Strategic alliances in container shipping and their impacts on non-alliance carriers: a Liberian perspective

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WORLD MARITIME UNIVERSITY
Malmö, Sweden

STRATEGIC ALLIANCES IN CONTAINER SHIPPING AND THEIR IMPACTS ON NON-ALLIANCE CARRIERS: A LIBERIAN PERSPECTIVE

CYRUS MICHAEL JOHNSON
Liberia

A dissertation submitted to the World Maritime University in partial fulfilment of the requirements for the reward of the degree of

MASTER OF SCIENCE
in
MARITIME AFFAIRS

(SHIPPING MANAGEMENT AND LOGISTICS)

2020

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Declaration

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature): [Signature]

(Date): September 6, 2020

Supervised by: Professor Dong-Wook Song,  
Korean Chair & Head of Specialization  
Shipping and Port Management  
World Maritime University
Acknowledgements

It is with great joy and humility that I write in expression of my gratitude firstly to God, my Creator, who has showered me with abundant love, mercy and favour to reach this milestone in my academic sojourn and life. To my loving and caring mother who has always stood by me in everything from birth, the countless sacrifices made to give me the education that qualified me to reached the level of being considered for this fellowship, her continuous words of encouragement that kept me strong, even at the point of giving up, the ceaseless hours of prayers helped propelled me this far. To my two boys, Fitzgerald Robert Johnson and Isaiah Jeror Johnson, who always cheered me up on the phone, during difficult times of my study, for whom I braved the storm to push harder, in order to give them a better future.

My profound appreciation to the World Maritime University family headed by the Dr. Cleopatra Doumbia-Henry, for accepting my application and affording me the opportunity to study. Thanks for the leadership role played during the outbreak of the COVID pandemic, that allowed us continued our studies and successfully complete our courses, in the midst of the global shut downs that affected schools, which could have delayed our studies, I’m grateful.

To the best Specialization, Shipping and Port Management, headed by Professor Dr. Dong-Wook Song, ably assisted by Professor George Theocharidis and Assistant Professor Satya Sahoo, I am truly grateful for the impactful knowledge over the past months of interaction. Special thanks to my supervisor, Dr. Dong-Wook Song for pushing me harder, I’m grateful.

To the wonderful Professors and visiting lecturers at WMU who impacted knowledge from foundation to the end of the specialization courses, who along the way availed themselves to assist upon my call, I’m deeply grateful.
Finally, I am deeply grateful to the Norwegian Agency for Development Cooperation (NORAD), without whom this study could not have been possible, for granting me the sponsorship. Thanks for the meaningful assistance, this will certainly make a positive and significant impact.
ABSTRACT

Title of Dissertation: Strategic Alliances in Container Shipping Operations and Their Impacts on Non-Alliance Carriers Operations; A Liberia Perspective

Degree: Master of Science (MSc)

Liberia is a signatory to many international regulations including the one governing shipping, under which container alliances and non-alliances operate. The dissertation studied Strategic Alliances in Container Shipping Operations and Its Impacts on Non-Alliance Carrier Operations, A Liberian Perspective.

There is growing dominance of container alliances in the container shipping sector around the world, which is continuously increasing the likelihood of silencing the operations of non-alliance carriers. The situation creates the picture of an oligopoly in the sector. Therefore, it is necessary to study the situation happening with the two groups operating in Liberia. The study focuses on the objectives of identifying the alliance and non-alliance carriers operating in Liberia, identifying and establishing the impacts alliance operations have on non-alliance carriers, the gap between the two groups and the impacts they have made on the sector and industry in the country.

Furthermore, the study assesses the impacts alliance and non-alliance carriers have made to the improvement of the service delivery of the container port and terminal operations. Additionally, the study assesses the impacts made on the port infrastructure.

The research reviews existing literature and other studies relative to alliances and non-alliances in containers shipping, to get a clearer picture of the situation globally and to help understand the situation in Liberia. The study finally concludes with a discussion of the findings obtained from the analysed data compiled from the questionnaires collected from the field that address the objectives and answer the research questions.

KEYWORDS: Strategic Alliances, Non-Alliances, Impacts, Container Shipping
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<th>Full Form</th>
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<tr>
<td>2M</td>
<td>Maersk Line &amp; Mediterranean Shipping Company</td>
</tr>
<tr>
<td>AP Moller Group</td>
<td>Arnold Peter Moller Group</td>
</tr>
<tr>
<td>APL</td>
<td>American President Liners</td>
</tr>
<tr>
<td>APM Terminals</td>
<td>Arnold Peter Moller Terminals</td>
</tr>
<tr>
<td>CMA-CGM</td>
<td>Campagne Maritime d’Affretement and Campagne Generate Maritime</td>
</tr>
<tr>
<td>COSCO</td>
<td>China Ocean Shipping Company</td>
</tr>
<tr>
<td>HMM</td>
<td>Hyundai Merchant Marine</td>
</tr>
<tr>
<td>IMCO</td>
<td>Intergovernmental Maritime Consultative</td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
</tr>
<tr>
<td>IOS</td>
<td>International Organization for Standardization</td>
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<tr>
<td>ISM</td>
<td>International Safety Management</td>
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<tr>
<td>ISPS</td>
<td>International Ships and Ports Security</td>
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<tr>
<td>ITF</td>
<td>International Transport Workers Federation</td>
</tr>
<tr>
<td>LISCR</td>
<td>Liberia International Ships and Corporate Registry</td>
</tr>
<tr>
<td>LMA</td>
<td>Liberia Maritime Authority</td>
</tr>
<tr>
<td>LRA</td>
<td>Liberia Revenue Authority</td>
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<tr>
<td>LSC</td>
<td>Liberian Shipowners Council</td>
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<tr>
<td>M&amp;A</td>
<td>Mergers consolidations and Acquisitions</td>
</tr>
<tr>
<td>MARPOL</td>
<td>Marine Pollution</td>
</tr>
<tr>
<td>MFDP</td>
<td>Ministry of Finance and Development Planning</td>
</tr>
<tr>
<td>MLC</td>
<td>Maritime Labor Convention</td>
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<tr>
<td>MSC</td>
<td>Mediterranean Shipping Company</td>
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<tr>
<td>NOL</td>
<td>Neptune Orient Liners</td>
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<tr>
<td>NPA</td>
<td>National Port Authority</td>
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<tr>
<td>NYK</td>
<td>Nippon Yusen Kaisha</td>
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<td>ONE</td>
<td>Ocean Network Express</td>
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<td>PIL</td>
<td>Pacific International Lines</td>
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<tr>
<td>SOLAS</td>
<td>Safety of Life At Sea</td>
</tr>
<tr>
<td>STCW</td>
<td>Standard for Training, Certification and Watch-keeping</td>
</tr>
<tr>
<td>TEU</td>
<td>Twenty-foot Equivalent Unit</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>United Nations Office on Trade and Development</td>
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<tr>
<td>VSA</td>
<td>Vessel Sharing agreement</td>
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<tr>
<td>WMU</td>
<td>World Maritime University</td>
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<tr>
<td>YMMT</td>
<td>Yang Ming Marine Transport</td>
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Chapter 1: Introduction

