping industry. Age, type of company, nationality of the company and type of the vessel all have an effect in use of this practice by shipping companies. In each factor there are some categories which have statistically significant effect in implementation of this sub practice.

Sub practice Nineteen: Do you have confidentiality clause in your contract?

Although the table shows that there are some significantly effective factors but the goodness of fit test did pass this model. So nothing can be concluded for this sub practice.

Sub practice Twenty: Does the company conduct a regular performance appraisal of staff?

Table 3A.20 illustrates the factors affecting the implementation of performance appraisal practice in the shipping companies. The result shows that this technique is practiced in the shipping companies significantly different from other companies such as crew agencies. Ro-Ro and DSV vessels also have reported significantly negative to the use of this sub practice in compare with other types of vessels.

Sub practice Twenty one: Are you directly involved in setting the performance targets of the company?

The goodness of fit test was not statistically significant for this sub practice. So no meaningful conclusion can be drawn.

Sub practice Twenty Two: Are you regularly informed about the market position and performance of your company?

As can be seen from the table 3A.22, the only statistically effective factor is the type of company. Shipping management companies are comparatively negative in implementation of this technique. Other factors did not show any effect.

Sub practice Twenty Three: Do you attend the communication/ consultation meeting on a regular basis?

In having communication/ consultation meeting regularly on board the vessels, the seafarers on board the liner vessels have reported significantly different in compare with other seafarers. The result also shows that nationality of the company is also an effective factor in which the UK based companies have implemented this technique much better than other nationalities. Table 3A.23 illustrates this.

Sub practice Twenty Four: Are you frequently informed about vacant positions, important events, etc.?

The most statistically significant factors in implementation of this sub practice are the nationality and type of companies in which all the categories in these factors are different from each other. Seafarers on board the Passenger and Tug vessels also reported negatively to this technique in compare with other types of vessels.

Sub practice Twenty Five: Are you aware of the grievance procedure in your company?

Table 3A.25 illustrates that once again type of company and type of vessels proved to be effective in implementing the modern HRM techniques in the shipping industry. Age group 31-40 also shows to be different from other age groups in reporting the use of this technique.

Sub practice Twenty Six: Has the company made you responsible for setting your own targets relating to your job?

Nationality of the company and type of vessels, as in many cases in this study, are the effective factors in implementation of sub practice number twenty six. UK based companies are different from other companies and seafarers on board the DSV, Supply and Ro-Ro vessels are negatively different from the other types of vessels.

Sub practice Twenty Seven: Do you have any quality circle or quality management team on board ship?

Ro-Ro and Tug vessels are the categories in type of vessels which are significantly against the implementation of this technique of HRM. The rest of factors did not show any statistically significant effect.

Sub practice Twenty Eight: Do your managers (senior officers) encourage and facilitate employees to work as a team?

With regards to team-work encouragement on board the vessels, chief engineers reported significantly different from other seafarers. Seafarers on board the vessels of non UK based companies, those employed by crew agencies as well as the ones working on board the tugs reported significantly negative to the use of this HRM technique.

Sub practice Twenty Nine: Is there a "No compulsory redundancy" in your contract?

No conclusion can be made from table 3A.29 since the Goodness of fit test for this model is not statistically significant enough.

Sub practice Thirty: Have you got a long-term contract (more than one year) with your company?

There are two statistically significant factors in Table 3A.30. Other officers are the most positive seafarers about the length of their contract with their companies while those employed by the crew agencies are the most negative ones. The rest of factors did not show any significant effect.

Summary: Type of company, nationality of the company, type of vessels and current position showed to be the most significantly associated with reported adoption of HRM practices. Some categories of age were statistically significant in few cases but were not enough to say that age is a significant factor.

A further investigation into each of the factors which was identified to have an impact on the implementation of the HRM practices was carried out. The objective of this stage was to find out the way HRM practices were practiced as affected by each of the factors explained in the previous stage. The categories in each factor were compared to identify the significant differences between them in implementation of HRM practices. The findings of these studies are discussed in the following sections.

5.14.9.1 Type of company

The study shows that the employees who have been employed directly by the shipping companies have a better view on the implementation of HRM in their companies than those who have come through shipping management companies or crew agencies. Statistically, there are five practices which are significantly different among the two groups. The implementation of four of these practices has been reported more by the seafarers in the shipping companies than the others.

Table 5.27 shows these result in which the second column shows the percentage of the seafarers from the shipping companies reported positively on the implementation of the sub practice and third column those who reported that the practice is implemented in other companies. The last column displays the Chi-square test to see if the difference between the figures in second and third column is significant or not.

Table 5.27: HRM practices which their implementation have been reported significantly different between seafarers employed directly by shipping companies and those through Management companies or crew agencies

HRM Practice	Percentage of seafarers reported that the practice being implemented (Shipping Companies) N=217	Percentage of seafarers reported that the practice being implemented (Others) N=140	CHI. Sig.
Have you had any technical training courses paid by your current company since you have been employed?	76.5	66.4	0.037
Are you directly involved in setting the performance targets of the company?	9.7	17.1	0.038
Are you regularly informed about the market position and performance of your company?	60.8	43.6	0.001
Are you frequently informed about vacant positions, important events, etc.?	61.3	43.6	0.001
Have you got a long-term contract (more than one year) with your company?	66.8	54.3	0.017

5.14.9.2 Nationality of the Company

It was discovered that UK-Based companies are better in implementation of HRM practices than those registered in EEU or other countries. In all nine practices which were significantly different among the two types of the companies, the seafarers working for UK-based companies reported better implementation than the others (See table 5.28).

Table 5.28: HRM practices which their implementations have been reported significantly different by seafarers working in UK-based companies and those working for Non-UK based companies

HRM Practice	Percentage of seafarers reported that the practice being implemented (UK-Based) N=224	Percentage of seafarers reported that the practice being implemented (Others) N=133	CHI. Sig.
Did you attend any interview or written examination regarding your technical knowledge and competence related to the job during recruitment procedure?	67.4	55.6	0.025
Did they make you familiar with the values and objectives of the company before starting your job?	67.9	56.4	0.029
Did the company discuss the details of your job with you?	76.3	66.9	0.053
Did you meet your department manager during your recruitment procedure?	64.3	39.1	0.000
Do you think the recruitment procedure in your company is fair and without any discrimination?	99.1	96.2	0.058
Have you seen any difference in conditions of your employment contract with those of managers?	40.6	29.3	0.032
Has the company trained you for any other job in addition to your professional job? (e.g. dual purpose officers)	11.2	5.3	0.059
Does your company pay for your pension and social security?	51.8	27.1	0.000
Are you frequently informed about vacant positions, important events, etc.?	60.3	44.4	0.003

5.14.9.3 Type of Vessel

At first a general comparison between different types of vessels was made for the number of seafarers who reported that more than half of the practices have been implemented in their companies. The result shows that the companies in liner shipping are using more modern HRM techniques than other sectors. As can be seen from table

5.29, 53.6% of seafarers on board liner vessels reported that more than half of the practices are implemented by their companies while this figure is 52.8%, 35.6% and 33.3% for Tanker, Ro-Ro and Passenger ships respectively.

Table 5.29: Comparison of Liner Shipping with other Sectors

	Liner (N=28)	**Tanker (N=53)**	**Ro-Ro (N=73)**	**Passenger (N=24)**	**All the seafarers (N=357)**
A	15	28	26	8	158
B	53.6	52.8	35.6	33.3	44.3

A= Number of seafarers who reported that more than 50% of the HRM practices are implemented

B= Percentage of seafarers who reported that more than 50% of the HRM practices are implemented

After a general comparison, the sectors were compared more specifically by each of HRM practices separately. The finding shows some significant results. For example Liner shipping shows a better condition in implementation of HRM techniques than the other sectors. In particular, this sector is statistically more significant in implementation of six of the sub practices (See regression analysis of HRM practices in Appendix 3).

As was explained in methodology chapter to test the sector differentiation in the shipping industry a further analysis was carried out. This time the different types of vessels were aggregated into deep sea and short sea shipping according to their type of business.

The findings indicate that the seafarers in deep sea shipping are statistically more positive towards the implementation of HRM practices in their companies than those in short sea shipping. In all four practices which are significantly different the seafarers in deep sea have reported a better implementation than short sea (See Table 5.30).

Table 5.30: HRM practices which their implementation have been reported significantly different between Deep sea and Short sea shipping sectors

HRM Practice	Percentage of seafarers reported that the practice being implemented (Deep sea) N=144	Percentage of seafarers reported that the practice being implemented (Short sea) N=140	CHI. Sig.
Did they make you familiar with the values and objectives of the company before starting your job?	73.6	59.3	0.010
Does your employer provide you with any management training?	50	30.7	0.000
Do you think the training provided to you by your employer were effective?	68.1	56.4	0.043
Do you have any quality circle or quality management team on board ship?	51.4	38.6	0.030

In chapter two, where the different types of vessels in the shipping industry were described, it was discussed that the business strategy of each of these types of vessels are different according to their business environment. As was explained in methodology chapter, the sector differentiation in implementation of the HRM practices was further investigated to see if it has any relationship with the business strategy of the companies.

The finding shows that the seafarers working in the market with quality business strategy (e.g. liner shipping) have statistically reported more employment of modern HRM practices by their companies than the one with expected cost-reduction business strategy (e.g. Tramp market). There are six practices which were significantly reported to have been implemented better in the liner shipping than tramp market (Table 5.31).

Table 5.31: HRM practices which their implementation have been reported significantly different between seafarers working in Tramp market and those working in Liner market

HRM Practice	Percentage of seafarers reported that the practice being implemented (Tramp) N=57	Percentage of seafarers reported that the practice being implemented (Liner) N=28	CHI. Sig.
Is it the policy of your company to use its own employees for managerial positions?	68.4	89.3	0.036
Have you seen any difference in conditions of your employment contract with those of managers?	22.8	50	0.011
Does your company pay for your pension and social security?	17.5	42.9	0.012
Are you regularly informed about the market position and performance of your company?	52.6	78.6	0.021
Do you attend the communication/ consultation meeting on a regular basis?	21.1	42.9	0.035

The result show that internalisation of employment is significantly better in liner shipping than in tramp market.

5.14.9.4 Position of the Seafarers

The other factor which showed significant in regression analysis was the position or rank of the seafarers. As was mentioned in methodology chapter, an investigation into the relationship between implementation of HRM practices and the rank of seafarers was carried out.

The finding shows a statistically significant difference between masters as middle managers and others in implementation of the HRM practices (table 5.32). Masters had a more positive view on the use of the HRM practices than the others. They reported a better implementation of the six out of seven practices which were significantly different among the masters and others. The other study regarding the ranks of seafarers was

about the differences between each department. The result shows that seafarers in deck department (the department which the middle manager is selected from) have significantly better view of HRM implementation than the engine department. In five out of six practices which were significantly different among the two groups the seafarers in deck department reported a better implementation than those in engine. (See table 5.33).

Table 5.32: HRM practices which their implementation have been reported significantly different between Masters and other seafarers

HRM Practice	Percentage of seafarers reported that the practice being implemented (Masters) N=109	Percentage of seafarers reported that the practice being implemented (Others) N=248	CHI. Sig.
Did they make you familiar with the values and objectives of the company before starting your job?	71.6	60.1	0.038
Did the company discuss the details of your job with you?	81.7	69.0	0.013
Did you meet your department manager during your recruitment procedure?	65.1	50.4	0.010
Have you ever attended any seminar or conference related to your job?	59.6	35.5	0.000
Are you directly involved in setting the performance targets of the company?	22.0	8.5	0.000
Do you attend the communication/ consultation meeting on a regular basis?	28.4	17.7	0.022
Do you have any quality circle or quality management team on board ship?	22.2	41.9	0.000

Table 5.33: HRM practices which their implementation have been reported significantly different between Deck and Engine seafarers

HRM Practice	Percentage of seafarers reported that the practice being implemented (Deck) N=206	Percentage of seafarers reported that the practice being implemented (Engine) N=109	CHI. Sig.
Did the company discuss the details of your job with you?	76.7	66.1	0.043
Did you meet your department manager during your recruitment procedure?	60.2	47.7	0.033
Have you had any technical training courses paid by your current company since you have been employed?	76.7	65.1	0.028
Do you have any organised on the job training for new equipment or rules and regulations?	62.6	49.5	0.025
Have you ever attended any seminar or conference related to your job?	47.6	33.0	0.013
Has the company made you responsible for setting your own targets relating to your job?	23.8	36.7	0.015

5.14.10 Work/Life Balance

The result of the study shows that the majority of the seafarers, regardless of the type of vessel they are working on, are satisfied with their work/life balance. As can be seen from table 5.34, only 36.1% reported that they are not satisfied.

Table 5.34: Work/Life Balance

Satisfaction with work/life balance	Frequency	Percent
Yes	219	61.3
No	129	36.1
Didn't answer	9	2.5
Total	357	100.0

Test Statistics: Chi-square=186.555, Asymp. Sig. =0. 000

In order to improve work/life balance of the seafarers, the companies did not present any particular policy except a few which have introduced the flexible hours of work or

flexible period for working at sea. The first method, flexible hours, is practiced in a short sea shipping company as it is obviously not applicable in deep sea shipping. One of the shipping company respondents explained this method as:

> *Something we call it TOTO system, times on times off, you get a day leave for each day you are on board the ship. It is a flexible system.*

So the seafarer who has a contract of three months on and three months off can work for a shorter period of time at sea and have a longer time off provided that he/she works out the time later on. This gives the seafarer the opportunity to plan for the occasions he/she wants to be with the family. On the other system, flexible sea period, the seafarer can select different types of contracts as was explained by a shipping company respondent:

> *We have come there [flexible hours of work] and we take request for different tour length so our standard in our business is four months on two months off and the officers can approach us and request two months on one and half months off and some officers even want to do two months on three months off. So we are open to these suggestions.*

The other shipping company respondents believe that the seafarers know that this would be their life before making their decision and therefore must cope with it. The longest period of time at sea was mentioned as nine months on and two months off.

Since the seafarers have better conditions of life on board as they go up in rank[36] and also they get more involved in family life as they go up in age[37], an investigation was carried out to see if there is any correlation between work/life balance and the age or rank of seafarers. These issues are discussed in the next two sections.

5.14.10.1 Work/Life Balance and Age of Seafarers

The result is not statistically significant as can be seen from table 5.35 which shows that Chi-square significance is 0.208. Therefore it can only suggest that there is a negative correlation between the age of respondents and their view on work/life balance since. This means younger seafarers are more satisfied than their older colleagues. The Bivariate Correlations procedure (Spearman's rho type) was used to analyse the data.

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[36] They get more facilities such as bigger rooms, private office and so on.
[37] As the age increases many of seafarers get married and become fathers or mothers.

Table 5.35: Correlations between Work/Life Balance and age of Seafarers

			Satisfaction	Age
Spearman's rho	Satisfaction	Correlation Coefficient	1.000	-.600
		Sig. (2-tailed)	.	.208
		N	6	6
	Age	Correlation Coefficient	-.600	1.000
		Sig. (2-tailed)	.208	.
		N	6	6

5.14.10.2 Work/Life Balance and Rank of Seafarers

The relationship between work/life balance and the rank of seafarers was tested separately for deck and engine departments. As can be seen from the table 5.36, results for deck department show a negative significant correlation between work/life balance satisfaction and the rank of seafarers (Sig. =0.000). It means lower rank seafarers are more satisfied than the higher rank ones.

The result for engine department (table 5.37) did also show a negative correlation but it was not statistically significant (Sig. =0.667). Therefore a conclusion could not be drawn out for engine department.

Table 5.36: Correlations between Work/Life Balance and Rank Of seafarers (deck department)

			Wok/Life Balance	Rank
Spearman's rho	Work/Life Balance	Correlation Coefficient	1.000	-1.000(**)
		Sig. (2-tailed)	.	.000
		N	3	3
	Rank	Correlation Coefficient	-1.000(**)	1.000
		Sig. (2-tailed)	.000	.
		N	3	3

** Correlation is significant at 0.01 level (2-tailed).

Table 5.37: Correlations between Work/Life Balance and Rank Of seafarers (engine department)

			Work/Life Balance	Rank
Spearman's rho	Work/Life Balance	Correlation Coefficient	1.000	-.500
		Sig. (2-tailed)	.	.667
		N	3	3
	Rank	Correlation Coefficient	-.500	1.000
		Sig. (2-tailed)	.667	.
		N	3	3

5.15 Implementation of HRM practices in the shipping industry

Table 5.38 illustrates the use of each practice by shipping companies as reported by their seafarers. The Chi Square test shows that, except in few cases, the difference between those who reported that the practice is implemented and those who did not is significant. This gives a clear view on the number of HRM techniques reported to be used by the managers in the shipping companies. According to the result presented in table 5.39, the significant majority of seafarers (57.7%) believe that fewer than half of the HRM practices are used in their companies.