1.1 Background

Strategic alliances are cooperative concepts that encompass agreements on a global scale used as a pathway by many companies across industries over the last two decades. In the context of this study, the concept refers to the purpose to form joint execution of functions such as vessel-sharing, slot chartering, and terminal services. The shipping alliance includes the convergence of different competitors or carriers that collaborate around mutual interest, benefiting all strategic alliance layers (Song, & Panayides, 2002). The concept emerged as an approach in the mid-1990s to leverage economies of scale and scope. Since that time, it has helped to tackle market setbacks affecting the efficiency of giant carriers dominating the modern shipping sector, such as the unfixed variable of price labels, (Hoffmann et al., 2018).

Strategic alliances are different from other shipping agreements. These agreements, including the consortia, were mostly regional in scope and controlled by the European carriers between the 1960s and 1980s (Panayides and Wiedmer, 2011). In contrast, strategic alliances control the predominant main East trade lanes that concentrate the largest share of the containerized freight flows: Asia-Europe, Asia-US, and US-Europe (Hoffmann et al., 2018).

It is believed that 67% of vessel-management expenses cover operational functions, with roughly 46% and 21% respectively dedicated to bunker costs and port charges (Hoffmann et al, 2018). Panayides & Wiedmer, (2011) noted that the analytical bedrock of strategic alliances is embedded in the perspective knowledge of operational and strategic changes brought about by them. Notwithstanding, other experience holds that despite their flexibility in reducing operational costs, expansion of service coverage, and optimization of the ports of call, global agreements do not promise commercial items, such as shipping rates and customer information, as these details
remain unique within the supervision of the partners. This highlights that the benefit of alliance operations does not cover arrangements that the individual carriers have with port terminals, haulers, depots, carrier security fees, and many other operations in-land.

The formation of strategic alliances makes room for a dimensional wave that impacts seaborne transportation from various angles over the past few decades. Varbanova, (2017) indicated this by identifying the implications of the shorter and longer terms of ocean alliances, asserting these kinds of agreements lead to a down-swing in the cost of operation in the near future, which rarely fathoms surplus capacity and challenging traffic in the internal competition among alliance members. While considering exponential and profitable proportions at which alliances possess large segments in terms of market concentration, in comparison to independent carriers targeting similar market concentration, alliances are viewed as vital enablers leading the economics of market concentration in the shipping industry.

Three major alliances - THE Alliance, Ocean Alliance, and 2M Alliance, dominate all seaborne container trade in the modern world. These alliances can bargain with major ports to favour their members because of the large size of their fleets and vessel capacity. Furthermore, they own 70.2% of worldwide container capacity and 96% of overall East-West trade container capacity. The year 2020 has seen a significant shift in the formation of ocean alliances, as the Hyundai Merchant became the newest member of THE Alliance, adding twelve new twenty-three thousand TEU mega-ships to the agreement. This new development will subsequently bring about an expansion in the services between Asia and Northern Europe, thereby enlarging the rotation of vessels to twelve weeks, especially between Busan in Korea and Spain, eventually creating new access to transport cargoes by the Mediterranean routes (Slack et al., 2002).
As mentioned earlier, strategic alliances lead in all aspects of maritime transportation. One of the major sectors impacted by strategic alliances is the evolving container shipping sector. Container shipping has not just made shipping much easier and seen the world's economy take positive shape but has brought along cutting-edge automation that smoothly facilitates cargo movement worldwide, at lower rates and free of imposing dangers. Before the emergence of container ships in the mid-1950s (Lau et al., 2013), industrialization in terms of manufactured commodities was limited to a few producers that functioned in their respective home countries, due to suppressive market conditions that prevented international trade. However, introducing containerized systems did not only help to transform local manufacturers into international ones but also assisted greatly in reducing the cost of moving freight, thereby shifting the world's economy for the better. The International Trade Forum has agreed that strategic alliances played a vast role across these economic margins and continue to do so until now, as containerization was a primary focus informing global alliances in the ocean transport sector (Hoffmann et al., 2018).

Container shipping is considered an integral part of global seaborne trade; it makes up most of the world's merchandise trade, with nearly 60% of seaborne commerce owned by the container liner shipping industry (Cheung et al., 2020). For over half a century, the proportion of global ships has continuously expanded due to container shipping, as measured by the number of goods transported by containers from around 102 million metric tons to about 1.83 billion metric tons in 2017; while exciting development in the sum of deadweight of container ships has undergone an increase from around 11 million metric tons to nearly 166 million metric tons, between the years 1980 and 2019, and around 90% non-bulk cargo globally is transited by container, while today's container ships can transport 19,000 TEU, making them competitive to other sea carriers (Nguyen et al., 2020).

A large part of the 1950s witnessed the container shipping industry's advent, which profitably shifted the paradigm in seagoing transportation. As Ocean carriers and
shipping lines saw an opportunity to specialize in container shipping to facilitate efficiency, thereby enhancing the wave of impact to take flight in the mid-1990s, with around half of ocean shipment volume being controlled by the twenty largest container lines that introduced the dispensation of the different elaborated container ships of dimensional length. Subsequent to their invention, container ships as an ocean transportation system that uses truck-size intermodal containers through the process of containerization to ship goods across routes, have transported about 90% of non-bulk cargo globally, with the standard volume of container ships calculated in twenty-foot equivalent units (TEU), according to the International Organization for Standardization (ISO) (Talley, 2000).

<table>
<thead>
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<tbody>
<tr>
<td>Length</td>
<td>12.19</td>
</tr>
<tr>
<td>Width</td>
<td>2.44</td>
</tr>
<tr>
<td>Standard Height</td>
<td>2.69</td>
</tr>
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<td>High Cube height</td>
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<tr>
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<tr>
<td>Width</td>
<td>2.44</td>
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<tr>
<td>Height</td>
<td>2.59</td>
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Table 1: 40ft & 20ft container dimensions
Source: Modified from Marine Insight (2019)

As shown in Table 1, the modern container is 20 or 40 feet in length with a section of 80' x '80. Moreover, the container system is expressed in terms of TEUs (Twenty-foot Equivalent Units); that is, a TEU is eight feet wide, eight feet high and twenty feet long, and a forty-foot container is equivalent to two TEUs. Various types of containers also exist in shipping (marineinsight.com). These include standard, carriages, reefer, out of gauge and hazardous; and the priority identification of container ships is on the basis of their size, destination, type, and weight classes (Martin et al., 2019).
Figure 1: Development of Container ship size, 1970-2015  
Source: Global Shipping Forum (2016)

Figure 1 shows that the average container ship size has outgrown through the years, especially between 1970 and 2015, permitting cheaper and easier transit across trade routes (Merk, 2018).

Since the inception of container ships, we have witnessed a wave of positive as well as negative impacts. Positively, there has been continuous improvement in terms of port labour, which now requires human efforts in uploading and offloading; technology and strategic approaches to shipping have replaced traditional methods as the imposition of standards of container dimension, and handling accessory means the same handling apparatus could be used for a large variety of cargoes; the problem of uncertainty is also minimized in container shipping, as less effort is required by shipping companies to compute the pace of loading or unloading containers; and these advancements have caused a rapid growth of the container shipping industry and its market (Tomlinson, 2009).
Predictably, as projected in figure 2, the worldwide container market is expected to rise by 4.8% between 2020 and 2021, as seen by the global market which reached around 146.4 million TEU in 2018 (Ducruet, 2015). This increase in the market size of the container liner shipping industry has led to innovative advancement in shipping, emergence and strengthening of sea transportation lines, mass concentration, and investment in huge and profitable ships, while shippers have benefited from smaller freight larceny, quicker and greater trustworthy transit amenity, and deflated cargo freightage, particularly for shipment of high-quality goods.

The development of containerization has additionally impacted the way modern vessels are designed for cargo transportation. Dissimilar to break-bulk ships constructed with on-board cargo cranes, containerships do not sustain themselves, making room for elaborate cargo utilization of the ship. The web of international trade has also transformed due to container shipping, allowing land bringing chains that
encompass chimney stack container train service to form part of the chain in the transit of break-bulk goods (Talley, 2000).

Table 2: Top 10 container operatives, TEUs and fleets
Source: Alpha Liner

As seen in Table 2, there are top 20 container operators, and the top of the list includes Maersk Line and the Mediterranean Shipping Company (MSC), two prominent container shipping carriers of the maritime sector. Both companies have impacted many sector changes, and their accumulated wealth accounts for a large percent of the global maritime trade (Zhang). The introduction of container liner shipping as a critical concept of one of the two major divisions of maritime shipping: liner shipping and tramp shipping, has gained recognizable attraction and investment over the last few decades, with top liner shipping companies institutionalizing alliances to optimize profits and minimize losses. The most common type of ocean alliance in container liner shipping is the strategic Alliance or global Alliance (Dahlgaard-Park, et, al., 2015).
1.2 Problem Statement

Strategic alliances formed among inter-firm cooperation agreements seek to promote collaborative advantage amongst firms and provide a fixed service at regular intervals between named ports. In 1994, the first strategic Alliance was formed among four mega-carriers that were embraced by many sectors, including container shipping, thereby fostering global shipping strategic alliances to achieve financial, economic, strategic, and marketing objectives that would enhance trade among companies, to which Liberia is no exception (Song, & Panayides, 2002).

However, the formation of alliances is mostly among mega companies and excludes smaller ones that operate independently, mostly without fixed operational schedules and routes, large fleet size and vessel capacity like the case with alliance groups (Sirimanne et al., 2019). These alliances are established with global scope of operations and enter into agreements with port authorities in the regions and countries in which operate. These alliances have a huge advantage in bargaining negotiation with port authorities across these ports due to their combined market value and annual operational TEU across these regions around the globe, including Liberia.