Table 5.38: Individual HRM Practices in the Shipping Industry

HRM Practice	No (%)	Yes (%)	Chi²
1. Did you attend any interview or written examination regarding your technical knowledge and competence related to your job during recruitment procedure?	37.0	63.0	.000
2. Did they make you familiar with the values and objectives of the company before starting your job?	36.4	63.6	.000
3. Did the company discuss the details of your job with you?	27.2	72.8	.000
4. Is it the policy of your company to use its own employees for managerial positions?	31.4	68.6	.000
5. Did you meet your department manager during your recruitment procedure?	45.1	54.9	.064
6. Do you think the recruitment procedure in your company is fair and without any discrimination?	26.6	73.4	.000
7. Did you pay any fee during employment procedure?	2.0	98.0	.000
8. Have you seen any difference in conditions of your employment contract with those of managers?	63.6	36.4	.000
9. Have you had any technical training courses paid by your current company since you have been employed?	27.5	72.5	.000
10. Do you have any organised on the job training for new equipment or rules and regulations?	42.0	58.0	.003
11. Does your employer provide you with any management training?	63.3	36.7	.000
12. Do you think the training provided to you by your employer were effective?	39.8	60.2	.000
13. Has the company trained you for any other job in addition to your professional job? (e.g. dual purpose officers)	91.0	9.0	.000
14. Have you ever attended any seminar or conference related to your job?	57.1	42.9	.007
15. Does the company pay you in accordance to your individual performance?	82.9	17.1	.000
16. Does your team-based performance affect your payment?	86.3	13.7	.000
17. Do you receive any other benefit (e.g. profit sharing or stock sharing) in addition to your wages?	81.5	18.5	.000
18. Does your company pay for your pension and social security?	57.4	42.6	.005
19. Do you have confidentiality clause in your contract?	55.2	44.8	.050
20. Does the company conduct a regular performance appraisal of staff?	20.4	79.6	.000
21. Are you directly involved in setting the performance targets of the company?	87.4	12.6	.000
22. Are you regularly informed about the market position and performance of your company?	45.9	54.1	.125
23. Do you attend the communication/ consultation meeting on a regular basis?	79.0	21.0	.000
24. Are you frequently informed about vacant positions, important events, etc.?	45.7	54.3	.101
25. Are you aware of the grievance procedure in your company?	16.2	83.8	.000
26. Has the company made you responsible for setting your own targets relating to your job?	71.4	28.6	.000
27. Do you have any quality circle or quality management team on board ship?	58.0	42.0	.003
28. Do your managers (senior officers) encourage and facilitate employees to work as a team?	20.4	79.6	.000
29. Is there a "No compulsory redundancy" in your contract?	76.2	23.8	.000
30. Have you got a long-term contract (more than one year) with your company?	38.1	61.9	.000

Table 5.39: The extent to which the systematic HRM practices are used in British shipping industry

	Observed N	Expected N	Residual
Number of seafarers reported that half or less than half of the practices are implemented in their companies	199	178.5	20.5
Number of seafarers reported that more than half of the practices are implemented in their companies	158	178.5	-20.5
Total	357		

Chi-Square test: Sig. = 0.002

The findings from the shipping company respondents show discrepancy in use of seven progressive HRM practices (Matrix 5.2). Although some of the practices such as "selective hiring of the new employees" have been used by the shipping companies but some others such as "Reduced status and barriers" have not been implemented. The use of these practices, reported by the shipping company respondents, shows that some individual sub practices have been used i.e. no evidence of bundling advocated of the core of the normative HRM literature.

Summary: the evidence with regards to hypotheses number fourteen and fifteen indicate that among the seven progressive HRM practices described by Pfeffer (1998) compensation, reduced status distinction and employment security have a limited use as reported by the seafarers. The study also reveals that some of the individual HRM sub practices have been used by the shipping companies but no indication was found to show integration between them as was described in normative HRM literature. Type of company, nationality of the company, type of vessels and current position of the seafarers appeared to influence implementation of progressive HRM practices.

5.16 Summary

In summary, the primary data collected to assess the research questions posed in this thesis suggest, first, that shipping companies consciously vary business strategy based on the market within which their vessels are trading. Specifically in the case of liners, accounting for market characteristics, shipping company respondents emphasise quality of customer service as the primary strategic driver.

Secondly, the evidence suggests that nationality of the seafarers and the flag of the registration of the vessels they sail in are the two factors particularly affecting the quality of employment terms awarded to seafarers. Seafarers from developed countries are paid more highly than their colleagues from developing countries even if they serve on board the same ship, performing the same occupational roles. Moreover, working and living conditions on board vessels registered in states where strict rules are in force are better than those in open registries. Satisfaction levels with conditions of employment also vary according to the type of vessel seafarers are sailing on.

Third, regulations introduced by international bodies (such as the IMO and ILO) have an effect in terms of minimum standards of on board working and living conditions afforded to seafarers. This assessment is based on statements by shipping companies regarding regulatory compliance. A majority of seafarers surveyed for this research indicate satisfaction with living conditions on board their vessels, although responses suggest that standards vary depending on the flag of registration.

Fourth, strategies to balance supply and demand for seafarers described by shipping company representatives include efforts to retain current seafarers, training cadets as a future succession pipeline, and outsourcing. Although employment of female seafarers was mentioned as another possible solution to the problem of a shortage of qualified officers, no deliberate policy to attract more women officers to the industry is evident.

Fifth, both seafarers and shipping company respondents report high levels of stress at work on board ships in the sample investigated. Heading the list of seafaring stress factors mentioned are “high workload”, “time pressure” and “increased paperwork”. A

connection may be perceived between sources of fatigue and stress levels experienced by seafarers surveyed. While acknowledging the problem, shipping company respondents were unable to describe the existence of a 'stress management' policy to tackle this concern.

Sixth, compensation levels and performance-pay contingency; reduced status distinctions and career progression barriers; and employment security represent the top three concerns among seafarers in response to the list of HRM practices presented for consideration. On the last of these, seafarers report limited tenure, under short-service contracts, even in cases where they may have undertaken a longstanding series of assignments working for a single shipping employer.

Seventh, type of operations, nationality of the company, vessel type, and occupational position of respondent appear to be relevant factors in observed implementation of HRM practices in the shipping industry. The same factors are consistently reported among both seafarers and shipping company respondents. Specifically in relation to the portfolio of progressive HRM practices, while there is evidence that some companies use some of the practices, implementation appears to be piecemeal rather than in the form of bundles recommended in the 'best practice' HRM literature.

In the chapter that now follows, organised by the hypothetical framework developed earlier in the thesis, the evidence presented above will be discussed to analyse the extent to which concern in the shipping industry literature regarding management of the human element may be judged to reflect progressive HRM, and the observed consequences for the seafaring employment experience.

Chapter Six: Discussion

6.1 Introduction

The aim of this chapter is to apply the empirical findings presented in the preceding chapter to evaluate the hypotheses developed from reviewing literature on shipping and seafarer management, and those concerned with an orientation to people management derived from discourse under the rubric of progressive HRM. Each section is headed in accordance with the wording of the 16 hypothetical statements developed in chapters 2 and 3 of the thesis. Contrasting evidence assembled from the mixed methods research design with distilled argument and previously published findings in the literature, the principal analytical indication is that it would be premature to talk in terms of adoption of progressive HRM in the shipping industry. With the exception of some pockets of activity, observed practice falls short in areas such as consistency in assuring employment security, delivering relatively high performance-aligned compensation, development, and attention to seafarer wellbeing beyond minimum levels to assure compliance with basic regulatory standards. Such factors are prioritised by advocates of progressive HRM, such as Jeffrey Pfeffer (1998) whose indicators inspired the framework developed to guide the empirical work in this thesis.

6.2 Evidence regarding whether or not shipping operators adjust their position on the cost-quality strategic continuum across market sectors contingent on issues such as the cargo specialisation, financial liability exposure risks, and scope to 'manage' customer relations

Underlying the first hypothesis, a literature-informed argument was articulated that shipping companies vary their business strategies according to market conditions, business environment, and the characteristics of each sector (Glen, 2005). The evidence presented appears to support the research hypothesis. A widespread view among shipping company managers in the sample was that business strategy should be different across industry sub-sectors. In accordance with the predicted position, type of vessel was repeatedly mentioned as crucial in determining the business strategy, taking into account cargo specialisation, environmental pollution-based financial risk factors, and customer demands.

6.3 Relative quality of contractual terms reported by seafarers associated with place of vessel registration

In developing the second hypothesis, secondary evidence reported in the literature was drawn on suggesting opportunism among shipping companies to maximise the flexibility afforded by the worldwide open registry system. The validity of the prediction was measured in terms of the level of concern observable among seafarers regarding the relative quality of contractual terms, informed by commentary in the literature reporting variations between vessels dependent on where they are registered.

Based on observations recorded by survey respondents, operating market, nationality of the company, and also nationality of the seafarers influence the character of contractual terms enjoyed by seafarers in the sample, a finding consistent with Wu and Morris' (2006) reference to global labour market segmentation, and shipping employers' exploitation of opportunities to draw on pools of seafarers from low-waged economies, rather than absorb the relatively higher employment costs of hiring crews from traditional maritime sources (Zhao and Amante, 2005). Reinforcing this finding, shipping company respondents indicated the adoption of employment policies that actively discriminate between seafarers employed by their firms, according to the place of registration of vessels across the fleet. Seafarers serving in comparable roles on the same vessel receive different reward packages according to their nationality. The evidence from the samples from which evidence has been assembled to inform this thesis appears to offer support for the second research hypothesis.

6.4 Opinion of the seafarers regarding the quality of the employment relationship

The prediction informed by the literature was that companies in different sectors of the shipping industry have different business strategies: cost-reduction or quality enhancement orientation, according to their market characteristics, with consequences for the quality of employment arrangements extended to the seafarers working on board the vessels of these different companies. Upon this argument the research hypothesis was developed in which it was predicted that the opinion of seafarers with regards to their quality of their contract varies according to the type of vessels they are sailing on.

The result of the survey analysis shows disparities in the views of the seafarers over their contractual terms based on the type of the vessel they were sailing on. This is evident particularly in practices such as the reward package in which different policies have been reported by seafarers from each sector of the shipping industry. The evidence lends support for the research hypothesis.

6.5 The link between market business strategy and people management strategy

In developing the fourth hypothesis, data gathered from the literature suggested that different sectors of the shipping industry have various business strategies according to their market characteristics. The integration of business strategy with the people management policies advocates that there should be a direct link between them. Based on this argument the hypothesis predicted that shipping company managers would indicate this direct link between business and people management strategies.

The primary data, collected from the shipping companies respondents, shows disparities among the respondents' views with regards to the link between business and people management strategies. While some indirect relations may be inferred between market characteristics, type of vessel and people management features such as length of service contracts and practices associated with recruitment, training and reward management, others denied any distinction between the people management policies. Overall, while there may be a case, drawing on the survey data, to support the prediction that a more developmental orientation to people management features in liner shipping, associated with a quality enhancement business strategy, compared with tramp shipping where the tendency may be towards a cost-reduction business strategy, evidence of an explicit systematically applied link was insufficient to support the research hypothesis.

6.6 Regulatory influence of socio-political institutions on the business and employment policies

Socio-political influences from institutional sources on the managerial decisions with regards to people management policies were mentioned in the literature. For example according to Lloyd's Register the forthcoming ILO Maritime Labour Convention (MLC, 2006) will have a direct impact on management of seafarers (Lloyd's Register, 2008). International bodies such as the IMO, ILO and international trade unions try to achieve

improvements in seafarers' employment contracts and onboard living conditions. Regulations adopted by these organisations establish minimum standards by which the shipping companies are bound and all the policies and practices with regards to seafarers need to comply with these international agreements. The common problem cited was lack of ability to enforce the regulations, and the fifth research hypothesis predicted that shipping company respondents were unlikely to indicate these international regulations unprompted when talking about their policies with regards to the management of their seafarers.

The survey evidence does not support the research hypothesis: the shipping company respondents referred unprompted to the regulations such as STCW, ILO form 180 and other international requirements by organisations such as the IMO, ILO, ITF and national unions such as NAUTULIS UK. Their reference to these rules and regulations was made when talking about their policies with regards to the management of the seafarers. Respondents mentioned that they try to comply with the minimum standards adopted by these regulations: however, the accent appears to be on compliance at the minimum level.

6.7 Living conditions on board the vessels

As was explained in chapter two, one thing, which makes the shipping industry unique, is that employees live in the same place as they work. The company seafarers are employed by is responsible for the living conditions of the employees as well as their working environment. Therefore in addition to the use of practices which aim at providing good working conditions on board the vessels, due care must be taken for their living conditions. Therefore the prediction is that current managerial practice creates a safe and competence-assured environment (cf. Anderson, 2004; Lloyds Register, 2008).

The result of this study shows that seafarers under survey are satisfied with their living conditions on board the vessels. The managers of the companies also believe that the conditions are acceptable. So the sixth research hypothesis is not rejected. As has been mentioned a number of times in this study the sample of seafarers in this research is European seafarers working for European companies. Therefore it was expected that the working and living conditions would be better than flag of convenience ships which are not monitored by their flag state. The study also revealed that lower rank seafarers are

more satisfied with the living conditions than higher ranks. Higher ranks, mostly masters, compare their conditions of living with the past and also with shore-based managers, and claim that on board living conditions are worsening. This is in contrast to the corporate managerial view among shipping company respondents that new ships have better facilities.

6.8 Living conditions on board the vessels and flag of registration

A two-tiered system of employment in the shipping industry was reported in the literature (Donn, 2002a), in which one tier provides acceptable standards of living conditions for seafarers and the other poor conditions. Therefore it was predicted that there is a link between the flag of registration of the ships and the living and working conditions on board the vessels. A correlation was found between the level of working and living conditions on board and the flag of registration of the ships. This was the case even in a single company having vessels under different flags. The reason mentioned for this difference was the different standard of regulations applied by flag states, and the way they control the compliance of the vessels under their flag with those rules and regulations. On the other hand no correlations were found between the satisfaction of the seafarers with living conditions on board the vessels and the nationality of the company they work for. It may thus be inferred that it is the flag of the vessel rather than the nationality of the company, which influences the level of working and living conditions on board the ships. The research hypothesis is not rejected.

6.9 Strategic managerial action to balance seafarer demand and supply

It was discussed in chapter two that due to imbalance in supply and demand of seafarers there is a shortage of qualified officers in the shipping companies particularly in those of the developed countries. This was seen as a major problem for managers in the shipping industry (Fairplay, 2004). So it was predicted that this aspect of the human element in shipping would be taken as high priority and there would be strategic managerial actions to balance seafarer demand and supply.

Results from this study reveal that the shipping companies are aware of this problem and different strategies have been used to tackle the problem. A few of the companies have started cadetship programmes to signal a more developmental long-term orientation.

Attracting females to the seafaring profession, changing the image, and marketing the job were also mentioned as strategies to tackle the shortage of qualified officers. Use of cheap labour from developing countries was also identified as a short time solution, however. These different strategies support the eighth research hypothesis of the thesis that, albeit in a variety of ways and at varying speeds shipping managements are trying to seafaring officer supply and demand problems.

6.10 Gender diversity

It was argued in the literature that female seafarers could fill the gap of qualified officers (Thomas 2004). It was also reported that there are some encouraging signals of changing the image of female seafarers towards seafaring and the image of employers towards employment of women officers on board merchant vessels. It was however widely acknowledged that much more needs to be done to achieve a balance in gender diversity. Therefore the ninth hypothesis suggesting an ongoing problem of gender diversity in the shipping industry is supported.

6.11 Ageing workforce

Both industry (NUMAST, 2002) and academic (Glen et al., 2002) surveys of the shipping industry workforce reveal that an ageing workforce is a major worldwide problem, which appears to be worse in developed countries (Glen et al., 2007). So it was predicted that an ageing workforce would be seen as a problem among respondents in the research for this thesis. The results support indications in the secondary data. The tenth research hypothesis is not rejected.

6.12 Stress at work

Stress at work was mentioned in the academic literature as a serious and growing problem in the shipping industry (MORI/ITF survey, 1996; NUMAST, 2002). It also creates other problems such as fatigue, which has been reported as one of the major causes of marine accidents. Separations from families and the working environment were given as the reasons for seafarer stress at sea (Agterberg and Passchier, 1998). Therefore having a stress management policy at company level was predicted as likely.

While the survey evidence suggested that stress is a problem in the shipping industry, in accordance with the secondary data in the literature, supporting hypothesis number eleven, the causes of stress listed by seafarers were revealed to be heavy workload, time pressure, increased paperwork and long working hours, this finding is in contrast with what was predicted from the literature. Research hypothesis number twelve is rejected, therefore. The finding was, however, consistent with the argument that there is an association between stress and fatigue (Smith et al., 2006; Smith, 2007). The results of this study revealed the same reasons for seafarer fatigue. Hypothesis number thirteen is not rejected.

6.13 Length of employment contract

A very high rate of unplanned staff turnover has been recorded in the shipping industry (McKay and Wright, 2007). More attractive salaries ashore, lack of social life on board the vessels and fear of criminal liability in the case of accidents were mentioned as possible reasons for non-attractiveness of seafaring jobs. The fourteenth hypothesis predicted that seafarers do not have long-term tenure. Mixed results from the survey and interview data suggest the need for caution before drawing inferences: while the survey evidence from seafarers indicated that contracts lasting over one year were common, comments among shipping company respondents not only implied that contract terms limited to nine months were common, they also signalled that although seafarers might work for an extended time period with a single employer, this might simply reflect a series of short term appointments. The finding could also be read in conjunction with the comments from shipping company respondents indicating deliberate differences in the treatment of seafarers employed across a variety of jurisdictions. Seafarers from non-traditional maritime nations might take a less sanguine view, therefore, than their peers from developed countries. Based on this inconclusive evidence there appear to be no self-evident grounds either to accept or reject the research hypothesis.

6.14 Shipping Management: an internalised relationship with seafarers?

A reported shortage of qualified officers capable of running high-tech ships and delivering high quality customer service, while limiting exposure to environmental and safety risks, suggested the logic for shipping company managements to internalise

employment relationships with their seafarers. This resource-based strategy offers a complete alternative to externalisation of employment relationships facilitated by an open registry environment for shipping. To test this prediction it was argued evidence could usefully be assembled against a framework identified with the notion of progressive people management practices. Survey findings to measure the extent of implementation progressive HRM are discussed in this section.

The first of the seven practices emphasised in Pfeffer's (1998) normative model is employment security, which Guest (2000) highlights as a key factor in securing the commitment of employees (in this case seafarers whose skills are recorded as in short supply) to their employer. Employment security was defined as associated with a situation where both parties plan for long period contract: on the employer's side this may be inferred from careful recruitment and appropriate training practices, for example, sending positive signals to employees to act likewise (Martin et al., 1998). As noted in section 6.2, while surveyed seafarers indicated that contracts might last over one year, counter-evidence suggested that this should not be uncritically accepted as implying long-term tenure. The commentary from some shipping company respondents that to tackle skills shortages forms of cadet training and subsequent career management might be interpreted as offering the possibility at least among leading-edge shipping employers that future moves to increase the sense of security among seafarers might be anticipated. But it may be prudent to regard the position generally as an open question currently.