Understanding the purposes and intents of establishing strategic alliances in container shipping, there is a growing semblance of disparity that has emerged to the disadvantage of non-alliance carriers in the sector. Comparatively, analyzing the two groups (container alliances and non-alliances), literature reviewed indicates that non-alliance carriers constitute about 75% of the total number of container ocean carriers globally, while alliances combined represent about 25%. Non-alliance carriers with such a percentage are, however, subject to the alliances control sector, which controls and possesses a larger concentration of the market and has a huge influence. Alliances have 80% capacity, most importantly controlling about 95.3% of a combined market share of the East-West trade route, which is one of the busiest and most important routes in the container transport sector and industry. The above percentages however do not signal a balance in the sector in terms of open competition; they rather lead to
a situation of oligopoly (Sirimanne et al., 2019). These growing influences continue to diminish the relevance of independent or non-alliance carriers in respect to their market concentration characterizing the sector thereby ushering in an uneasy economic downturn especially among those transporting along the major trade routes dominated by alliance carriers, (Charlampowicz, 2018).

The situation occurring in the container shipping sector between the two groups (alliances and non-alliances), as mentioned, do not exempt Liberia. The country is engaged in container shipping, thanks to its unique geographic location along the West coast of Africa and its history as a maritime nation (lima.com). Two of the three major shipping alliance groups, 2M Alliance (Maersk and MSC) and Ocean Alliance (COSCO and CMA-CGM), operate in the country as well as other operators, including; Pacific International Lines (PIL), Grimaldi, and Bollore. Independent carriers face similar sectoral challenges with alliances in Liberia. The situation, however, has to be studied to establish the impact and gap that leads to recommendations that would help guide policy intervention between the two groups to promote open competition and create an ideal operational environment for all parties.

Realizing such importance to the situations mentioned above, the research aims to assess the extent of the impacts of container shipping alliance operations on non-alliance operations in terms of annual container imports and exports, frequency of movements and freight rate. The research also seeks to investigate how container shipping alliances and non-alliances have impacted and influenced the Liberia shipping sector, including container terminal operations in terms the speed of loading and offloading, and improvement of the container terminal infrastructure and the container handling service delivery. The research also derives recommendation(s) for the promotion of an open, constructive and competitive environment ideally suitable to all parties that would reduce the existing gap, apmterminalsliberia.com.
1.3 Research Objectives

The research also focuses on assessing the extent of the impacts caused by container shipping alliances on non-alliances in container shipping operations in the Liberian shipping sector. The study endeavours to establish the existing gaps between the two groups of container carriers, and investigate how container alliances and non-alliances have influenced the container port terminal infrastructures, and improved the container handling service delivery.

The objectives of the study are:

1. To identify the alliances and non-alliances operating in Liberia;
2. To identify the impacts of container alliance operations on non-alliance members;
3. To identify and analyze the relationship and gap between alliances and non-alliances operating in Liberia.
4. To identify the impacts container shipping alliances and non-alliances have made on Liberian container terminal operations in terms of the port terminal infrastructural development and improvement of the container handling service delivery in the sector.

1.4 Research Questions

To achieve the objectives outlined in the research, the questions below will be answered:

1. What are the operational impacts of container shipping alliances on non-alliance carriers in Liberia?
2. What characterizes the relationship between container shipping alliances and non-alliances, and what are the existing gaps between the two groups in Liberia?
3. What influences and impacts have container shipping alliances and non-alliances made on Liberian container shipping, container terminal sectors and service delivery?

4. What measures could be derived to promote open and constructive competition and reduce the gaps in the Liberian Container Shipping Sector?

1.5 Research Significance

The study’s significance is to investigate and establish the operational impacts of container shipping alliances on non-alliances, the existing gaps between the two groups in Liberia, and how they have influenced and impacted the Liberian shipping sector, the port infrastructure development, and container port terminal service delivery, and proffer recommendations that seek to solicit support and promote an open, constructive, and competitive environment suitable to all parties and reduce the existing gap.

1.6 Dissertation Structure

The study gathered secondary data from existing literature, including journals, books, scholastic publications, and websites of the different shipping companies and articles. The researcher used a qualitative approach as a method by administering an open and close-ended questionnaire to obtain primary data from 20 respondents across the industry in Liberia. The researcher used a random selection sampling method to select professionals from the Liberia Maritime Authority (LiMA), Liberia International Ships and Corporate Registry (LISCR), National Port Authority (NPA), Shipping Lines, and Port Operators (Singleton & Straits, 2018).
Chapter 2.0 Literature Review on Shipping Alliances

The chapter provides an in-depth explanation by review of different pieces of literature about the formation of strategic alliances, how they operate as a group, their regular and dominant routes, brief history of the major companies dominating the container shipping alliances around the world, the non-alliances and how they find themselves increasingly dominated by the growing power of alliances. The chapter also explains the emergence of container shipping and how container shipping alliances were or are formed and for what reason(s).

2.1 Formation of Strategic Alliances

The literature review on strategic Alliance underscores the significance and applicability of global alliances, which have optimized economic growth in various aspects of ocean shipping, such as the container shipping sector, which experienced a period of a radical shift due to the formation of strategic alliances amongst leading container carriers (Midoro & Pitto, 2000).