Selective hiring of new employees, the second Pfeffer (1998) practice is advocated in the normative literature not only as a commitment-building intervention, but also as a route to reducing the costs of staff voluntary turnover and training expenditure (Huselid, 1995). Both survey evidence and shipping company respondent interviews indicate the presence of related sub-practices such as selection interviewing, psychometric testing, and forms of written examination of employee capabilities (Williams, 2002) when shipping companies recruit seafarers. One technique that was noticeable by its reported absence in the survey, although not among shipping company respondents, was the involvement of department (line) managers in the recruitment process. Of course employment through crew agencies would by definition be unlikely to involve company line managers in seafarer resource decision-making activities. And in the evaluation of

candidates during the selection process, a substantial minority of respondents (40%) claimed that formal processes were absent, the implication being that these employers relied solely on a candidate's certificate of competency, with the risks associated with the possibility of fraudulent certificates in use identified in the literature reviewed earlier in the thesis.

The incidence of organisational design based on decentralisation and self-managed teams, a third Pfeffer (1998) practice, not only to motivate employees to exercise creativity, but also to ensure clarity as to responsibilities and skill requirements and flexibility so that the company can respond market conditions (Beatson, 1995), is questionable by reference to results from the empirical investigation. The nature of seafarers' activities requires teamwork, and the survey and interviews reveal perceived encouragement for this. But there is no evidence that other techniques, such as quality circles and involvement of the seafarers in setting their own targets, are practised. One explanation from the literature is reported centralisation in the shipping industry, where information and communications technology means head office direct intervention in a range of onboard decisions that previously were the prerogative of the master and immediate subordinates (King, 2000).

Relatively high levels of compensation and performance-reward contingency is the fourth of Pfeffer's set of progressive HRM practices, which may be constituted as a package of incentives awarded to attract, motivate and retain talented employees (Dulebohn and Werling, 2007). Reported take-up of this practice area scores low in the data assembled for this thesis: innovation in compensating seafarers using profit sharing, stock sharing, and even availability of attractive pension, social security or other forms of non-cash benefits or deferred reward did not feature in seafarer or shipping company managerial responses, beyond isolated references to some form of profit sharing. The survey and interview responses indicate that, although performance appraisal is practised in shipping companies, it is not related to pay. In terms of transparency in setting compensation levels, shipping company respondents claimed to be very transparent about the details of employment contract terms applied to seafarers. In contrast, around half the seafarer sample claimed that they had a 'confidentiality clause' in their contract. As noted in reviewing the literature, it has been argued that such features are used by

shipping employers to drive down wage levels without alerting regulatory bodies or the unions.

Pfeffer's (1998) fifth key practice, training provision, has been widely emphasised in normative models of HRM (Dechawalanapaisal, 2005). Survey and interview evidence assembled for this research shows that shipping companies provide technical training courses for seafarers, related to the employee's particular job requirements. These are mostly training interventions required to satisfy international rules and regulations, or prompted by the introduction of new technology. There is little evidence to suggest that training is given to seafarers to support individual career development. Again, type, size and nationality of the companies appear to be factors that determine training management practice. Shipping companies, which directly employ their seafarers, invest more in their training than those employ seafarers through crew agencies. And the nationality of the companies plays a role whereby regulations may differ between flag states in terms of making seafarer training obligatory. Despite having modern ships, in which automation has made it possible to use one dual-purpose officer to navigate the ship and also monitor the engine, consistent interest in investing in training seafarers for this kind of functional flexibility was not discovered in the primary data. This runs counter to a strand that has been emphasised in the discourse on 'modernising' people resource management.

Reduced status distinctions and barriers is, sixth in Pfeffer's (1998) normative model which, according to Coopey (1995), connects directly with employee motivation and indirectly influences the business performance of the company. Evidence assembled for this thesis suggests that managerial practice runs directly counter to this prescription, in term of active discrimination in the contractual terms offered by shipping companies that employ mixed nationality crews – for example applying different rates of pay to seafarers working on board the same vessel. Masters may be seen to occupy a middle management role as the representatives of the company on board vessels, and thus involved in implementation of HRM practices. According to the survey data their view differs from that of other seafarers, in the sense that they appear to express greater confidence in the incidence of progressive HRM techniques in their companies. Of course, as confirmed in the interviews with shipping company respondents, masters are

afforded relatively enhanced onboard accommodation, albeit with emphasis that better facilities flowed from their nature of the master's job rather than purely to reinforce status differences. On the other hand, as noted in section 6.7, senior-ranking officers complained that onboard facilities had worsened relative to historical practice while managerial respondents implied improvement contingent on newer vessels in fleets.

Sharing financial and corporate performance information' the final of Pfeffer's (1998) seven progressive HRM practices is a technique purported to change employee attitudes and behaviour (Kessler et al., 2004). The aim is to give the employees, on regular basis, the information about business issues in the company to help them contribute to the success of the company, and also get employee feedback. The primary data suggests that communication and consultation between companies and seafarers falls short of this aspiration. Some companies appear to inform their seafarers about market position, important events, and/or job vacancies, but there is no evidence suggesting that corporate performance targets are communicated with them, or processes to involve seafarers in objective-setting activity. The situation was dismissed among some shipping company respondents on the basis that the job description manual on board vessels, a standard requirement under international law, explains the objectives applicable to each seafaring job and therefore perceived no need for more corporate-level engagement.

In terms of seafarers' perspectives from which to evaluate prospects for an internalised relationship with their employers, the survey evidence suggests that in companies where progressive HRM is observed to be in operation, seafarer satisfaction with aspects such as work/life balance increases. It is a characteristic of the seafaring life that seafarers spend most of their working time away from home, moderated by reference to the type of vessel they are working on, as well as the policy of the company. In short-sea shipping, the period of work is shorter and the frequency of leave is greater, while in deep-sea the seafarers usually work to a contract of about six to nine months followed by leave of absence of around two months. While conventional work/life balance may be difficult to achieve under these circumstances, shipping employers may take steps to ameliorate the problem by introducing policies such as flexible contracts, on-board entertainment, and family support. Some of the companies researched for the thesis have introduced 'flexible shifts' for seafarers, so that they can choose the time of sea service

and period of shore leave. But this flexibility is not realistic in the case of employment on some vessels, due to nature of the functions they perform. For example, bulk carriers have long voyages, which make it difficult to be flexible with shift schedules. The survey results indicated that younger seafarers tend to be more satisfied with their work/life balance than older colleagues, a finding that may logically be attributed to an expectation that younger seafarers will have fewer on-shore domestic ties, in comparison with older ones who may be married with children. This negative correlation of age and satisfaction with work/life balance might be offered as one reason why seafarers leave the seafaring job after some years working at sea, exacerbating the current supply-demand imbalance among seafarers. The negative correlation in the survey data between the rank of seafarers and their satisfaction with work/life balance may be similarly explained in terms of on-shore commitments as well as the likely increase in stress levels at work among higher ranks.

In summary, based on analysis of the empirical data using indicators of progressive HRM, internalisation of the seafaring employment relationship, combined with integrated HRM practices, appear to remain elusive. Remarks by shipping company respondents may signal managerial recognition of the importance of the human element but this is coupled with observations suggesting that application of HRM techniques may be limited to compliance with minimum requirements mandated by external regulation. As such, there is no obvious case to accept the fifteenth research hypothesis in which it was predicted that shipping managements will seek an internalised relationship with seafarers.

6.15 Implementation of HRM practices in the shipping industry

To qualify as an 'HRM-employer' under Hoque's (2000) criteria, more than half the progressive HRM practices need to be adopted. Other commentators (e.g. Storey, 1995) emphasise too that HRM techniques must be implemented as an integrated bundle to fulfil the normative promise inherent in this approach to managing the employment relationship. Evidence from the survey of seafarers and interviews with shipping company managers in this study is suggestive that the 50% benchmark has not on average been achieved, despite widespread calls for a more developmental orientation to be adopted in respect of the human element in shipping, especially bearing in mind the

highly complex tasks that seafarers must perform logically implying an internalised employment relationship emphasising human capital building (e.g. Sampson and Zhao, 2003; Theotokas and Progoulaki, 2007). Moreover, it may be inferred from the evidence reported in this thesis that shipping companies, which do use some of the techniques, are not implementing them as a group or bundle of practices. There is no basis to support the sixteenth research hypothesis, in which implementation of more than 50% of the Hoque (2000) practices was predicted.

6.16 Summary

Predictions that people management strategies in the shipping industry vary according to business market sub-sector, type of the vessel, flag of registration, and nationality of seafarers appear to be confirmed. However, people management practices seem somewhat opportunistic – strategy is emergent, accounting for characteristics of the various market segments for merchant shipping and the open registry system. The evidence assembled for this thesis does not appear to offer systematic support for the argument that market complexities and a universal demand for talented leaders to engineer and navigate vessels is in some way matched to managerial acceptance among shipping companies that a developmental orientation should be extended to the human element across the global maritime industry. Rather than seeing widespread adoption of resource-based business strategy, classical economic theory appears to prevail, despite pockets of innovation. Business strategy and concomitant HRM practices appear to be driven according to managerial reading of market and/or technical demands', rather than based on a line of reasoning that seeks sustainable advantage by institutionalising people and practices from within long-run internal resource investment.

It is true that the evidence available from shipping company respondents – whose quality is to some extent a function of the representatives to whom access was obtainable – does not extend to in depth revelation of considerations being weighed in corporate boardrooms. But, from comments recorded, and weighed against survey evidence from seafarers who are the targets for shipping company employment policies, it seems reasonable to infer that while management say they wish to invest in the core seafaring community, with a few instances of, for example, long-range career management practices, in most cases the human element ranks in the second order of strategic

importance. This is consistent with the "pessimistic conclusion" reached by Purcell (1992: 79), one that has been judged to represent a form of 'managerial social irresponsibility' under "the present state of evolution in economic freedom [in which] "vast impersonal organisations pride themselves on their ruthlessness and respond only to material incentives" (Herman, cited in Purcell, 1992: 79). A less dramatic assessment which may apply in the case of shipping managements is simply that a pragmatic rationalisation of the orientation towards the seagoing human element applies, based on a managerial worldview that corporate survival means satisfying pressures for profit margin improvements, and short-run maximisation of finance capital investment returns (op. cit.).

Analysis of data collected from the survey of seafarers surfaces inconsistencies between the accounts articulated among at least some shipping company respondents regarding efforts generally to improve the quality of the employment experience. Of course, it may be that communication of the merits of people management practice has yet to make the kind of impact that 'HRM businesses' (to build on Hoque's (2000) hotel industry label) are expected to achieve. Seafarers surveyed for this thesis appear generally concerned regarding the overall character and value of their employment contract. Respondents indicate satisfaction with their living conditions on board the vessels, subject to some caveats expressed by senior officers comparing current and historical conditions. But seafarers at all levels worry about the level of stress at work implied by high workload and increased paperwork, with, no systematic 'stress management' in place to ameliorate the problem – compounded by a widespread concern regarding employment security – an aspect at the very core of HRM 'best practice' (in Pfeffer's 1995, 1998 terms). The situation does not bode well for concerns regarding the balance of quality seafaring supply and demand, given the adverse demographic profile the industry faces.

Analysis of combined quantitative survey data and qualitative interview findings, accounting for views among shipping managements and the seafarers they employ, suggests that shipping companies are not either ignoring or overlooking progressive HRM practices along the lines operationalised in Pfeffer's (1995, 1998) seven practices. Or where the techniques are observable lack of a holistic application means that to-date

progressive HRM in the shipping industry looks a somewhat limited phenomenon, despite the widespread calls for serious attention to the human dimension.

Table 6.1: Evaluation results of Hypotheses

	Hypothesis	Result
1	*Shipping operators across market sectors will adjust their position on the cost-quality strategic continuum, contingent on issues such as the degree of specialisation in cargoes carried,* risk of exposure to financial liability for cargo spillages, *and scope to manage customer relations to the suppliers' advantage.*	Supported
2	*Given the reported proportion of vessels registered so as to benefit from deregulation over employment terms afforded to them, seafarers will report concerns regarding the quality of contractual terms, when measured against norms for traditional maritime employment.*	Supported
3	*Opinion regarding the quality of employment relationship will vary among seafarers depending on the type of vessels they are contracted to sail in, and the commodity transport markets in which their employers trade.*	Supported
4	*When describing employment practices applied to seafarers employed by their company, representatives of shipping managements will offer indications suggesting a direct link between market- and vessel-contingent business strategy and cost versus developmental people management orientation.*	Not Supported
5	*When inviting shipping managements to comment on their business and employment policies and practices, it is unlikely that unprompted reference will be made to perceived significance of regulatory influences flowing from socio-political institutions linked with the global maritime industry.*	Not Supported
6	*Seafarers report general satisfaction with living and working conditions aboard the ships on which they are employed.*	Supported
7	*Assessments of conditions aboard merchant vessels will be associated with the flag state under which the vessel sails.*	Supported
8	*Evidence will be discernible in managerial discourse signalling that action to balance seafarer demand and supply is being treated as a strategic issue.*	Supported
9	*In spite of the argument that appointment of women officers could help address the skills shortage problem, females continue to be significantly under-represented among seafarers.*	Supported
10	*The age profile of seafarers is likely to exacerbate current and future skills shortage problems facing the shipping industry.*	Supported
11	*Seafarers will report high levels of work-related stress.*	Supported
12	*Seafarers will report two principal reasons for experiencing work-related stress as: (1) separation from their families, and (2) environmental conditions on board the vessels they sail in.*	Not Supported

13	*Analysis of reports from seafarers will identify an association in patterns of stress and fatigue experienced by seafarers in the course of their duties.*	Supported
14	*Seafarers do not have long-term employment tenure with their current employer, from which a corporate career path might be inferred.*	Inconclusive evidence
15	*Shipping managements will emphasise internalised relationships with seafarers regarded as core corporate assets.*	Not Supported
16	*Progressive HRM is applied to seafarers when 50% and above of Pfeffer's (1998) 'seven practices of successful organizations', operationally defined to encapsulate Hoque's (2000) seven part, 21-item research instrument are present.*	Not Supported

Chapter seven: General Conclusion

7.1 Introduction

This study set out to specify and explore the management of seafarers and their contemporary employment experience, including prospects for progressive HRM. The inquiry was grounded in widespread calls for attention to the human element, which shipping industry commentators have located as a central problem demanding managerial attention. The present chapter summarises the main findings from the investigation and offers general conclusions to the thesis. First, the ways by which the objectives of the thesis have been addressed are described. Second, commentary is offered regarding the limitations on potential to generalise from the study findings. Third, areas for possible further research, building on the contribution to knowledge made by the present investigation, are sketched. A final conclusion indicates how, in sum, the reported actions meet the overall study aim.

7.2 Theoretical objectives

The first two objectives set for the thesis were to specify a theoretically informed framework, on one hand, to describe and analyse the ways employment of seafarers is managed by shipping companies. On the other hand, to identify concepts and measures with which to seek evidence indicative of more 'progressive' people management principles applicable to seafaring employment.

7.2.1 People management in the shipping industry

To address the first of these objectives, shipping industry literature was reviewed to understand how seafaring has been located within debates on developments in shipping, approaches to business strategy applicable to the industry and its sub-markets, and the trans-national institutional context for merchant marine operations. The review enabled a series of predictions to be developed, associated with operational measures to enable them to be subjected to empirical testing.

The literature review helped to identify how the shipping industry divides between various sub-sectors according to the types of vessel and the cargos transported. Alternative business strategies have been identified associated with market structure and

the speciality of particular vessel types, which, in turn, give rise to demands for different commercial and technical seafaring skills. It was predicted that the shipping companies select their strategy along a cost-quality scale according to the degree of specialisation of the cargo carried, risk of financial liability, and capacity to influence supplier-customer market relations. Accordingly, predictions were formulated to evaluate the scope for observing variation in seafaring employment relationships across the shipping industry associated with the type of the vessels and the sea transportation markets they are working in.

Mixed reports were identified in the literature over the capacity of socio-political institutions (e.g. UN agencies, and seafaring trade unions) to enforce common standards of people management practices across the shipping industry and the employment markets for seafarers. Propositions were developed to evaluate the effects of these institutions on managerial decisions regarding people management policies reported by respondents in this research. Factors were surfaced that shipping industry commentary has positioned as creating significant managerial problems. The factors include, on the one hand, demographic issues such as an aging workforce and lack of gender balance, along with a perceived loss of attractiveness of a seafaring career among potential entrants, creating a reported shortage of qualified officers to engineer and navigate merchant marine vessels. On the other hand, the shipping industry literature carries reports of unreasonable levels of stress and fatigue associated with the contemporary seafaring work/life. Propositions were developed to focus an attempt to evaluate each of these issues.

7.2.2 Progressive HRM and management of seafarers

To address the second theoretical objective of the thesis, the focus of analytical attention was shifted to ways in which a more positive scenario for management of contemporary seafaring might be specified to inform empirical investigation. The logic for this change of emphasis was located in calls among shipping industry commentators and other opinion formers emerging out of the intensifying concern to focus greater attention than may have been the case previously on the human element at the centre of what has become a high-tech as well as high-risk industry requiring a highly skilled workforce. To address this situation, factoring-in the demographic and social issues specified to

address the first theoretical objective, it was hypothesised that shipping managements may be experimenting with more progressive people management practices, possibly running ahead of what has been previously reported in the shipping literature. The logical implication of a more resource-based business strategy is that employers will wish to internalise relations with their core workforce members (for the purpose of this thesis, seafarers). Informed by a review of the normative HRM literature, a framework was identified and tailored to the requirements of the present thesis, to examine the character of a hypothesised internalised seafaring employment relationship, and also to assess the conditions under which a shipping employer might be judged as practising progressive HRM.

7.3 Empirical objectives

The second two objectives of the thesis were, first, to assemble a database informed by primary investigation among shipping industry respondents (seafarers and shipping company managers). Second, to analyse the data in each case, using appropriate methodological instruments, to develop an empirical perspective on the character of seafaring employment management mindful of the concerns expressed by those calling for attention to the human element in contemporary shipping.

7.3.1 Collecting the data

For theoretical and practical reasons, a mixed methods approach was selected to evaluate the theoretically derived research propositions. Largely quantitative data was collected from 357 seafarers working onboard merchant ships, using a self-administered survey questionnaire, distributed under the auspices of British seafaring trade union, NUMAST. Qualitative data was collected from 10 individuals representing shipping company managements, based on semi-structured interviews that were audio recorded and transcribed.

7.3.2 Analysing the data

Qualitative and quantitative analysis of data was carried out, using a variety of statistical instruments and complementary qualitative data reduction and interpretation methods. The process was organised in accordance with the hypotheses developed in chapters two and three predicting outcomes against pre-specified criteria to evaluate opinion on the

way seafaring employment is managed and, following a more emergent approach, the prospects for adoption of progressive HRM practices. Conclusions from the analysis are summarised in sections 7.4 and 7.5 (below).

7.4 People management in the shipping industry

In brief, there appears to be some evidence suggesting the accuracy of predicted polarisation between business strategies focused on quality of customer service in liner shipping and managing costs in tramp shipping markets. Managerial respondents were not unanimous regarding differentiation on grounds of strategic orientation. But, for example, seafarers in the tanker sub-sector pointed strongly towards disparities in employment terms between themselves and shore-based managers. A more clear-cut association appears evident between the quality level of employment contracts (pay and other service conditions) and the nationality of seafarers, on the one hand, and the flag of registration of the vessels they sail in, on the other hand. Reported satisfaction among seafarers with their working conditions on board varies also according to the type of the vessel they sail in.

It may be inferred from evidence collected for this study that socio-political institutions influence managerial action related to people management practices. However the influence of external regulations appear confined to assuring compliance with minimum standards of working and living conditions on board, and also the minimum wage rates paid to seafarers.

Variation is evident in attempts to overcome a shortage of qualified merchant marine officers. Some shipping companies seek to access so-called cheap labour from non-traditional seafarer supplying countries, despite reported problems regarding quality assurance in certification practice, for example. Others report initiatives to train cadets, and efforts to retain current seafarers (albeit with a preference among managerial respondents for a series of non-tenured contracts of less than a year's length renewable at managerial discretion). Employment of female seafarers to enrich the merchant maritime officer skills pool is referred to, although evidence is light regarding explicit policies to achieve a more balanced gender profile. A policy vacuum also appears to apply in the case of work-related stress management, despite widespread acknowledgement among managers and seafarers alike that seafaring work is highly

stressful, something which may contribute to the loss of key skills. Much of the stress burden is attributed to a contemporary environment in which workload has increased, as crews have been downsized while the range of job tasks has been expanded; time pressures, to cope with customer demands and reduced turn round times when ships are in port; and increased 'paperwork', reflecting a high risk context and IT-enabled increased corporate managerial interventions in the day-to-day running of merchant ships. An association was also identified between the reasons for seafarer stress and fatigue – with its attendant operational dangers.

7.5 Progressive HRM and management of the seafarers

It may be inferred from the evidence collected for this thesis that, although some companies in the shipping industry use some progressive HRM practices, the implementation appears to be piecemeal rather than in form of the bundles that have been recommended in the normative HRM literature. Items attracting the most negative response among seafarers are compensation levels and performance-pay contingency; barriers to reduced status distinctions and career progression; and employment security. To some extent consistent with the analysis of factors differentiating people management practice generally in the shipping industry, type of vessel, nationality of the company, and rank of the seafarer are significant contingencies in the implementation of HRM practices in the shipping industry.

7.6 Limitations

Generalisation from the findings of this research is limited to the sample of seafarers among the 16,000 members of NUMAST, in the case of the survey sample. Shipping company respondents' comments reflect the fact that they represent companies registered within the UK and wider European Union. The quantitative data reflects its source, and the qualitative data was not assembled for the purpose of statistical generalisation. But there is a case to suggest that the analysis presented adds to empirical and theoretical understanding of a situation in which it is reasonable to predict that, despite the limited evidence that European headquartered shipping managements are comprehensively acting in ways that address the human element problem, the situation is likely to be less encouraging still among the 'open registry' maritime nations whose vessels and seafarers are navigating the world's oceans.

7.7 Implications for further research

There are two specific aspects that might be taken into consideration in proposing further research in the same field of investigation. First, there is the issue of sample size: a larger sample, covering seafarers – and their employers – across a wider international reach would improve on the scope for empirical generalisation that has been acknowledged as limiting the present study. But the situation is unlikely to be straightforward: it is not simply a matter of resource required beyond that available to a single researcher. As explained in the methodology chapter, managerial sensitivity on the one hand and, on the other hand, physical access to seafarers singly and together raise the level of difficulty in attempts to mount serious empirical investigations into the management of seafaring employment. Agencies such as the IMO or large well-connected commercial organisations such as Lloyd's Register might be able to secure access to wider pools of data, and so analysts might usefully build network connections in such directions, where feasible.

Secondly, along a more theoretically inclined plane, future research into seafaring employment might be undertaken, intended to expand on an area that has attracted significant academic interest (for example, work over a number of years by US analyst, Mark Huselid[38] and his associates), namely, the potential associations between comprehensive application of normative HRM practices and business performance. It has been claimed that 'HRM organisations' have achieved success relative to their peers not only in retaining employee skills and building a sense of commitment among the workforce to managerial goals; success applies too in terms of financially oriented corporate performance. While the managerial sensitivities already mentioned may not be assumed away among companies whose practice might be deemed to lack a progressive orientation, employers who may be experimenting with HRM principles, if only in a piecemeal fashion, might perceive an incentive to engage in research studies legitimised by investigators in 'business performance' terms.

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[38] Huselid's seminal (1995) paper has sparked a series of similarly inclined efforts on both sides of the Atlantic.

7.8 Conclusion

The thesis that has been argued is that little evidence may be discerned from which to infer that systematic attention is being paid, in the form of progressive people management practices, to the widespread calls for attention to the human element as a central problem for shipping industry management. A logical shift to a resource-based strategic orientation and associated internally oriented employment relationship between shipping employers and seafarers – as a core skills resource in a technically complex, high risk, high stress, business and operational environment – appears to be piecemeal at best. An implication from observable practice is that, even where the structural properties of open registries are not overtly deployed, the ideology prevails of externalising employment relationships, prioritising opportunism over more developmental investment in human capital in pursuit of sustainable competitive advantage, even among employers in traditional maritime countries. Managements may say they wish to invest in seafarers, but in most cases the human element ranks low in the order of strategic importance. So it can be concluded that progressive HRM in the shipping industry to date appears to be a limited phenomenon.

The thesis has contributed to knowledge of people management in the shipping industry in three principal ways. First, a detailed series of predictions has been specified to enable the general calls for attention to the human element to be systematically evaluated, grounded in debates in the shipping and HRM literatures. Secondly, operational definitions of normative HRM to inform research instruments suitable to guide empirical research investigation of practice have been extended from existing accounts tailored to the circumstances of seafaring employment in shipping industry contexts. Thirdly, in a research setting where access to empirical evidence in conformance with academic conventions is problematic, a database has been assembled from which to generate a triangulated analysis of managerial and seafaring views on issues around employment in the shipping industry.

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Appendix 1: Seafarers' Questionnaire:

Section A: About

Your Gender: Male □ Female □

Your Age:

Under 21 □ 21-30 □ 31-40 □ 41-50 □ 51-61 □ over 61 □

Your nationality:

British □
EEA & EEU □
Others □ Please specify:----------

Are you currently employed at a level below your qualification? YES □ No □
Your current position:

Deck: Master □ Chief Mate □ OOW □
Engine: Chief Engineer □ Second Engineer □ Engineer Officer □
Others: Please specify----------

Section B: About the Current or Most Recent Company That Employed You

Your company is a:

Shipping company □
Shipping management company □
Others □ Please specify:---------

Nationality of your company is:

UK based □
EEA & EEU □
Others □ Please specify:--------
Unknown □

Which vessel's type you mostly contracted during last two years:

Bulk carrier □ Tanker □ General cargo □
Passenger □ Ro-Ro Ferry □ Gas carrier □
Others □ Please specify:-------

Section C: About The Personnel Policies of Your Current or Most Recent Employer

1. Did you attend any interview or written examination regarding your technical knowledge and competence related to the job during recruitment procedure?	Yes ☐	No ☐
2. Did they make you familiar with the values and objectives of the company before starting your job?	Yes ☐	No ☐
3. Did the company discuss the details of your job with you?	Yes ☐	No ☐
4. Is it the policy of your company to use its own employees for managerial positions?	Yes ☐	No ☐
5. Did you meet your department manager during your recruitment procedure?	Yes ☐	No ☐
6. Do you think the recruitment procedure in your company is fair and without any discrimination?	Yes ☐	No ☐
7. Did you pay any fee during employment procedure?	Yes ☐	No ☐
8. Have you seen any difference in conditions of your employment contract with those of managers?	Yes ☐	No ☐
9. Have you had any technical training courses paid by your current company since you have been employed?	Yes ☐	No ☐
10. Do you have any organised on the job training for new equipment or rules and regulations?	Yes ☐	No ☐
11. Does your employer provide you with any management training?	Yes ☐	No ☐
12. Do you think the training provided to you by your employer were effective?	Yes ☐	No ☐
13. Has the company trained you for any other job in addition to your professional job? (e.g. dual purpose officers)	Yes ☐	No ☐
14. Have you ever attended any seminar or conference related to your job?	Yes ☐	No ☐
15. Does the company pay you in accordance to your individual performance?	Yes	No

	☐	☐
16. Does your team-based performance affect your payment?	Yes ☐	No ☐
17. Do you receive any other benefit (e.g. profit sharing or stock sharing) in addition to your wages?	Yes ☐	No ☐
18. Does your company pay for your pension and social security?	Yes ☐	No ☐
19. Do you have confidentiality clause in your contract?	Yes ☐	No ☐
20. Does the company conduct a regular performance appraisal of staff?	Yes ☐	No ☐
21. Are you directly involved in setting the performance targets of the company?	Yes ☐	No ☐
22. Are you regularly informed about the market position and performance of your company?	Yes ☐	No ☐
23. Do you attend the communication/ consultation meeting on a regular basis?	Yes ☐	No ☐
24. Are you frequently informed about vacant positions, important events, etc.?	Yes ☐	No ☐
25. Are you aware of the grievance procedure in your company?	Yes ☐	No ☐
26. Has the company made you responsible for setting your own targets relating to your job?	Yes ☐	No ☐
27. Do you have any quality circle or quality management team on board ship?	Yes ☐	No ☐
28. Do your managers (senior officers) encourage and facilitate employees to work as a team?	Yes ☐	No ☐
29. Is there a "No compulsory redundancy" in your contract?	Yes ☐	No ☐
30. Have you got a long-term contract (more than one year) with your company?	Yes ☐	No ☐

31. Are you satisfied with your living conditions on board the vessels you sail in?	Yes ☐	No ☐
Please write your comments:----------		
32. Do you think your job is stressful?	Yes ☐	No ☐
Please write your comments:----------		
33. Are you satisfied with your work/life balance?	Yes ☐	No ☐
Please write your comments:----------		

Thank you very much for your help.

Appendix 2: Interview Guide/Interviews with shipping company management representatives

Question One

Could you please tell me about the business strategy of your company?

- *Does the business have different strategy, for example, in relation to liner and tramp vessels?*

Question Two

I'd like to ask you about various specific people management practices as these apply to Masters and other ship's officers. But to get an overview, please talk about the HRM policies generally in your company.

- *Is the HRM policy different e.g. for liner and tramp vessels, for short-sea and deep-sea?*

Question Three

How do you recruit the seafarers in your company?

- *Are there differences in sourcing and selecting Masters, on the one hand, and other officers on the other hand?*
- *Can you please describe who gets involved in recruitment and selection of Masters and other officers? Who makes the hiring decisions?*
- *Could you describe the competencies and other factors that carry most weight in selecting the candidates?*

Question Four

Please talk about the career development practices applied to Masters and other ship's officers in your company.

Question Five

Can you tell me about the overall staff development and training policy at your company?

- *Is there any difference between development and training of shore staff and sea staff (specifically Masters and other ship's officers)?*
- *Could you please talk about the objectives of developing and training Masters and officers?*
- *How do you evaluate the effectiveness of investment in development and training?*

Question Six

Could you please talk about the company policy with regard to pay and benefits for seafarers (specifically Masters and other ship's officers)?

- *Are there differences in the way the policy is applied to masters and other officers?*
- *Is the policy different for shore and sea staff?*

Question Seven

Please talk about performance management practice at your company.

- *To what extent is pay for Masters and other ship's officers linked with their performance?*
- *Talking about the practices of performance management, can you describe communications practices applied to seafarers in this respect? Is there a performance management cycle at which goals are set and performance is appraised on a regular basis?*

Question Eight

How does the company encourage the masters and other seafarering officers to work as a team?

Question Nine

Could you please talk about any policies and practices at your company intended to retain the Masters and other ship's officers in employment?

Question Ten

Do you have any policies associated with wellbeing of seafarers? For example arrangements intended to promote life/work balance?

Question Eleven

How would you describe the working and living conditions of seafarers on board the vessels of your company (again with Masters and other officers specifically in mind)?

Question Twelve

We know that work in any industry can be stressful but the special circumstances of working at sea might be seen as particularly stressful. What is your view on that?

- *Does the company have any 'stress management' policy?*

Final Question

Is there anything I have not asked that you would like to talk about?

Thank you very much for your participation.

Appendix 3: Binary Regression Analysis

Table 3A.1: Regression analysis of sub practice number One

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			5.557	4	0.235			
age (31-40)	0.340	0.696	0.238	1	0.625	1.405	0.359	5.498
age (41-50)	0.301	0.637	0.223	1	0.637	1.351	0.388	4.708
age (51-60)	-0.428	0.621	0.476	1	0.490	0.652	0.193	2.200
age (over 60)	0.302	0.916	0.109	1	0.741	1.353	0.225	8.145
Position (Master)			3.012	6	0.807			
Position (Chief mate)	-0.377	0.474	0.630	1	0.427	0.686	0.271	1.739
Position (Deck officer)	-0.306	0.553	0.307	1	0.580	0.736	0.249	2.175
Position (Chief engineer)	0.321	0.437	0.540	1	0.463	1.378	0.585	3.246
Position (Second engineer)	0.082	0.590	0.019	1	0.889	1.086	0.342	3.449
Position (Engineer officer)	0.393	0.821	0.230	1	0.632	1.482	0.296	7.410
Position (Other officers)	-0.265	0.535	0.245	1	0.621	0.767	0.269	2.190
toc (Shipping company)			0.461	2	0.794			
toc (Shipping management company)	0.057	0.365	0.024	1	0.876	1.059	0.518	2.163
toc (Other types of companies)	0.412	0.608	0.460	1	0.498	1.510	0.459	4.971
noc (UK based)			3.141	2	0.208			
noc (EEA & EEU)	-0.323	0.385	0.705	1	0.401	0.724	0.341	1.539
noc (Others)	-0.718	0.423	2.877	1	0.090	0.488	0.213	1.118
tov (Tanker)			17.169	8	0.028			
tov (Liner)	-0.396	0.572	0.478	1	0.489	0.673	0.219	2.067
tov (Passenger)	-0.427	0.586	0.530	1	0.467	0.652	0.207	2.060
tov (Ro-Ro)	-0.817	0.464	3.104	1	0.078	0.442	0.178	1.096
tov (Gas carrier)	0.218	0.765	0.081	1	0.775	1.244	0.278	5.572
tov (DSV)	-2.345	0.724	10.499	1	0.001	0.096	0.023	0.396
tov (Supply)	-1.007	0.602	2.800	1	0.094	0.365	0.112	1.188
tov (AHTS)	0.735	0.870	0.714	1	0.398	2.085	0.379	11.469
tov (Tug)	0.368	0.881	0.174	1	0.676	1.444	0.257	8.117
Constant	1.344	0.710	3.584	1	0.058	3.836		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.2: Regression analysis of sub practice number Two