Though strategic Alliance as a concept first emerged in the mid-1990s, the idea gained increasing relevance and became adaptive among major liners following the 2008 global financial crisis. The idea was employed to address the various commercial constraints that affected every company, such as the surplus capacity of market supply, the fierce competition, the drop in cargo demand, and low profit. A variety of strategic alliances aimed at ensuring cost reduction and the enhancement of their facilities; improvement of services in frequency and new region served through the expansion of capacity; and mutual sharing of management resources have made it possible for liners to revitalize the existing economic downturn which preceded the global market crisis (Midoro & Pitto, 2000).
Major occurrences either at a global scale or across major regions have shaped the world in terms of attitude and approach moving forward, either by the development of new policies or enhancement of existing ones by global or regional bodies and a change in business policies by companies through the enactment of measures aimed to avert or tackle future happenings. This was the case following the end of the 2008 global financial crisis that devastated the shipping sector, of which container shipping is an integral part (Kalgona & Christian, 2016).

Less than a decade following the end of the international financial crisis, the top three global strategic alliances in container liner shipping were established; they became robust and aggressive in their strategy and approach, thereby gaining dominance in the container liner shipping industry. Individual liners once formed part of previous alliances that were either dissolved or restructured because of bankruptcy and relatable issues that followed the global monetary crisis (Agarwal & Ergun, 2010). In relation to their operations, strategic arrangement among firms broadly consists of two basic agreements - slot charter and vessel sharing consensuses. These allow carriers in the collaboration to enjoy the benefit of economies of scale (Lu et al., 2006).

Vessel sharing agreements (VSAs) are instituted by a contract that serves to facilitates the joint usage of those vessels for the purpose of transporting containers. Though this agreement may exist, each partner retains its individual legal identities as well as separate and independent strategic decision-making rights since decisional independence is a crucial aspect in an alliance network (Panayides & Wiedmer, 2011). Examples of such agreement were seen in the 2M Alliance, which includes Maersk Line and MSC, in 2014 when both companies announced their ten-year vessel sharing agreement, which includes approximately 185 vessels with a capacity of 2.1 million TEU. In the agreement, Maersk made the contribution of 110 vessels representing 1.2 million TEU capacity, while MSC, on the other hand, made available 75 vessels with the capacity of 900k TEU to the Alliance that is currently the biggest in shipping since
Hamburg Süd (part of Maersk) entered, (container-xchange.com/blog/shipping-alliance).

Another form of agreement entered into between alliances was route agreement. This is due to transportation conditions or regulatory regimes for each route covered. Route agreement covers vessel utilization and employment, joint vessel route assignments, itineraries, sailing schedules, vessel size and type, additions and withdrawals of capacity, ports, and port rotations. Route agreement also includes or covers charters, space or slot charters, the use of joint terminals, container coordination and pooling, vessel feeder routes and coordination, container station establishment, and where permitted, they coordinate to provide inland services to customers. In some situations, they may agree to exchange information and procedures.

While each member in the Alliance and signatory to the agreement remain obligated to the Alliance, they are not subjected to the condition of merger. They utilize the capacity available to control efficiency to their supply base. Alliance members have also come to terms on matters that relate common positions within the group, like service matters, and freight rate (Panayides & Wiedmer, 2011).

2.2 Regular and dominant Routes

Alliances are present in every major sea route globally, including the east/west trade routes (Europe/Asia, Asia/US, or US/Europe), oecd.org. The 2M Alliance serves approximately 44 regular routes between Europe, Asia, and the US (Kim, 2017).

COSCO Shipping, OOCL, CMA-CGM, and Evergreen are all members of the Ocean Alliance that was formed in 2017. They cover routes between Asia and Europe as well as the Mediterranean, and the Middle East. The combined number of services for the routes covered are 38. However, the routes are divided into a specified number for each region. They include 19 services for the transpacific, 11 services between Asia
and Europe, including the Mediterranean, and 4 services between Asia and the Middle East. The group has a total of 330 container ships with an estimated carrying capacity of 3.8 million TEU. Their agreement for the coverage of services across these regions was expected to last initially for a period of 5 years, but later that year, the agreement was extended by 10 years lasting until 2027 (Charlampowicz, 2018).

The next group is THE Alliance, which was launched in 2017. The group includes top carriers in Hapag-Lloyd, ONE, and Yang Ming. They possess and enjoy a combined 3.5 million TEU, approximated at 25% of global container capacity, with a fleet-size estimated at 249 ships joining 76 ports throughout Asia, North Europe, the Mediterranean, North America, Canada, Mexico, Central America, Indian Subcontinent and the Middle East. The group welcomed South Korea's HMM as the newest firm to join THE Alliance network as of April 2020, increasing its total capacity by 519k TEU, thereby raising its global market share from 25% to 30% (Kykyri et al., 2019).

2.3 Brief profile of Individual Alliance Members

2.3.1 AP Moller Maersk

AP Moller Group ("Maersk" or "the group") is a Danish conglomerate founded in 1904 by Arnold Peter Moller and his father, Captain Peter Maersk Moller. The company is headquartered in Copenhagen, Denmark. Maersk became the largest container shipping company in the world 1993 after acquiring all liner activities in EACBeno container Ltd. from the Danish East Asiatic Company, maersk.com. The group also became the largest company in Denmark in 2012, with several subsidiary businesses including, global container shipping business, container terminal operations, oil, and gas (Groysberg & Abbott, 2012).
Maersk Shipping Line is one of several branches of the AP Moller- Maersk group. The company is widely well-known for its fleet of containerships. Since its inception, the company has made global success, establishing its presence in many countries around the world. Presently, the company has a fleet of around 711 container ships with a capacity of around 40,817,480 million TEU (MI News Network, 2020).