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			17.77	4	**0.001**			
age (31-40)	0.229	0.827	0.077	1	0.782	1.257	0.25	6.361
age (41-50)	-0.744	0.715	1.083	1	0.298	0.475	0.12	1.93
age (51-60)	-1.834	0.711	6.663	1	**0.010**	0.16	0.04	0.643
age (over 60)	-1.045	0.96	1.187	1	0.276	0.352	0.05	2.306
Position (Master)			7.632	6	0.266			
Position (Chief mate)	-0.972	0.501	3.77	1	**0.052**	0.378	0.14	1.009
Position (Deck officer)	-0.704	0.583	1.457	1	0.227	**0.494**	0.16	1.551
Position (Chief engineer)	-0.213	0.441	0.233	1	0.629	**0.808**	0.34	1.919
Position (Second engineer)	-1.112	0.621	3.209	1	0.073	**0.329**	0.1	1.11
Position (Engineer officer)	-1.435	0.881	2.651	1	0.103	**0.238**	0.04	1.34
Position (Other officers)	-0.844	0.556	2.301	1	0.129	0.43	0.14	1.28
toc (Shipping company)			0.3	2	0.861			
toc (Shipping management company)	-0.053	0.382	0.02	1	0.889	0.948	0.45	2.003
toc (Other types of companies)	-0.313	0.571	0.3	1	0.584	0.731	0.24	2.24
noc (UK based)			11.08	2	**0.004**			
noc (EEA & EEU)	-0.922	0.413	4.984	1	**0.026**	0.398	0.18	0.894
noc (Others)	-1.345	0.456	8.708	1	**0.003**	0.261	0.11	0.637
tov (Tanker)			12.21	8	0.142			
tov (Liner)	-0.078	0.655	0.014	1	0.905	0.925	0.26	3.336
tov (Passenger)	-0.742	0.665	1.243	1	0.265	0.476	0.13	1.755
tov (Ro-Ro)	-1.377	0.514	7.184	1	**0.007**	0.252	0.09	0.691
tov (Gas carrier)	0.11	0.817	0.018	1	0.893	1.116	0.22	5.536
tov (DSV)	-1.126	0.717	2.469	1	0.116	0.324	0.08	1.321
tov (Supply)	-1.305	0.663	3.871	1	**0.049**	0.271	0.07	0.995
tov (AHTS)	-0.3	0.817	0.135	1	0.714	0.741	0.15	3.675
tov (Tug)	-1.126	0.759	2.2	1	0.138	0.324	0.07	1.436
Constant	3.515	0.838	17.59	1	0.000	33.62		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.3: Regression analysis of sub practice number Three

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			7.88	4	0.096			
age (31-40)	-0.098	0.732	0.018	1	0.894	0.907	0.22	3.805
age (41-50)	0.339	0.7	0.235	1	0.628	1.404	0.36	5.536
age (51-60)	-0.799	0.681	1.377	1	0.241	0.45	0.12	1.708
age (over 60)	-0.546	0.942	0.336	1	0.562	0.579	0.09	3.669
Position (Master)			10.95	6	0.090			
Position (Chief mate)	-1.489	0.558	7.106	1	0.008	0.226	0.08	0.674
Position (Deck officer)	-1.324	0.626	4.472	1	0.034	0.266	0.08	0.908
Position (Chief engineer)	-0.792	0.487	2.648	1	0.104	0.453	0.17	1.176
Position (Second engineer)	-1.71	0.635	7.263	1	0.007	0.181	0.05	0.627
Position (Engineer officer)	-0.649	0.922	0.495	1	0.481	0.522	0.09	3.185
Position (Other officers)	-0.636	0.623	1.043	1	0.307	0.53	0.16	1.794
toc (Shipping company)			1.973	2	0.373			
toc (Shipping management company)	-0.046	0.405	0.013	1	0.909	0.955	0.43	2.113
toc (Other types of companies)	-0.788	0.568	1.924	1	0.165	0.455	0.15	1.384
noc (UK based)			3.255	2	0.196			
noc (EEA & EEU)	-0.7	0.432	2.629	1	0.105	0.497	0.21	1.157
noc (Others)	-0.489	0.438	1.248	1	0.264	0.613	0.26	1.447
tov (Tanker)			6.297	8	0.614			
tov (Liner)	1.383	0.715	3.735	1	0.053	3.985	0.98	16.2
tov (Passenger)	0.159	0.62	0.066	1	0.797	1.173	0.35	3.951
tov (Ro-Ro)	0.654	0.512	1.633	1	0.201	1.923	0.71	5.24
tov (Gas carrier)	-0.447	0.677	0.435	1	0.509	0.64	0.17	2.413
tov (DSV)	0.22	0.722	0.093	1	0.760	1.247	0.3	5.137
tov (Supply)	0.176	0.678	0.068	1	0.795	1.193	0.32	4.505
tov (AHTS)	0.364	0.791	0.211	1	0.646	1.438	0.31	6.774
tov (Tug)	0.245	0.776	0.1	1	0.752	1.277	0.28	5.844
Constant	2.187	0.78	7.852	1	0.005	8.906		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.4: Regression analysis of sub practice number Four

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			3.144	4	0.534			
age (31-40)	0.793	0.791	1.007	1	0.316	2.211	0.47	10.414
age (41-50)	1.122	0.724	2.403	1	0.121	3.071	0.74	12.689
age (51-60)	0.647	0.696	0.865	1	0.352	1.91	0.49	7.471
age (over 60)	0.674	0.906	0.554	1	0.457	1.962	0.33	11.580
Position (Master)			4.553	6	0.602			
Position (Chief mate)	0.029	0.511	0.003	1	0.955	1.029	0.38	2.804
Position (Deck officer)	0.343	0.595	0.333	1	0.564	1.41	0.44	4.523
Position (Chief engineer)	0.578	0.468	1.526	1	0.217	1.782	0.71	4.454
Position (Second engineer)	-0.168	0.623	0.073	1	0.787	0.845	0.25	2.867
Position (Engineer officer)	1.416	0.999	2.007	1	0.157	4.119	0.58	29.204
Position (Other officers)	-0.217	0.554	0.153	1	0.696	0.805	0.27	2.384
toc (Shipping company)			6.791	2	**0.034**			
toc (Shipping management company)	-0.926	0.386	5.761	1	**0.016**	0.396	0.19	0.844
toc (Other types of companies)	-0.899	0.551	2.664	1	0.103	0.407	0.14	1.198
noc (UK based)			0.971	2	0.616			
noc (EEA & EEU)	-0.394	0.427	0.852	1	0.356	0.674	0.29	1.557
noc (Others)	-0.234	0.464	0.254	1	0.614	0.792	0.32	1.965
tov (Tanker)			18.25	8	**0.019**			
tov (Liner)	0.905	0.763	1.405	1	0.236	2.471	0.55	11.028
tov (Passenger)	-0.514	0.617	0.695	1	0.405	0.598	0.18	2.003
tov (Ro-Ro)	-1.149	0.498	5.312	1	**0.021**	0.317	0.12	0.842
tov (Gas carrier)	0.792	0.887	0.798	1	0.372	2.207	0.39	12.546
tov (DSV)	-0.272	0.724	0.141	1	0.707	0.762	0.18	3.150
tov (Supply)	-1.688	0.632	7.12	1	**0.008**	0.185	0.05	0.639
tov (AHTS)	19.51	10889	3E-06	1	0.999	3E+08	0	.
tov (Tug)	-1.031	0.714	2.088	1	0.148	0.357	0.09	1.444
Constant	0.962	0.779	1.525	1	0.217	2.618		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.5: Regression analysis of sub practice number Five

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			5.915	4	0.206			
age (31-40)	0.905	0.682	1.759	1	0.185	2.472	0.65	9.416
age (41-50)	0.184	0.626	0.087	1	0.768	1.202	0.35	4.101
age (51-60)	0.687	0.624	1.212	1	0.271	1.988	0.59	6.752
age (over 60)	1.603	0.932	2.956	1	0.086	4.966	0.8	30.870
Position (Master)			12.59	6	0.050			
Position (Chief mate)	-0.664	0.473	1.97	1	0.160	0.515	0.2	1.301
Position (Deck officer)	-0.102	0.542	0.036	1	0.850	0.903	0.31	2.611
Position (Chief engineer)	-0.839	0.418	4.029	1	0.045	0.432	0.19	0.980
Position (Second engineer)	-1.827	0.637	8.216	1	0.004	0.161	0.05	0.561
Position (Engineer officer)	0.068	0.78	0.008	1	0.930	1.07	0.23	4.938
Position (Other officers)	-1.093	0.536	4.164	1	0.041	0.335	0.12	0.958
toc (Shipping company)			0.548	2	0.760			
toc (Shipping management company)	-0.105	0.364	0.083	1	0.773	0.9	0.44	1.836
toc (Other types of companies)	-0.401	0.548	0.534	1	0.465	0.67	0.23	1.961
noc (UK based)			14.79	2	0.001			
noc (EEA & EEU)	-0.904	0.389	5.41	1	0.020	0.405	0.19	0.867
noc (Others)	-1.461	0.423	11.94	1	0.001	0.232	0.1	0.532
tov (Tanker)			6.261	8	0.618			
tov (Liner)	0.601	0.584	1.057	1	0.304	1.823	0.58	5.729
tov (Passenger)	0.121	0.596	0.041	1	0.839	1.128	0.35	3.632
tov (Ro-Ro)	-0.438	0.446	0.966	1	0.326	0.645	0.27	1.546
tov (Gas carrier)	0.021	0.683	9E-04	1	0.975	1.021	0.27	3.896
tov (DSV)	-0.898	0.695	1.669	1	0.196	0.407	0.1	1.591
tov (Supply)	-0.497	0.618	0.647	1	0.421	0.608	0.18	2.043
tov (AHTS)	-0.353	0.714	0.244	1	0.621	0.703	0.17	2.848
tov (Tug)	0.159	0.745	0.046	1	0.831	1.172	0.27	5.047
Constant	0.775	0.691	1.26	1	0.262	2.171		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.6: Regression analysis of sub practice number Six

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			9.924	4	0.042			
age (31-40)	-0.998	0.844	1.4	1	0.237	0.369	0.07	1.925
age (41-50)	-1.37	0.803	2.914	1	0.088	0.254	0.05	1.225
age (51-60)	-1.978	0.786	6.328	1	0.012	0.138	0.03	0.646
age (over 60)	-0.622	1.142	0.297	1	0.586	0.537	0.06	5.029
Position (Master)			4.683	6	0.585			
Position (Chief mate)	0.023	0.544	0.002	1	0.966	1.023	0.35	2.973
Position (Deck officer)	-0.873	0.61	2.045	1	0.153	0.418	0.13	1.382
Position (Chief engineer)	0.104	0.451	0.053	1	0.818	1.109	0.46	2.685
Position (Second engineer)	0.419	0.679	0.381	1	0.537	1.521	0.4	5.760
Position (Engineer officer)	-1.201	0.88	1.862	1	0.172	0.301	0.05	1.689
Position (Other officers)	0.32	0.587	0.296	1	0.586	1.377	0.44	4.352
toc (Shipping company)			1.031	2	0.597			
toc (Shipping management company)	-0.382	0.376	1.029	1	0.310	0.683	0.33	1.428
toc (Other types of companies)	-0.163	0.562	0.084	1	0.772	0.85	0.28	2.558
noc (UK based)			2.723	2	0.256			
noc (EEA & EEU)	-0.567	0.405	1.965	1	0.161	0.567	0.26	1.254
noc (Others)	-0.545	0.462	1.391	1	0.238	0.58	0.23	1.434
tov (Tanker)			6.664	8	0.573			
tov (Liner)	-0.158	0.601	0.069	1	0.793	0.854	0.26	2.775
tov (Passenger)	-0.699	0.61	1.316	1	0.251	0.497	0.15	1.641
tov (Ro-Ro)	0.202	0.503	0.162	1	0.688	1.224	0.46	3.282
tov (Gas carrier)	0.422	0.779	0.294	1	0.588	1.525	0.33	7.017
tov (DSV)	-0.138	0.702	0.039	1	0.844	0.871	0.22	3.448
tov (Supply)	0.767	0.753	1.038	1	0.308	2.153	0.49	9.415
tov (AHTS)	20.12	10783	3E-06	1	0.999	5E+08	0	.
tov (Tug)	-1.112	0.731	2.315	1	0.128	0.329	0.08	1.378
Constant	2.93	0.856	11.72	1	0.001	18.72		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.7: Regression analysis of sub practice number Seven

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			2E-05	4	1.000			
age (31-40)	29.16	10430	8E-06	1	0.998	5E+12	0	.
age (41-50)	11.78	11696	1E-06	1	0.999	1E+05	0	.
age (51-60)	9.043	18379	2E-07	1	1.000	8460	0	.
age (over 60)	-13.22	32549	2E-07	1	1.000	2E-06	0	.
Position (Master)			6E-05	6	1.000			
Position (Chief mate)	-15.27	7079	5E-06	1	0.998	2E-07	0	.
Position (Deck officer)	-32.54	4830	5E-05	1	0.995	7E-15	0	.
Position (Chief engineer)	-12.53	13924	8E-07	1	0.999	4E-06	0	.
Position (Second engineer)	-11.78	14622	6E-07	1	0.999	8E-06	0	.
Position (Engineer officer)	-36.15	9953	1E-05	1	0.997	2E-16	0	.
Position (Other officers)	-14.64	11393	2E-06	1	0.999	4E-07	0	.
toc (Shipping company)			8E-06	2	1.000			
toc (Shipping management company)	-20.91	11838	3E-06	1	0.999	8E-10	0	.
toc (Other types of companies)	-10.41	13604	6E-07	1	0.999	3E-05	0	.
noc (UK based)			2E-05	2	1.000			
noc (EEA & EEU)	-8.323	18175	2E-07	1	1.000	2E-04	0	.
noc (Others)	-19.82	8472	5E-06	1	0.998	2E-09	0	.
tov (Tanker)			1E-04	8	1.000			
tov (Liner)	-27.91	29296	9E-07	1	0.999	8E-13	0	.
tov (Passenger)	-37.3	12380	9E-06	1	0.998	6E-17	0	.
tov (Ro-Ro)	-39.96	17982	5E-06	1	0.998	4E-18	0	.
tov (Gas carrier)	5.003	11951	2E-07	1	1.000	148.8	0	.
tov (DSV)	-14.87	8610	3E-06	1	0.999	3E-07	0	.
tov (Supply)	-44.63	12175	1E-05	1	0.997	4E-20	0	.
tov (AHTS)	-19.24	14932	2E-06	1	0.999	4E-09	0	.
tov (Tug)	-34.7	50370	5E-07	1	0.999	9E-16	0	.
Constant	89.66	18688	2E-05	1	0.996	9E+38		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.8: Regression analysis of sub practice number Eight

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			5.309	4	0.257			
age (31-40)	-0.105	0.666	0.025	1	0.874	0.9	0.24	3.320
age (41-50)	-0.776	0.634	1.498	1	0.221	0.46	0.13	1.595
age (51-60)	-1.027	0.628	2.674	1	0.102	0.358	0.1	1.226
age (over 60)	-0.242	0.831	0.085	1	0.771	0.785	0.15	4.003
Position (Master)			7.857	6	0.249			
Position (Chief mate)	-0.425	0.5	0.723	1	0.395	0.654	0.25	1.742
Position (Deck officer)	0.48	0.543	0.78	1	0.377	1.616	0.56	4.689
Position (Chief engineer)	0.714	0.423	2.852	1	0.091	2.042	0.89	4.675
Position (Second engineer)	0.033	0.608	0.003	1	0.957	1.033	0.31	3.402
Position (Engineer officer)	-0.731	0.831	0.774	1	0.379	0.481	0.09	2.454
Position (Other officers)	0.348	0.542	0.413	1	0.520	1.416	0.49	4.095
toc (Shipping company)			2.531	2	0.282			
toc (Shipping management company)	0.507	0.372	1.857	1	0.173	1.661	0.8	3.444
toc (Other types of companies)	-0.283	0.561	0.254	1	0.614	0.754	0.25	2.264
noc (UK based)			8.42	2	**0.015**			
noc (EEA & EEU)	-0.061	0.384	0.026	1	0.873	0.94	0.44	1.998
noc (Others)	-1.452	0.502	8.354	1	**0.004**	0.234	0.09	0.627
tov (Tanker)			9.169	8	0.328			
tov (Liner)	1.304	0.581	5.042	1	0.025	3.685	1.18	11.506
tov (Passenger)	0.7	0.595	1.384	1	0.239	2.013	0.63	6.461
tov (Ro-Ro)	0.899	0.473	3.605	1	0.058	2.457	0.97	6.215
tov (Gas carrier)	-0.289	0.787	0.135	1	0.714	0.749	0.16	3.503
tov (DSV)	0.738	0.717	1.061	1	0.303	2.092	0.51	8.526
tov (Supply)	0.578	0.683	0.717	1	0.397	1.782	0.47	6.794
tov (AHTS)	1.439	0.719	4.007	1	**0.045**	4.217	1.03	17.260
tov (Tug)	0.712	0.707	1.016	1	0.313	2.039	0.51	8.143
Constant	-0.651	0.716	0.826	1	0.363	0.522		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.9: Regression analysis of sub practice number Nine

Variables in the Equation	B	S.E.	Wald	df	Sig	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			4.16	4	0.385			
age (31-40)	-1.009	0.759	1.768	1	0.184	0.365	0.08	1.613
age (41-50)	-0.807	0.718	1.264	1	0.261	0.446	0.11	1.822
age (51-60)	-0.525	0.717	0.536	1	0.464	0.592	0.15	2.412
age (over 60)	-1.544	0.938	2.707	1	0.100	0.214	0.03	1.344
Position (Master)			8.974	6	0.175			
Position (Chief mate)	-0.716	0.517	1.921	1	0.166	0.489	0.18	1.345
Position (Deck officer)	-0.656	0.608	1.164	1	0.281	0.519	0.16	1.709
Position (Chief engineer)	-0.73	0.453	2.593	1	0.107	0.482	0.2	1.172
Position (Second engineer)	-0.727	0.634	1.318	1	0.251	0.483	0.14	1.673
Position (Engineer officer)	-1.96	0.836	5.497	1	0.019	0.141	0.03	0.725
Position (Other officers)	0.404	0.667	0.367	1	0.545	1.498	0.41	5.538
toc (Shipping company)			9.305	2	**0.010**			
toc (Shipping management company)	-0.927	0.391	5.636	1	**0.018**	0.396	0.18	0.851
toc (Other types of companies)	-1.354	0.542	6.235	1	**0.013**	0.258	0.09	0.747
noc (UK based)			1.105	2	0.576			
noc (EEA & EEU)	-0.041	0.435	0.009	1	0.926	0.96	0.41	2.254
noc (Others)	-0.466	0.447	1.09	1	0.297	0.627	0.26	1.505
tov (Tanker)			7.693	8	0.464			
tov (Liner)	-0.582	0.673	0.747	1	0.387	0.559	0.15	2.090
tov (Passenger)	-1.049	0.633	2.75	1	0.097	0.35	0.1	1.210
tov (Ro-Ro)	-0.749	0.527	2.017	1	0.156	0.473	0.17	1.329
tov (Gas carrier)	0.736	0.894	0.677	1	0.411	2.087	0.36	12.038
tov (DSV)	-0.645	0.711	0.824	1	0.364	0.525	0.13	2.112
tov (Supply)	-1.301	0.652	3.984	1	**0.046**	0.272	0.08	0.977
tov (AHTS)	-0.48	0.799	0.362	1	0.548	0.619	0.13	2.959
tov (Tug)	-0.913	0.773	1.397	1	0.237	0.401	0.09	1.824
Constant	3.233	0.829	15.22	1	0.000	25.35		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.10: Regression analysis of sub practice number Ten

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			9.93	4	**0.042**			
age (31-40)	-1.423	0.761	3.497	1	0.061	**0.241**	0.05	1.071
age (41-50)	0.003	0.718	2E-05	1	0.997	**1.003**	0.25	4.095
age (51-60)	-0.781	0.702	1.237	1	0.266	**0.458**	0.12	1.814
age (over 60)	-0.886	0.89	0.991	1	0.319	**0.412**	0.07	2.359
Position (Master)			13.86	6	**0.031**			
Position (Chief mate)	-0.081	0.463	0.031	1	0.861	**0.922**	0.37	2.285
Position (Deck officer)	2.037	0.682	8.935	1	**0.003**	**7.67**	2.02	29.173
Position (Chief engineer)	-0.074	0.4	0.034	1	0.853	**0.929**	0.42	2.035
Position (Second engineer)	0.35	0.562	0.388	1	0.533	**1.419**	0.47	4.268
Position (Engineer officer)	-0.634	0.818	0.602	1	0.438	**0.53**	0.11	2.634
Position (Other officers)	-0.013	0.509	6E-04	1	0.980	**0.987**	0.36	2.678
toc (Shipping company)			2.064	2	0.356			
toc (Shipping management company)	-0.454	0.355	1.641	1	0.200	**0.635**	0.32	1.272
toc (Other types of companies)	0.184	0.538	0.117	1	0.733	**1.202**	0.42	3.447
noc (UK based)			3.847	2	0.146			
noc (EEA & EEU)	0.243	0.389	0.392	1	0.531	**1.276**	0.6	2.733
noc (Others)	-0.723	0.423	2.923	1	0.087	**0.485**	0.21	1.112
tov (Tanker)			12.06	8	0.149			
tov (Liner)	-1.032	0.566	3.329	1	0.068	**0.356**	0.12	1.080
tov (Passenger)	-0.886	0.594	2.228	1	0.136	**0.412**	0.13	1.320
tov (Ro-Ro)	-1.111	0.455	5.967	1	**0.015**	**0.329**	0.14	0.803
tov (Gas carrier)	-0.101	0.688	0.021	1	0.883	**0.904**	0.23	3.480
tov (DSV)	-0.8	0.679	1.389	1	0.239	**0.449**	0.12	1.700
tov (Supply)	-1.507	0.613	6.039	1	**0.014**	**0.222**	0.07	0.737
tov (AHTS)	0.47	0.792	0.352	1	0.553	**1.6**	0.34	7.562
tov (Tug)	-0.806	0.696	1.338	1	0.247	**0.447**	0.11	1.750
Constant	1.43	0.779	3.373	1	0.066	**4.179**		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.11: Regression analysis of sub practice number Eleven

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			7.081	4	0.132			
age (31-40)	-0.169	0.714	0.056	1	0.812	0.844	0.21	3.423
age (41-50)	0.408	0.666	0.375	1	0.540	1.504	0.41	5.550
age (51-60)	-0.561	0.668	0.704	1	0.402	0.571	0.15	2.116
age (over 60)	0.07	0.904	0.006	1	0.938	1.073	0.18	6.307
Position (Master)			7.501	6	0.277			
Position (Chief mate)	0.366	0.503	0.53	1	0.467	1.442	0.54	3.866
Position (Deck officer)	0.839	0.575	2.126	1	0.145	2.314	0.75	7.149
Position (Chief engineer)	0.772	0.44	3.08	1	0.079	2.164	0.91	5.123
Position (Second engineer)	-0.016	0.666	6E-04	1	0.980	0.984	0.27	3.633
Position (Engineer officer)	-0.804	0.943	0.726	1	0.394	0.447	0.07	2.843
Position (Other officers)	0.103	0.557	0.034	1	0.853	1.109	0.37	3.306
toc (Shipping company)			1.477	2	0.478			
toc (Shipping management company)	-0.482	0.404	1.425	1	0.233	0.618	0.28	1.363
toc (Other types of companies)	-0.267	0.597	0.201	1	0.654	0.765	0.24	2.465
noc (UK based)			2.203	2	0.332			
noc (EEA & EEU)	-0.4	0.425	0.882	1	0.348	0.671	0.29	1.544
noc (Others)	0.388	0.412	0.886	1	0.347	1.473	0.66	3.303
tov (Tanker)			27.18	8	0.001			
tov (Liner)	-0.214	0.557	0.147	1	0.701	0.808	0.27	2.406
tov (Passenger)	-1.783	0.619	8.292	1	0.004	0.168	0.05	0.566
tov (Ro-Ro)	-1.661	0.473	12.33	1	0.000	0.19	0.08	0.480
tov (Gas carrier)	0.873	0.732	1.422	1	0.233	2.393	0.57	10.044
tov (DSV)	-2.013	0.782	6.632	1	0.010	0.134	0.03	0.618
tov (Supply)	-1.119	0.605	3.422	1	0.064	0.326	0.1	1.069
tov (AHTS)	-1.022	0.691	2.184	1	0.139	0.36	0.09	1.395
tov (Tug)	-2.256	0.896	6.345	1	0.012	0.105	0.02	0.606
Constant	0.366	0.728	0.253	1	0.615	1.441		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.12: Regression analysis of sub practice number Twelve

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			0.407	4	0.982			
age (31-40)	-0.086	0.72	0.014	1	0.905	0.917	0.22	3.764
age (41-50)	-0.087	0.664	0.017	1	0.896	0.917	0.25	3.367
age (51-60)	-0.268	0.654	0.169	1	0.681	0.765	0.21	2.753
age (over 60)	-0.238	0.89	0.071	1	0.790	0.788	0.14	4.514
Position (Master)			6.462	6	0.373			
Position (Chief mate)	-0.168	0.467	0.13	1	0.719	0.845	0.34	2.110
Position (Deck officer)	0.875	0.58	2.275	1	0.132	2.399	0.77	7.478
Position (Chief engineer)	-0.339	0.407	0.694	1	0.405	0.712	0.32	1.583
Position (Second engineer)	-0.227	0.565	0.161	1	0.688	0.797	0.26	2.414
Position (Engineer officer)	0.171	0.808	0.045	1	0.833	1.186	0.24	5.781
Position (Other officers)	0.663	0.56	1.403	1	0.236	1.941	0.65	5.819
toc (Shipping company)			6.845	2	0.033			
toc (Shipping management company)	-0.252	0.36	0.491	1	0.484	0.777	0.38	1.574
toc (Other types of companies)	-1.434	0.549	6.831	1	0.009	0.238	0.08	0.699
noc (UK based)			4.897	2	0.086			
noc (EEA & EEU)	0.531	0.398	1.778	1	0.182	1.7	0.78	3.711
noc (Others)	-0.625	0.417	2.254	1	0.133	0.535	0.24	1.210
tov (Tanker)			14.68	8	0.066			
tov (Liner)	-1.162	0.574	4.095	1	0.043	0.313	0.1	0.964
tov (Passenger)	-0.376	0.602	0.389	1	0.533	0.687	0.21	2.236
tov (Ro-Ro)	-1.248	0.466	7.178	1	0.007	0.287	0.12	0.715
tov (Gas carrier)	0.895	0.864	1.073	1	0.300	2.448	0.45	13.318
tov (DSV)	-0.921	0.667	1.909	1	0.167	0.398	0.11	1.471
tov (Supply)	-1.337	0.601	4.946	1	0.026	0.263	0.08	0.853
tov (AHTS)	0.129	0.778	0.028	1	0.868	1.138	0.25	5.231
tov (Tug)	-0.988	0.721	1.874	1	0.171	0.372	0.09	1.532
Constant	1.435	0.741	3.749	1	0.053	4.2		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.13: Regression analysis of sub practice number Thirteen

Variables in the Equation	B	S.E.	Wald	df	Sig	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			2.324	4	0.676			
age (31-40)	0.104	1.124	0.009	1	0.926	1.11	0.12	10.040
age (41-50)	-0.124	1.086	0.013	1	0.909	0.883	0.11	7.428
age (51-60)	-0.93	1.106	0.708	1	0.400	0.394	0.05	3.444
age (over 60)	-0.78	1.547	0.254	1	0.614	0.458	0.02	9.512
Position (Master)			4.244	6	0.644			
Position (Chief mate)	0.25	0.766	0.106	1	0.744	1.284	0.29	5.760
Position (Deck officer)	-0.745	1.078	0.478	1	0.489	0.475	0.06	3.925
Position (Chief engineer)	-1.78	1.14	2.436	1	0.119	0.169	0.02	1.576
Position (Second engineer)	-0.52	1.218	0.182	1	0.669	0.595	0.05	6.467
Position (Engineer officer)	-0.696	1.464	0.226	1	0.635	0.499	0.03	8.799
Position (Other officers)	0.414	0.825	0.252	1	0.616	1.513	0.3	7.621
toc (Shipping company)			0.425	2	0.808			
toc (Shipping management company)	0.356	0.677	0.276	1	0.599	1.428	0.38	5.381
toc (Other types of companies)	0.451	0.913	0.244	1	0.621	1.57	0.26	9.393
noc (UK based)			3.91	2	0.142			
noc (EEA & EEU)	-1.906	1.099	3.01	1	0.083	0.149	0.02	1.281
noc (Others)	-0.838	0.739	1.285	1	0.257	0.433	0.1	1.841
tov (Tanker)			3.693	8	0.884			
tov (Liner)	-0.435	0.968	0.203	1	0.653	0.647	0.1	4.310
tov (Passenger)	-1.407	1.159	1.475	1	0.225	0.245	0.03	2.372
tov (Ro-Ro)	-0.84	0.751	1.254	1	0.263	0.431	0.1	1.878
tov (Gas carrier)	0.734	1.015	0.522	1	0.470	2.082	0.28	15.220
tov (DSV)	-0.829	1.223	0.46	1	0.498	0.437	0.04	4.794
tov (Supply)	-0.309	0.972	0.101	1	0.751	0.734	0.11	4.938
tov (AHTS)	-0.492	1.214	0.164	1	0.685	0.611	0.06	6.608
tov (Tug)	-19.61	10089	4E-06	1	0.998	3E-09	0	.
Constant	-1.1	1.165	0.892	1	0.345	0.333		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.14: Regression analysis of sub practice number Fourteen

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			0.344	4	0.987			
age (31-40)	0.125	0.711	0.031	1	0.860	1.133	0.28	4.565
age (41-50)	0.05	0.667	0.006	1	0.940	1.051	0.28	3.887
age (51-60)	-0.071	0.663	0.011	1	0.915	0.932	0.25	3.415
age (over 60)	-0.225	0.873	0.066	1	0.797	0.799	0.14	4.416
Position (Master)			11.62	6	0.071			
Position (Chief mate)	-1.157	0.483	5.733	1	**0.017**	0.315	0.12	0.811
Position (Deck officer)	-1.369	0.576	5.648	1	**0.017**	0.254	0.08	0.787
Position (Chief engineer)	-0.649	0.402	2.601	1	0.107	0.523	0.24	1.150
Position (Second engineer)	-0.796	0.575	1.917	1	0.166	0.451	0.15	1.392
Position (Engineer officer)	-2.409	0.983	6.005	1	**0.014**	0.09	0.01	0.617
Position (Other officers)	-0.174	0.513	0.115	1	0.735	0.841	0.31	2.297
toc (Shipping company)			6.62	2	**0.037**			
toc (Shipping management company)	-0.677	0.365	3.434	1	0.064	0.508	0.25	1.040
toc (Other types of companies)	-1.276	0.601	4.508	1	**0.034**	0.279	0.09	0.907
noc (UK based)			0.49	2	0.783			
noc (EEA & EEU)	0.035	0.387	0.008	1	0.928	1.036	0.48	2.212
noc (Others)	-0.272	0.41	0.441	1	0.507	0.762	0.34	1.702
tov (Tanker)			10.15	8	0.255			
tov (Liner)	-1.003	0.558	3.232	1	0.072	0.367	0.12	1.095
tov (Passenger)	-1.508	0.6	6.312	1	**0.012**	0.221	0.07	0.718
tov (Ro-Ro)	-1.154	0.448	6.647	1	**0.010**	0.315	0.13	0.758
tov (Gas carrier)	-0.59	0.667	0.783	1	0.376	0.554	0.15	2.049
tov (DSV)	-1.082	0.716	2.286	1	0.131	0.339	0.08	1.378
tov (Supply)	-0.758	0.597	1.61	1	0.204	0.469	0.15	1.511
tov (AHTS)	-0.905	0.698	1.683	1	0.195	0.405	0.1	1.588
tov (Tug)	-1.249	0.735	2.885	1	0.089	0.287	0.07	1.212
Constant	1.434	0.732	3.84	1	0.050	4.197		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.15: Regression analysis of sub practice number Fifteen

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			8.643	4	0.071			
age (31-40)	0.186	1.14	0.027	1	0.870	1.205	0.13	11.260
age (41-50)	-0.06	1.116	0.003	1	0.957	0.942	0.11	8.402
age (51-60)	-1.084	1.133	0.915	1	0.339	0.338	0.04	3.117
age (over 60)	1.256	1.316	0.911	1	0.340	3.512	0.27	46.296
Position (Master)			4.583	6	0.598			
Position (Chief mate)	-1.396	0.855	2.668	1	0.102	0.248	0.05	1.322
Position (Deck officer)	-1.258	1.054	1.424	1	0.233	0.284	0.04	2.243
Position (Chief engineer)	-0.602	0.57	1.115	1	0.291	0.548	0.18	1.675
Position (Second engineer)	-1.619	1.169	1.919	1	0.166	0.198	0.02	1.958
Position (Engineer officer)	-1.504	1.565	0.924	1	0.337	0.222	0.01	4.774
Position (Other officers)	-0.622	0.714	0.757	1	0.384	0.537	0.13	2.178
toc (Shipping company)			2.028	2	0.363			
toc (Shipping management company)	0.724	0.516	1.97	1	0.160	2.063	0.75	5.669
toc (Other types of companies)	0.398	0.782	0.259	1	0.611	1.489	0.32	6.900
noc (UK based)			9.234	2	0.010			
noc (EEA & EEU)	-2.263	0.811	7.789	1	0.005	0.104	0.02	0.510
noc (Others)	0.397	0.505	0.619	1	0.431	1.488	0.55	4.001
tov (Tanker)			23.34	8	0.003			
tov (Liner)	2.128	0.728	8.533	1	0.003	8.398	2.01	35.011
tov (Passenger)	-1.254	0.883	2.015	1	0.156	0.285	0.05	1.612
tov (Ro-Ro)	-1.958	0.861	5.173	1	0.023	0.141	0.03	0.763
tov (Gas carrier)	0.592	0.781	0.574	1	0.449	1.807	0.39	8.350
tov (DSV)	-1.109	1.177	0.888	1	0.346	0.33	0.03	3.313
tov (Supply)	0.083	0.761	0.012	1	0.913	1.087	0.24	4.827
tov (AHTS)	-0.218	0.908	0.058	1	0.810	0.804	0.14	4.767
tov (Tug)	-2.066	1.28	2.604	1	0.107	0.127	0.01	1.557
Constant	-0.687	1.155	0.353	1	0.552	0.503		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.16: Regression analysis of sub practice number Sixteen

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			2.197	4	0.700			
age (31-40)	-1.151	1.33	0.748	1	0.387	**0.316**	0.02	4.291
age (41-50)	-0.813	1.278	0.405	1	0.524	**0.443**	0.04	5.428
age (51-60)	-1.428	1.288	1.229	1	0.268	**0.24**	0.02	2.993
age (over 60)	-1.362	1.661	0.672	1	0.412	**0.256**	0.01	6.649
Position (Master)			6.24	6	0.397			
Position (Chief mate)	-2.6	1.242	4.384	1	**0.036**	0.074	0.01	0.847
Position (Deck officer)	-1.604	1.211	1.757	1	0.185	0.201	0.02	2.156
Position (Chief engineer)	-0.212	0.57	0.139	1	0.709	0.809	0.26	2.472
Position (Second engineer)	-1.548	1.163	1.772	1	0.183	0.213	0.02	2.078
Position (Engineer officer)	-2.183	1.653	1.744	1	0.187	**0.113**	0	2.877
Position (Other officers)	-0.641	0.789	0.661	1	0.416	0.527	0.11	2.471
toc (Shipping company)			0.299	2	0.861			
toc (Shipping management company)	-0.291	0.54	0.292	1	0.589	0.747	0.26	2.151
toc (Other types of companies)	-0.013	0.895	2E-04	1	0.989	0.988	0.17	5.701
noc (UK based)			5.484	2	0.064			
noc (EEA & EEU)	-1.714	0.749	5.232	1	**0.022**	0.18	0.04	0.783
noc (Others)	0.033	0.535	0.004	1	0.951	1.034	0.36	2.947
tov (Tanker)			15.84	8	**0.045**			
tov (Liner)	1.345	0.703	3.659	1	**0.056**	3.839	0.97	15.233
tov (Passenger)	-1.635	1.132	2.086	1	0.149	0.195	0.02	1.793
tov (Ro-Ro)	-1.227	0.752	2.664	1	0.103	0.293	0.07	1.280
tov (Gas carrier)	1.484	0.761	3.806	1	**0.051**	4.41	0.99	19.587
tov (DSV)	-0.607	1.173	0.268	1	0.605	0.545	0.05	5.430
tov (Supply)	-0.118	0.808	0.021	1	0.884	0.888	0.18	4.333
tov (AHTS)	-0.116	0.918	0.016	1	0.899	0.89	0.15	5.385
tov (Tug)	-19.68	10552	3E-06	1	0.999	3E-09	0	.
Constant	0.181	1.308	0.019	1	0.890	1.199		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.17: Regression analysis of sub practice number Seventeen