2.3.2 COSCO - China Ocean Shipping

COSCO, otherwise known as China Ocean Shipping Company, is one of the leading conglomerates in terms of container shipping globally. Currently, the company's operations are spread over 40 countries with a fleet size of 461 container ships and a carrying capacity of 2,792,448 million (MI News Network, 2020).

2.3.3 CMA-CGM

CMA-CGM is currently the world's third-largest container shipping company. The company has a global dimension in both transport capacity and market coverage to shippers. The roots of the company are traced to the Compagnie Generale Transatlantique (CGT) started in 1861 by the Perieire brothers. Over the years, the company experienced a series of mergers. In 1976 it became privatized and merged with the Messageries Maritimes, taking the name Compagnie Generale Maritime (CGM). The company was then acquired by Compagnie Maritime d'Affretement, giving birth to the CMA-CGM group (Frémont, 2015).

The survival history and success of the company cannot be complete with the mention of Jacques Saade, who acquired the company in 1978. He motivated the company's expansion policy between the Beirut, Latakia, Livorno, and Marseille, France routes after the acquisition, and eventually between the West and Eastern Mediterranean by means of containers.
Today, the company is France’s leading container shipping group boasting a total fleet size of about 505 ships operating on over 150 routes globally, with a carrying capacity of around 2,643,745 million TEUs (MI News Network, 2020).

2.3.4 Evergreen Line

Evergreen is a shipping conglomerate based in China. In 1968, visionary Dr. Yung-Fa Chang founded the Evergreen Marine Corporation. Currently, the company has offices established all over the world. The company has an operational capacity of more than 203 container ships and a container carrying capacity of 1,219,406 TEU. The company is regarded to be one of the largest container shipping in the world (MI News Network, 2020).

2.3.5 Hapag-Lloyd

Hapag-Lloyd is a German-based company considered to be one of the most renowned and well-featured companies in the international shipping arena. In 1970, the company was established through the merger that occurred between The North German Company Lloyd and Hamburg-American Line. The company currently has around 231 ships, with the actual number depending on the cyclicity of the global shipping market, catering to the capacity of about 164,0565 million TEUs worldwide (MI News Network, 2020).

2.3.6 Hyundai Merchant Marine

The company Hyundai Merchant Marine is a leading container carrier based in South Korea. The company was established in the 1970s as a heavy industry, and eventually became the world largest shipbuilder with assistance from foreign counterparts (Den Oudsten, 1989). The company has a fleet capacity of 72 vessels and cargo-carrying capacity of 424,724 TEUs. Hyundai Merchant Marine is one of South Korea’s largest
container exporters as well as one of the largest in the world. The company is also one of the top logistics integrators in the world. It plays an integral role in Korea's economic development (MI News Network, 2020).

2.3.7 Mediterranean Shipping Company – MSC

Established in 1970, Mediterranean Shipping Company is an Aponte family privately owned Swiss-based company, headquartered in Geneva, Switzerland. Currently, the company has about five hundred sixty vessels. MSC is a world leader in container shipping and is globally respected.

The company has a global network of 493 offices operating in 500 ports on 200 trade routes. It carries about 21 million TEU annually around the world. The company has been a driving force behind smart container evolution and digital shipping, with its modern ships equipped with the latest green technologies (Mediterranean Shipping Company msc.com).

2.3.8 ONE – Ocean Network Expressed

ONE (Ocean Network Express) is an integration of three major shipping companies, MOL, "K"-Line, and NYK or Nippon Yusen Kaisha. The company was set up in Japan, and it is headquartered in Singapore. ONE was founded to strengthen services across Asia, Latin America, and Africa regions. The formation of these three companies into the ONE Alliance resulted in a combined fleet size of 217 vessels, constituting 1,521,702 TEU carrying capacity, and making it one of the largest container shipping companies globally (MI News Network, 2020).
2.3.9 Pacific International Lines' Container Ship

The Pacific International Lines' (PIL) was incorporated in 1967 in Singapore. The company remains one of the largest ship-owners in Southeast Asia and one of the world's top containership operators. PIL offers services across more than 500 locations in 100 countries globally, with a fleet size of 128 ships and a carrying capacity of 420,039 TEU (MI News Network, 2020).

2.3.10 Yang Ming Marine Transport

Based in Keelung, Taiwan, Yang Ming Marine Transport is one of the world's oldest and largest shipping companies. Established in 1972, the company provides services across Asia, Europe, America, and Australia with a fleet of 96 vessels. It has a container carrying capacity of 627,725 TEU (MI News Network, 2020).

2.4 Alliance Structure of Major Liners in Container shipping

As indicated earlier, the container shipping industry participants have longed to establish cooperation in the form of a strategic Alliance to safeguard profitability in the market characterized by overcapacity and eroding margins. Said process culminated in the potential control of 71.8% of the global shipping capacity by the three largest alliances (Rau & Spinler, 2017). Other factors that precipitated the formation of alliances were risk and investment sharing, the economics of scales, cost control, and the capability to increase service frequency (Midoro & Pitts, 2000). In their study, Song & Punayides, (2002) named internationalization, technological needs, perceived environmental uncertainty as antecedents to alliance formation and rent creation, resource usage expansion, and diversification, and imitation of resources as major reasons inducing companies to enter alliances.
Strategic alliances were formed in the 1990s, but have experienced serious instability over the past 20 years since then. Song & Panayides, (2002) indicated from their study that up to 80% of alliances formed since 1990 have failed. However, between 2011 and 2015, many changes occurred across alliances in container shipping.

Figure 3: The Three major alliances in 2011

Figure 4 shows the three major alliances that existed in 2011; they were the CKYH with a total of 11.3% market share, the next was the Grand Alliance accounting for 9.2 percent market share, and The New World Alliance with the total of 8.5%.