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			5.757	4	0.218			
age (31-40)	-0.423	0.745	0.322	1	0.571	0.655	0.15	2.823
age (41-50)	-0.483	0.705	0.469	1	0.493	0.617	0.15	2.459
age (51-60)	-1.355	0.732	3.428	1	0.064	0.258	0.06	1.083
age (over 60)	-0.433	1.013	0.183	1	0.669	0.649	0.09	4.725
Position (Master)			5.141	6	0.526			
Position (Chief mate)	0.216	0.6	0.129	1	0.719	1.241	0.38	4.020
Position (Deck officer)	0.2	0.652	0.094	1	0.760	1.221	0.34	4.384
Position (Chief engineer)	0.199	0.539	0.136	1	0.712	1.22	0.42	3.512
Position (Second engineer)	-1.33	1.131	1.381	1	0.240	0.265	0.03	2.430
Position (Engineer officer)	0.651	0.861	0.572	1	0.450	1.917	0.35	10.365
Position (Other officers)	1.016	0.631	2.593	1	0.107	2.761	0.8	9.508
toc (Shipping company)			1.157	2	0.561			
toc (Shipping management company)	-0.524	0.49	1.146	1	0.284	0.592	0.23	1.546
toc (Other types of companies)	-0.199	0.735	0.073	1	0.787	0.819	0.19	3.463
noc (UK based)			1.066	2	0.587			
noc (EEA & EEU)	-0.12	0.474	0.064	1	0.801	0.887	0.35	2.246
noc (Others)	0.457	0.493	0.857	1	0.355	1.579	0.6	4.152
tov (Tanker)			10.1	8	0.258			
tov (Liner)	0.241	0.672	0.129	1	0.720	1.273	0.34	4.750
tov (Passenger)	-1.384	0.875	2.505	1	0.114	0.251	0.05	1.391
tov (Ro-Ro)	0.524	0.529	0.983	1	0.322	1.689	0.6	4.762
tov (Gas carrier)	1.467	0.737	3.965	1	0.046	4.337	1.02	18.381
tov (DSV)	-1.113	1.142	0.95	1	0.330	0.328	0.04	3.080
tov (Supply)	0.251	0.734	0.117	1	0.733	1.285	0.3	5.415
tov (AHTS)	-0.085	0.805	0.011	1	0.916	0.919	0.19	4.451
tov (Tug)	-19.65	10442	4E-06	1	0.998	3E-09	0	.
Constant	-0.989	0.791	1.563	1	0.211	0.372		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.18: Regression analysis of sub practice number Eighteen

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			9.335	4	0.053			
age (31-40)	-1.582	0.754	4.401	1	0.036	0.205	0.05	0.901
age (41-50)	-0.958	0.682	1.973	1	0.160	0.384	0.1	1.460
age (51-60)	-1.695	0.684	6.134	1	0.013	0.184	0.05	0.702
age (over 60)	-0.785	0.933	0.708	1	0.400	0.456	0.07	2.838
Position (Master)			6.859	6	0.334			
Position (Chief mate)	-0.476	0.493	0.933	1	0.334	0.621	0.24	1.632
Position (Deck officer)	-0.846	0.577	2.148	1	0.143	0.429	0.14	1.330
Position (Chief engineer)	-0.661	0.486	1.851	1	0.174	0.516	0.2	1.338
Position (Second engineer)	-0.234	0.658	0.126	1	0.722	0.792	0.22	2.873
Position (Engineer officer)	-0.735	0.811	0.82	1	0.365	0.48	0.1	2.352
Position (Other officers)	0.745	0.583	1.633	1	0.201	2.106	0.67	6.604
toc (Shipping company)			6.276	2	0.043			
toc (Shipping management company)	-1.067	0.43	6.156	1	0.013	0.344	0.15	0.799
toc (Other types of companies)	-0.46	0.561	0.674	1	0.412	0.631	0.21	1.894
noc (UK based)			10.01	2	0.007			
noc (EEA & EEU)	-0.449	0.408	1.212	1	0.271	0.638	0.29	1.419
noc (Others)	-1.672	0.542	9.52	1	0.002	0.188	0.06	0.543
tov (Tanker)			21.14	8	0.007			
tov (Liner)	1.082	0.608	3.163	1	0.075	2.949	0.9	9.715
tov (Passenger)	0.635	0.625	1.032	1	0.310	1.887	0.55	6.430
tov (Ro-Ro)	2.274	0.519	19.17	1	0.000	9.717	3.51	26.891
tov (Gas carrier)	-19.24	10104	4E-06	1	0.998	4E-09	0	.
tov (DSV)	1.678	0.724	5.373	1	0.020	5.357	1.3	22.147
tov (Supply)	1.636	0.699	5.484	1	0.019	5.134	1.31	20.183
tov (AHTS)	1.127	0.757	2.216	1	0.137	3.086	0.7	13.611
tov (Tug)	1.013	0.731	1.918	1	0.166	2.754	0.66	11.549
Constant	0.541	0.757	0.51	1	0.475	1.718		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.19: Regression analysis of sub practice number Nineteen

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			10.95	4	**0.027**			
age (31-40)	-0.031	0.66	0.002	1	0.963	0.97	0.27	3.535
age (41-50)	0.47	0.61	0.594	1	0.441	1.6	0.48	5.286
age (51-60)	1.064	0.608	3.064	1	0.080	2.899	0.88	9.547
age (over 60)	2.121	0.882	5.786	1	**0.016**	8.342	1.48	46.987
Position (Master)			5.713	6	0.456			
Position (Chief mate)	0.265	0.461	0.33	1	0.566	1.303	0.53	3.217
Position (Deck officer)	0.504	0.527	0.913	1	0.339	1.655	0.59	4.651
Position (Chief engineer)	-0.337	0.405	0.691	1	0.406	0.714	0.32	1.580
Position (Second engineer)	-0.761	0.593	1.649	1	0.199	0.467	0.15	1.493
Position (Engineer officer)	0.985	0.76	1.68	1	0.195	2.677	0.6	11.865
Position (Other officers)	0.022	0.526	0.002	1	0.967	1.022	0.36	2.864
toc (Shipping company)			0.166	2	0.920			
toc (Shipping management company)	0.039	0.349	0.013	1	0.910	1.04	0.53	2.060
toc (Other types of companies)	0.216	0.533	0.165	1	0.685	1.242	0.44	3.526
noc (UK based)			0.949	2	0.622			
noc (EEA & EEU)	0.34	0.367	0.857	1	0.355	1.404	0.68	2.883
noc (Others)	0.187	0.389	0.231	1	0.631	1.206	0.56	2.586
tov (Tanker)			9.159	8	0.329			
tov (Liner)	0.3	0.535	0.314	1	0.575	1.35	0.47	3.849
tov (Passenger)	0.215	0.546	0.155	1	0.694	1.24	0.43	3.613
tov (Ro-Ro)	-0.175	0.426	0.169	1	0.681	0.839	0.36	1.936
tov (Gas carrier)	0.64	0.668	0.92	1	0.337	1.897	0.51	7.018
tov (DSV)	0.283	0.633	0.2	1	0.655	1.327	0.38	4.591
tov (Supply)	-0.527	0.609	0.749	1	0.387	0.591	0.18	1.947
tov (AHTS)	0.234	0.662	0.124	1	0.724	1.263	0.34	4.627
tov (Tug)	-2.034	0.915	4.937	1	**0.026**	0.131	0.02	0.787
Constant	-1.098	0.672	2.674	1	0.102	0.334		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.20: Regression analysis of sub practice number Twenty

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			3.812	4	0.432			
age (31-40)	0.056	0.885	0.004	1	0.950	1.057	0.19	5.988
age (41-50)	0.453	0.829	0.299	1	0.585	1.573	0.31	7.984
age (51-60)	-0.107	0.798	0.018	1	0.893	0.899	0.19	4.290
age (over 60)	1.427	1.218	1.373	1	0.241	4.167	0.38	45.349
Position (Master)			2.983	6	0.811			
Position (Chief mate)	0.161	0.579	0.077	1	0.782	1.174	0.38	3.653
Position (Deck officer)	0.446	0.643	0.482	1	0.487	1.562	0.44	5.504
Position (Chief engineer)	0.986	0.604	2.667	1	0.102	2.68	0.82	8.746
Position (Second engineer)	0.114	0.68	0.028	1	0.867	1.121	0.3	4.253
Position (Engineer officer)	0.166	0.932	0.032	1	0.859	1.181	0.19	7.338
Position (Other officers)	0.147	0.678	0.047	1	0.828	1.159	0.31	4.376
toc (Shipping company)			10.64	2	**0.005**			
toc (Shipping management company)	0.6	0.501	1.434	1	0.231	1.822	0.68	4.861
toc (Other types of companies)	-1.594	0.587	7.372	1	**0.007**	0.203	0.06	0.642
noc (UK based)			2.37	2	0.306			
noc (EEA & EEU)	-0.476	0.462	1.065	1	0.302	0.621	0.25	1.535
noc (Others)	-0.789	0.595	1.754	1	0.185	0.455	0.14	1.460
tov (Tanker)			18.99	8	**0.015**			
tov (Liner)	-0.447	0.924	0.234	1	0.629	0.64	0.1	3.911
tov (Passenger)	-1.264	0.878	2.071	1	0.150	0.283	0.05	1.580
tov (Ro-Ro)	-2.407	0.74	10.58	1	**0.001**	0.09	0.02	0.384
tov (Gas carrier)	-0.461	1.24	0.138	1	0.710	0.63	0.06	7.171
tov (DSV)	-2.018	0.886	5.191	1	**0.023**	0.133	0.02	0.754
tov (Supply)	-1.271	0.932	1.861	1	0.173	0.281	0.05	1.742
tov (AHTS)	18.26	10966	3E-06	1	0.999	9E+07	0	.
tov (Tug)	-2.766	0.923	8.98	1	**0.003**	0.063	0.01	0.3841
Constant	2.786	1	7.767	1	0.005	16.22		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.21: Regression analysis of sub practice number Twenty One

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			3.77	4	0.438			
age (31-40)	0.726	1.433	0.256	1	0.613	2.066	0.12	34.301
age (41-50)	1.326	1.315	1.018	1	0.313	3.767	0.29	49.541
age (51-60)	1.151	1.32	0.761	1	0.383	3.163	0.24	42.061
age (over 60)	2.341	1.464	2.558	1	0.110	10.39	0.59	183.061
Position (Master)			0.653	6	0.995			
Position (Chief mate)	-0.145	0.67	0.047	1	0.829	0.865	0.23	3.217
Position (Deck officer)	-0.344	0.985	0.122	1	0.727	0.709	0.1	4.885
Position (Chief engineer)	-0.323	0.576	0.315	1	0.575	0.724	0.23	2.240
Position (Second engineer)	-19.3	9021	5E-06	1	0.998	4E-09	0	.
Position (Engineer officer)	-18.43	10520	3E-06	1	0.999	1E-08	0	.
Position (Other officers)	-0.511	0.766	0.445	1	0.505	0.6	0.13	2.693
toc (Shipping company)			0.871	2	0.647			
toc (Shipping management company)	0.219	0.538	0.165	1	0.684	1.245	0.43	3.572
toc (Other types of companies)	0.659	0.72	0.837	1	0.360	1.933	0.47	7.933
noc (UK based)			2.572	2	0.276			
noc (EEA & EEU)	-1.16	0.741	2.45	1	0.118	0.314	0.07	1.340
noc (Others)	-0.362	0.601	0.364	1	0.546	0.696	0.21	2.259
tov (Tanker)			6.163	8	0.629			
tov (Liner)	0.083	0.811	0.011	1	0.918	1.087	0.22	5.328
tov (Passenger)	-0.274	0.798	0.118	1	0.732	0.761	0.16	3.633
tov (Ro-Ro)	-0.932	0.677	1.894	1	0.169	0.394	0.1	1.485
tov (Gas carrier)	0.782	0.865	0.817	1	0.366	2.186	0.4	11.909
tov (DSV)	-0.912	1.221	0.558	1	0.455	0.402	0.04	4.399
tov (Supply)	-0.086	0.814	0.011	1	0.916	0.918	0.19	4.525
tov (AHTS)	-0.602	1.166	0.267	1	0.606	0.548	0.06	5.380
tov (Tug)	-1.914	1.258	2.313	1	0.128	0.148	0.01	1.738
Constant	-2.47	1.362	3.291	1	0.070	0.085		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.22: Regression analysis of sub practice number Twenty Two

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			1.611	4	0.807			
age (31-40)	0.357	0.681	0.275	1	0.600	1.429	0.38	5.424
age (41-50)	0.372	0.636	0.342	1	0.559	1.45	0.42	5.046
age (51-60)	0.419	0.625	0.449	1	0.503	1.52	0.45	5.169
age (over 60)	-0.259	0.835	0.096	1	0.756	0.772	0.15	3.963
Position (Master)			4.013	6	0.675			
Position (Chief mate)	-0.733	0.479	2.347	1	0.126	0.48	0.19	1.227
Position (Deck officer)	0.032	0.558	0.003	1	0.955	1.032	0.35	3.082
Position (Chief engineer)	0.001	0.412	1E-05	1	0.997	1.001	0.45	2.245
Position (Second engineer)	-0.097	0.612	0.025	1	0.874	0.907	0.27	3.010
Position (Engineer officer)	-0.008	0.793	1E-04	1	0.992	0.992	0.21	4.693
Position (Other officers)	-0.562	0.529	1.127	1	0.288	0.57	0.2	1.609
toc (Shipping company)			11.83	2	**0.003**			
toc (Shipping management company)	-1.182	0.36	10.77	1	**0.001**	0.307	0.15	0.621
toc (Other types of companies)	-0.876	0.533	2.702	1	0.100	**0.417**	0.15	1.183
noc (UK based)			0.1	2	0.951			
noc (EEA & EEU)	-0.028	0.394	0.005	1	0.943	0.972	0.45	2.103
noc (Others)	-0.128	0.407	0.1	1	0.752	0.879	0.4	1.952
tov (Tanker)			14.95	8	0.060			
tov (Liner)	1.024	0.603	2.891	1	0.089	2.786	0.86	9.074
tov (Passenger)	-0.325	0.544	0.357	1	0.550	0.723	0.25	2.098
tov (Ro-Ro)	0.048	0.434	0.012	1	0.912	1.049	0.45	2.455
tov (Gas carrier)	0.753	0.682	1.218	1	0.270	2.123	0.56	8.087
tov (DSV)	-1.272	0.705	3.254	1	0.071	0.28	0.07	1.116
tov (Supply)	-0.369	0.584	0.4	1	0.527	0.691	0.22	2.170
tov (AHTS)	1.285	0.855	2.258	1	0.133	3.613	0.68	19.302
tov (Tug)	-0.917	0.73	1.578	1	0.209	0.4	0.1	1.672
Constant	0.502	0.689	0.531	1	0.466	1.652		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.23: Regression analysis of sub practice number Twenty Three

Variables in the Equation	B	S.E.	Wald	df	Sig	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			3.287	4	0.511			
age (31-40)	0.825	0.997	0.685	1	0.408	2.283	0.32	16.127
age (41-50)	0.397	0.998	0.159	1	0.690	1.488	0.21	10.510
age (51-60)	0.188	0.982	0.037	1	0.848	1.207	0.18	8.262
age (over 60)	1.232	1.144	1.159	1	0.282	3.427	0.36	32.249
Position (Master)			5.962	6	0.427			
Position (Chief mate)	-0.82	0.623	1.732	1	0.188	0.441	0.13	1.493
Position (Deck officer)	-0.942	0.86	1.202	1	0.273	0.39	0.07	2.101
Position (Chief engineer)	0.102	0.466	0.048	1	0.827	1.107	0.44	2.760
Position (Second engineer)	-2.089	1.136	3.384	1	0.066	0.124	0.01	1.146
Position (Engineer officer)	-1.16	1.331	0.759	1	0.384	0.313	0.02	4.261
Position (Other officers)	-0.346	0.597	0.335	1	0.563	0.708	0.22	2.282
toc (Shipping company)			1.289	2	0.525			
toc (Shipping management company)	0.093	0.45	0.043	1	0.836	1.098	0.45	2.649
toc (Other types of companies)	-0.767	0.727	1.112	1	0.292	0.465	0.11	1.932
noc (UK based)			5.571	2	0.062			
noc (EEA & EEU)	-0.543	0.498	1.188	1	0.276	0.581	0.22	1.542
noc (Others)	-1.442	0.635	5.153	1	0.023	0.236	0.07	0.821
tov (Tanker)			14.75	8	0.064			
tov (Liner)	1.232	0.614	4.02	1	0.045	3.427	1.03	11.424
tov (Passenger)	-1.229	0.864	2.022	1	0.155	0.293	0.05	1.592
tov (Ro-Ro)	-0.723	0.537	1.811	1	0.178	0.485	0.17	1.391
tov (Gas carrier)	0.783	0.739	1.121	1	0.290	2.188	0.51	9.319
tov (DSV)	-19.2	9214	4E-06	1	0.998	5E-09	0	.
tov (Supply)	-0.029	0.731	0.002	1	0.968	0.971	0.23	4.067
tov (AHTS)	-1.143	1.155	0.98	1	0.322	0.319	0.03	3.064
tov (Tug)	0.203	0.743	0.074	1	0.785	1.225	0.29	5.257
Constant	-0.938	1.03	0.83	1	0.362	0.391		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.24: Regression analysis of sub practice number Twenty Four

Variables in the Equation	B	S.E.	Wald	df	Sig	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			6.815	4	0.146			
age (31-40)	-0.86	0.743	1.339	1	0.247	0.423	0.1	1.815
age (41-50)	0.041	0.709	0.003	1	0.954	1.041	0.26	4.177
age (51-60)	-0.823	0.697	1.395	1	0.238	0.439	0.11	1.721
age (over 60)	-0.221	0.95	0.054	1	0.817	0.802	0.12	5.167
Position (Master)			5.722	6	0.455			
Position (Chief mate)	0.508	0.502	1.023	1	0.312	1.662	0.62	4.447
Position (Deck officer)	0.858	0.616	1.937	1	0.164	2.358	0.7	7.888
Position (Chief engineer)	0.232	0.43	0.293	1	0.589	1.262	0.54	2.929
Position (Second engineer)	-0.129	0.636	0.041	1	0.839	0.879	0.25	3.054
Position (Engineer officer)	-0.687	0.822	0.698	1	0.403	0.503	0.1	2.521
Position (Other officers)	0.025	0.553	0.002	1	0.964	1.025	0.35	3.031
toc (Shipping company)			10.23	2	**0.006**			
toc (Shipping management company)	-1.084	0.373	8.437	1	**0.004**	0.338	0.16	0.703
toc (Other types of companies)	-1.1	0.575	3.66	1	**0.056**	0.333	0.11	1.027
noc (UK based)			16.85	2	**0.000**			
noc (EEA & EEU)	-0.775	0.397	3.804	1	**0.051**	0.461	0.21	1.004
noc (Others)	-1.739	0.44	15.6	1	**0.000**	0.176	0.07	0.416
tov (Tanker)			18.02	8	**0.021**			
tov (Liner)	-0.091	0.574	0.025	1	0.875	0.913	0.3	2.813
tov (Passenger)	-1.335	0.607	4.833	1	**0.028**	0.263	0.08	0.865
tov (Ro-Ro)	0.286	0.475	0.364	1	0.546	1.332	0.53	3.377
tov (Gas carrier)	0.584	0.721	0.655	1	0.418	1.793	0.44	7.369
tov (DSV)	-0.895	0.703	1.622	1	0.203	**0.409**	0.1	1.620
tov (Supply)	-0.934	0.636	2.161	1	0.142	**0.393**	0.11	1.365
tov (AHTS)	-0.324	0.733	0.195	1	0.659	**0.724**	0.17	3.044
tov (Tug)	-2.034	0.79	6.636	1	**0.010**	0.131	0.03	0.615
Constant	1.638	0.778	4.435	1	0.035	5.143		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.25: Regression analysis of sub practice number Twenty Five

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			7.486	4	0.112			
age (31-40)	-1.889	0.859	4.841	1	0.028	0.151	0.03	0.814
age (41-50)	-0.516	0.869	0.352	1	0.553	0.597	0.11	3.280
age (51-60)	-1.167	0.838	1.938	1	0.164	0.311	0.06	1.610
age (over 60)	-0.268	1.374	0.038	1	0.845	0.765	0.05	11.310
Position (Master)			5.974	6	0.426			
Position (Chief mate)	-0.762	0.667	1.307	1	0.253	0.467	0.13	1.724
Position (Deck officer)	-1.297	0.725	3.2	1	0.074	0.273	0.07	1.132
Position (Chief engineer)	-0.488	0.584	0.699	1	0.403	0.614	0.2	1.927
Position (Second engineer)	1.126	1.178	0.914	1	0.339	3.085	0.31	31.058
Position (Engineer officer)	-1.367	1.005	1.85	1	0.174	0.255	0.04	1.827
Position (Other officers)	-0.545	0.682	0.639	1	0.424	0.58	0.15	2.205
toc (Shipping company)			4.534	2	0.104			
toc (Shipping management company)	-0.928	0.473	3.847	1	0.050	0.395	0.16	0.999
toc (Other types of companies)	-0.849	0.629	1.822	1	0.177	0.428	0.12	1.468
noc (UK based)			1.612	2	0.447			
noc (EEA & EEU)	-0.435	0.512	0.722	1	0.396	0.647	0.24	1.765
noc (Others)	-0.612	0.552	1.227	1	0.268	0.542	0.18	1.601
tov (Tanker)			10.28	8	0.246			
tov (Liner)	0.137	0.768	0.032	1	0.859	1.146	0.25	5.165
tov (Passenger)	-1.423	0.659	4.666	1	0.031	0.241	0.07	0.876
tov (Ro-Ro)	-0.028	0.621	0.002	1	0.964	0.972	0.29	3.283
tov (Gas carrier)	1.407	1.166	1.456	1	0.228	4.085	0.42	40.181
tov (DSV)	-0.641	0.822	0.608	1	0.435	0.527	0.11	2.637
tov (Supply)	1.019	1.166	0.763	1	0.382	2.77	0.28	27.238
tov (AHTS)	19.46	10784	3E-06	1	0.999	3E+08	0	.
tov (Tug)	0.033	0.944	0.001	1	0.972	1.034	0.16	6.572
Constant	3.712	0.987	14.15	1	0.000	40.92		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.26: Regression analysis of sub practice number Twenty Six

Variables in the Equation	B	S.E.	Wald	df	Sig	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			6.446	4	0.168			
age (31-40)	-0.652	0.758	0.739	1	0.390	0.521	0.12	2.304
age (41-50)	-0.168	0.71	0.056	1	0.813	0.845	0.21	3.401
age (51-60)	-1.089	0.719	2.296	1	0.130	0.336	0.08	1.377
age (over 60)	-0.314	0.914	0.118	1	0.732	0.731	0.12	4.384
Position (Master)			7.227	6	0.300			
Position (Chief mate)	-0.697	0.593	1.383	1	0.240	0.498	0.16	1.592
Position (Deck officer)	-0.721	0.689	1.094	1	0.296	0.486	0.13	1.877
Position (Chief engineer)	0.114	0.461	0.061	1	0.805	1.121	0.45	2.768
Position (Second engineer)	0.323	0.706	0.21	1	0.647	1.382	0.35	5.508
Position (Engineer officer)	1.038	0.866	1.436	1	0.231	2.823	0.52	15.414
Position (Other officers)	0.208	0.544	0.146	1	0.702	1.231	0.42	3.575
toc (Shipping company)			1.341	2	0.511			
toc (Shipping management company)	-0.29	0.427	0.46	1	0.498	0.748	0.32	1.730
toc (Other types of companies)	0.441	0.581	0.576	1	0.448	1.554	0.5	4.854
noc (UK based)			6.948	2	0.031			
noc (EEA & EEU)	-0.522	0.455	1.319	1	0.251	0.593	0.24	1.446
noc (Others)	-1.287	0.507	6.45	1	0.011	0.276	0.1	0.746
tov (Tanker)			17.87	8	0.022			
tov (Liner)	-0.061	0.581	0.011	1	0.916	0.941	0.3	2.936
tov (Passenger)	0.258	0.573	0.203	1	0.652	1.294	0.42	3.979
tov (Ro-Ro)	-1.098	0.489	5.048	1	0.025	0.334	0.13	0.869
tov (Gas carrier)	0.499	0.687	0.528	1	0.467	1.647	0.43	6.327
tov (DSV)	-2.358	1.144	4.25	1	0.039	0.095	0.01	0.890
tov (Supply)	-2.323	1.11	4.382	1	0.036	0.098	0.01	0.862
tov (AHTS)	0.675	0.713	0.895	1	0.344	1.964	0.49	7.949
tov (Tug)	-0.173	0.709	0.06	1	0.807	0.841	0.21	3.373
Constant	0.382	0.79	0.233	1	0.629	1.465		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.27: Regression analysis of sub practice number Twenty Seven

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			1.966	4	0.742			
age (31-40)	-0.507	0.685	0.549	1	0.459	0.602	0.16	2.304
age (41-50)	-0.277	0.637	0.189	1	0.663	0.758	0.22	2.641
age (51-60)	-0.274	0.631	0.188	1	0.664	0.76	0.22	2.620
age (over 60)	0.504	0.893	0.319	1	0.572	1.656	0.29	9.530
Position (Master)			7.934	6	0.243			
Position (Chief mate)	-0.32	0.502	0.407	1	0.524	0.726	0.27	1.943
Position (Deck officer)	0.709	0.556	1.625	1	0.202	2.032	0.68	6.047
Position (Chief engineer)	0.379	0.416	0.831	1	0.362	1.461	0.65	3.298
Position (Second engineer)	-0.106	0.604	0.03	1	0.861	0.9	0.28	2.942
Position (Engineer officer)	-0.12	0.806	0.022	1	0.881	0.887	0.18	4.303
Position (Other officers)	1.076	0.552	3.801	1	**0.051**	2.932	0.99	8.646
toc (Shipping company)			2.69	2	0.261			
toc (Shipping management company)	-0.076	0.365	0.044	1	0.834	0.926	0.45	1.895
toc (Other types of companies)	-1.053	0.643	2.682	1	0.102	0.349	0.1	1.230
noc (UK based)			1.714	2	0.425			
noc (EEA & EEU)	0.132	0.385	0.118	1	0.731	1.142	0.54	2.427
noc (Others)	-0.479	0.408	1.378	1	0.240	0.62	0.28	1.378
tov (Tanker)			21.34	8	**0.006**			
tov (Liner)	-0.062	0.538	0.013	1	0.909	0.94	0.33	2.700
tov (Passenger)	-0.623	0.557	1.247	1	0.264	0.537	0.18	1.600
tov (Ro-Ro)	-1.123	0.442	6.474	1	**0.011**	0.325	0.14	0.773
tov (Gas carrier)	1.226	0.742	2.733	1	0.098	3.408	0.8	14.585
tov (DSV)	-0.97	0.703	1.904	1	0.168	0.379	0.1	1.504
tov (Supply)	-0.795	0.604	1.731	1	0.188	0.452	0.14	1.476
tov (AHTS)	0.416	0.674	0.382	1	0.537	1.516	0.4	5.677
tov (Tug)	-2.9	1.126	6.632	1	0.010	0.055	0.01	0.500
Constant	0.338	0.696	0.235	1	0.628	1.402		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.28: Regression analysis of sub practice number Twenty Eight

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			0.997	4	0.910			
age (31-40)	0.768	0.862	0.794	1	0.373	2.155	0.4	11.663
age (41-50)	0.412	0.768	0.287	1	0.592	1.509	0.34	6.799
age (51-60)	0.314	0.74	0.181	1	0.671	1.369	0.32	5.837
age (over 60)	0.646	1.051	0.378	1	0.539	1.908	0.24	14.973
Position (Master)			9.997	6	0.125			
Position (Chief mate)	0.417	0.582	0.515	1	0.473	1.518	0.49	4.745
Position (Deck officer)	-0.225	0.611	0.136	1	0.712	0.798	0.24	2.645
Position (Chief engineer)	2.078	0.75	7.669	1	**0.006**	7.989	1.84	34.770
Position (Second engineer)	-0.323	0.637	0.256	1	0.613	0.724	0.21	2.525
Position (Engineer officer)	0.516	0.932	0.306	1	0.580	1.675	0.27	10.408
Position (Other officers)	0.283	0.617	0.21	1	0.647	1.327	0.4	4.449
toc (Shipping company)			4.465	2	0.107			
toc (Shipping management company)	-0.426	0.427	0.992	1	0.319	0.653	0.28	1.510
toc (Other types of companies)	-1.187	0.577	4.231	1	**0.040**	0.305	0.1	0.946
noc (UK based)			4.817	2	0.090			
noc (EEA & EEU)	-0.966	0.447	4.659	1	**0.031**	0.381	0.16	0.915
noc (Others)	-0.448	0.534	0.703	1	0.402	0.639	0.22	1.821
tov (Tanker)			10.97	8	0.204			
tov (Liner)	-0.046	0.725	0.004	1	0.949	0.955	0.23	3.956
tov (Passenger)	-0.547	0.71	0.593	1	0.441	0.579	0.14	2.328
tov (Ro-Ro)	-0.771	0.583	1.749	1	0.186	0.462	0.15	1.451
tov (Gas carrier)	0.073	0.937	0.006	1	0.938	1.076	0.17	6.746
tov (DSV)	-0.909	0.736	1.528	1	0.216	0.403	0.1	1.703
tov (Supply)	-0.409	0.819	0.25	1	0.617	0.664	0.13	3.306
tov (AHTS)	19.14	10625	3E-06	1	0.999	2E+08	0	.
tov (Tug)	-2.377	0.794	8.958	1	**0.003**	0.093	0.02	0.440
Constant	1.724	0.828	4.333	1	0.037	5.609		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.29: Regression analysis of sub practice number Twenty Nine

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			4.815	4	0.307			
age (31-40)	-0.701	0.739	0.898	1	0.343	0.496	0.12	2.114
age (41-50)	-0.821	0.709	1.341	1	0.247	0.44	0.11	1.766
age (51-60)	-1.359	0.712	3.644	1	0.056	0.257	0.06	1.037
age (over 60)	-0.737	0.908	0.659	1	0.417	0.479	0.08	2.835
Position (Master)			5.289	6	0.507			
Position (Chief mate)	-0.16	0.528	0.092	1	0.762	0.852	0.3	2.399
Position (Deck officer)	-1.169	0.656	3.181	1	0.075	0.311	0.09	1.123
Position (Chief engineer)	0.208	0.459	0.205	1	0.651	1.231	0.5	3.028
Position (Second engineer)	-0.286	0.676	0.179	1	0.672	0.751	0.2	2.828
Position (Engineer officer)	-0.748	0.85	0.774	1	0.379	0.473	0.09	2.506
Position (Other officers)	0.404	0.561	0.519	1	0.471	1.498	0.5	4.496
toc (Shipping company)			0.445	2	0.801			
toc (Shipping management company)	-0.146	0.417	0.122	1	0.727	0.864	0.38	1.958
toc (Other types of companies)	0.279	0.58	0.231	1	0.631	1.321	0.42	4.115
noc (UK based)			4.182	2	0.124			
noc (EEA & EEU)	0.524	0.401	1.71	1	0.191	1.688	0.77	3.702
noc (Others)	-0.745	0.557	1.788	1	0.181	0.475	0.16	1.415
tov (Tanker)			11.2	8	0.191			
tov (Liner)	0.111	0.613	0.033	1	0.856	1.118	0.34	3.714
tov (Passenger)	-0.005	0.651	5E-05	1	0.994	0.996	0.28	3.568
tov (Ro-Ro)	0.958	0.483	3.923	1	0.048	2.605	1.01	6.721
tov (Gas carrier)	-0.579	0.885	0.427	1	0.513	0.561	0.1	3.178
tov (DSV)	0.018	0.797	5E-04	1	0.982	1.018	0.21	4.854
tov (Supply)	-0.69	0.869	0.631	1	0.427	0.502	0.09	2.753
tov (AHTS)	-0.177	0.884	0.04	1	0.841	0.837	0.15	4.741
tov (Tug)	-0.747	0.916	0.665	1	0.415	0.474	0.08	2.854
Constant	-0.297	0.784	0.144	1	0.704	0.743		
Variable(s) entered on step 1: age, position, toc, noc, tov.								

Table 3A.30: Regression analysis of sub practice number Thirty

Variables in the Equation	B	S.E.	Wald	df	Sig	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
age(21-30)			3.225	4	0.521			
age (31-40)	0.84	0.786	1.142	1	0.285	2.316	0.5	10.807
age (41-50)	0.85	0.737	1.329	1	0.249	2.339	0.55	9.917
age (51-60)	0.357	0.714	0.251	1	0.616	1.43	0.35	5.792
age (over 60)	0.898	0.967	0.861	1	0.353	2.454	0.37	16.346
Position (Master)			19.76	6	**0.003**			
Position (Chief mate)	0.978	0.555	3.109	1	0.078	2.659	0.9	7.885
Position (Deck officer)	0.777	0.637	1.488	1	0.223	2.175	0.62	7.580
Position (Chief engineer)	-0.756	0.414	3.338	1	0.068	0.47	0.21	1.057
Position (Second engineer)	-0.451	0.58	0.603	1	0.437	0.637	0.2	1.987
Position (Engineer officer)	1.418	0.946	2.248	1	0.134	4.128	0.65	26.336
Position (Other officers)	1.823	0.682	7.144	1	**0.008**	6.192	1.63	23.573
toc (Shipping company)			9.476	2	**0.009**			
toc (Shipping management company)	-0.345	0.368	0.879	1	0.349	0.709	0.34	1.456
toc (Other types of companies)	-1.799	0.588	9.367	1	**0.002**	0.165	0.05	0.524
noc (UK based)			1.102	2	0.576			
noc (EEA & EEU)	-0.136	0.422	0.104	1	0.747	0.873	0.38	1.995
noc (Others)	-0.436	0.418	1.085	1	0.297	0.647	0.28	1.468
tov (Tanker)			11.48	8	0.176			
tov (Liner)	0.693	0.602	1.327	1	0.249	2	0.61	6.503
tov (Passenger)	-0.454	0.573	0.628	1	0.428	0.635	0.21	1.952
tov (Ro-Ro)	0.711	0.469	2.295	1	0.130	2.036	0.81	5.106
tov (Gas carrier)	-1.059	0.725	2.134	1	0.144	0.347	0.08	1.436
tov (DSV)	0.521	0.694	0.564	1	0.453	1.684	0.43	6.560
tov (Supply)	0.114	0.613	0.034	1	0.853	1.12	0.34	3.722
tov (AHTS)	1.372	0.887	2.393	1	0.122	3.941	0.69	22.405
tov (Tug)	0.016	0.771	4E-04	1	0.984	1.016	0.22	4.600
Constant	-0.109	0.766	0.02	1	0.886	0.896		
Variable(s) entered on step 1: age, position, toc, noc, tov.								