There has, however, been stability since 2016. The structure of alliances has remained unchanged despite the merger of COSCO and CSCL. In 2016, NOL (APL) was acquired by CMA-CGM but was subject to the European Commission's approval as they were in a merger with the G6 Alliance (Midoro & Pitto, 2000).
1990s  Maersk and Sea-Land introduced alliance system and began sharing vessels in the Atlantic and Pacific oceans

1994  The Global Alliance formed (APL, MOL, OOCL, Nedlloyd)
1995  Grand Alliance formed (Hapag Lloyd, NYK, NOL, P&O)
1998  New World Alliance formed (APL, MOL, Hyundai Merchant Marine)
2000  CKYH Alliance formed (COSCO, K-Line, Yangming, Hanjin)
2008  FEFC abolished
2011  G6 Alliance formed (APL, MOL, Hyundai, Hapag Lloyd, NYK, OOCL)

2014  2M Alliance formed (Maersk, MSC)
2014  O3 Alliance formed (CSG, CMA-CGM, UASC)
2014  CKYHE Alliance formed with Evergreen joined

2017\(^3\)  O3 Alliance to be renamed to Ocean alliance consisting of CMA/APL, Cosco/CSG, Evergreen, OOCL
The Alliance to be formed with Yangming, Hapag Lloyd/UASC and NYK/K-Line/MOL

Table 5: Chronological table of shipping conference and Alliance
Source: https://doi.org/10.1016/j.ajst.2017.03.004

Table 5 shows the chronology of the shipping conference and alliance from the emergence of alliances in 1990 to 2017. From the table, over the last 27 years (1990 to 2017), it can be realized how unstable alliances have been, with companies leaving one Alliance and joining others. Some alliances became stronger and larger with the increasing market concentration and cost-effective routs, while others tried to manage to remain afloat and continue operating while seeking opportunities.
The formation of alliances defined the underlining trend toward Financial globalization results of leading carriers in 1996, and four large strategic alliances were formed.

<table>
<thead>
<tr>
<th>First generation</th>
<th>Global Alliance</th>
<th>Grand Alliance</th>
<th>Maersk/Sealand</th>
<th>Hanjin/Tricon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partners</td>
<td>APL, Nedlloyd,</td>
<td>Hapag-Lloyd,</td>
<td>Maersk, Sealand</td>
<td>Cho Yang,</td>
</tr>
<tr>
<td></td>
<td>MOL, OOCL,</td>
<td>NYK, NOL,</td>
<td></td>
<td>DSR/Senator,</td>
</tr>
<tr>
<td></td>
<td>MISC</td>
<td>PteOCL</td>
<td></td>
<td>Hanjin</td>
</tr>
<tr>
<td>No of ships</td>
<td>65</td>
<td>72</td>
<td>109</td>
<td>72</td>
</tr>
<tr>
<td>Capacity (TEUs)</td>
<td>209,645</td>
<td>255,705</td>
<td>281,421</td>
<td>199,404</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second generation</th>
<th>New World Alliance</th>
<th>Grand Alliance</th>
<th>Maersk/Sealand</th>
<th>United Alliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partners</td>
<td>NOL/APL, MOL,</td>
<td>Hapag-Lloyd,</td>
<td>Maersk, Sealand</td>
<td>Cho Yang,</td>
</tr>
<tr>
<td></td>
<td>HMM</td>
<td>P&amp;O Nedlloyd,</td>
<td></td>
<td>DSR/Senator,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OOCL, MISC</td>
<td></td>
<td>Hanjin</td>
</tr>
<tr>
<td>No of ships</td>
<td>90</td>
<td>93</td>
<td>167</td>
<td>85</td>
</tr>
<tr>
<td>Capacity (TEUs)</td>
<td>325,487</td>
<td>350,197</td>
<td>438,089</td>
<td>277,000</td>
</tr>
</tbody>
</table>

Figure 4: Factors affecting alliances complexity in liner shipping
Source: https://doi.org/10.1016/j.ajsl.2017.03.004

2.5 The impact of Alliances Operations on Port

Asgari, et al., (2013) divided the maritime stakeholders into three categories, including Shipping Companies, Port Authorities, and Stevedores. The Port is administered by a designated authority whose roles and responsibilities are to ensure the effective and efficient function of the system to yield maximum utility, serving the demands of its customers, including container shipping alliance companies, port logistics, service, and other port-related service providers (Asgari, et al., 2013).

Midoro & Pitto, (2000a) indicated that the choice of container alliance liner industry tends to follow its customers due to the change in the outlook of the global economic system. However, to attract these giant alliance liner groups to a port, there must be an
advanced system that meets the global standard for handling such vessels, including IT capabilities, higher frequency of services, faster transit times, as well as other value-added services at ports. Due to the increasing vessel capacity of strategic alliance liners, port authorities with no capacity to handle these vessels would be affected in terms of revenue inflow by losing out on these alliance customers. The challenge for them would be to re-define their operational strategies in the value chain for the purpose of securing reliable customers and sustainable expansion (Notteboom, 2004). The impact these alliances tend to have on the ports they operate in is one of a positive nature, in terms of development. Their presence pushes port authorities to ensure the facilities, including the physical superstructure and infrastructures of these ports, are upgraded to an acceptable competitive standard, the speed of their service delivery is improved, the technology is at an advanced level, equipment is all up to date to ensure effective and efficient service, the berths are expanded significantly to accommodate as many vessels as possible, and the depth of the water is deep enough for large vessels. The fulfilment of these requirements shows the development of ports that come as a result of the presence of alliances and non-alliances operations.

However, some countries, especially in Africa that do not have the financial capability to upgrade their Port(s) to such a standard, end up entering a port concession agreement with big alliance groups for several purposes including the upgrading of their ports and services to meet the required standard to accommodate these large vessels, for example, Liberia and APM Terminals.

Though such an agreement intends to upgrade and develop the port facilities within the country of operation, alliance groups basically exercise the advantage when negotiating with port authorities in the interest of their group. This triggered new dynamics between container lines and ports, where these alliances have influence on the Port of operations over other container liner companies outside such alliance groups.
Therefore, the impact of container alliance liner market concentration and deployment on port relationship needs to be thoroughly monitored and assessed, focusing particularly on areas such as their approaches to the container terminal concessions with the ports of operations as well as the cost and benefits, the impact of their influence on the ports to local competition in the region they operate, their selection of port call, and their shipping network configuration (Hoffmann et al., 2018).

2.6 The Impact of Alliances Operations on Container Freight Rates

Regions where container liner alliances operate have experienced different freight rate structures influenced by these alliances groups (Corrine Png, 2013). Hoffmann, et al., (2018) reported a considerable improvement in the container freight market, with a 6.4% growth and the estimated growth of global supply of container ship carrying capacity by 2.8% in 2017 due to global demand for container transport services across all trade lanes. Such growth yielded the container shipping industry with a total profit of roughly 7 billion USD (Hoffmann et al., 2018).

However, a year following the UNCTAD 2018 report, which covered 2017, UNCTAD also reported in its 2019 report, covering 2018, that there was a mixed performance in the container freight rates. The mixed performance was reportedly a result of weak trade growth and continued delivery of bigger ships by alliance groups, thereby exerting further pressure on the freight rates in the first half of 2018 (Sirimanne et al., 2019).

There are, however, extensive variations in the volume of freight shipped, particularly relating to the situation between container alliance liners and non-alliances, which in turn transforms into lower utilization of capacity for non-alliance vessels that leads to price discrimination and imbalance of trade in the liner shipping industry (Zhou & Kim, 2020)
Freight rates are most times controlled by alliance groups who mostly dominate and control the markets in the regions in which operate. Utilizing their huge fleet capacity and large ship size, they easily slash the freight rate in the situation of low or scarcity of freight. This they do to attract more cargo that would cover expenses when the vessel carrying capacity is fully utilized (oe.cd.org).

This trade practice by alliances, especially in less attractive regions, leads to oligopoly and also leaves independent or non-alliance carriers to operate at a loss. They would be forced to also reduce their rates in order to attract cargo. This attitude of alliances undermines the principle of competition law and policy in the container shipping industry (Dabbah, 2010).

2.7 The Impact of Alliances Operations on Public-Private Partnership

Port terminal operation concession agreements involving container alliance liners and local governments have become the new trend in liner shipping. Since the emergence of Containerships became prevalent in ocean transportation, the power of container alliance liners to negotiate the bid for concession privileges across countries has increased substantially. Most of these port operation concession agreements focus on the complete upgrading of port terminals to international standards, especially to accommodate vessels that are in the fleet of these alliances that berth at these ports. Most of the concession negotiations last longer in Africa than they do in other regions worldwide (Pallis, et al., 2008).
Table 6: Footprints of the West African container terminals operators

There are also private companies that do not have linkage with any alliance group but expresses interest to local governments for the purpose of offering other services in the Port-like stevedoring, warehousing, towage, mooring and unmooring, logistics, and transport services, among other port-related services. This might be heavily influenced in every way by the presence of alliance groups that are already offering similar services with greater advantages in terms of their bargaining power with port authorities, which could give them more leverage over smaller service providers. This act discourages the essence of open competition and impacts the operations of private operators and non-alliance in terms of revenues.

2.8 Brief Review of Container Shipping

Since the introduction of container shipping, it has proved to be, and it is still today, the most optimal method for shipping freight of different kinds throughout the various sea routes. Realizing the rich significance to the nature of maritime operations, the
advent of container shipping fuelled a much-needed thrust into the sector, propelling it to heights never seen before (Notteboom, 2004a).

However, shipping freight through different types of container units is not a very old method. The history of container shipping is a development that can be pinpointed to the mid-20th century pioneered by the US-based conveyance businessman Malcolm McLean. On April 26, 1956, in Huston, Texas. Mclean realized that road transport was saturated in the United States. Therefore, he decided that containers would be more convenient to transport freight by sea and derived a method to simplify the long-drawn processes involved in the shipping of freight through sea routes.

The process of loading these containers, in the beginning, was extremely lengthy, which indicated that the cargo had to be properly dismantled or separated before it could be loaded into the ships. This long process meant that effective labour would be required to initially dismantle and then later use similar procedures and labour force for assembling. During the said period, huge amounts of cargo had to be sub-divided simply because of technical restrictions. At the time, there was absolutely no standardization in the entire shipping process. Malcolm Mclean being an innovative businessman, seeking to find solutions to the protracted cargo transportation problem, modified the basic structure of a Second World War tanker vessel. The initial cargo containers utilized in the vessel were modified as well and were wheel-less truck-carts.

However, the success of such a novel initiative depended on whether the modified truck-carts loaded with cargo could successfully be placed into the vessel and thus transported to the desired destination. Exceeding expectations, the ingeniously devised contraption process proved to be a huge success and a turning point in the history of containers’ use. The success meant that for the foreseeable future, shipping cargo – bulk or otherwise, could be carried out with the fewest possible problems (Carpenter, 2006).
Over 50-years since initiating the use of containers as a modern era of shipping containers into major maritime freight operations, many advancements have been made. Today, the global cargo shipping spectrum has widened to enormous proportions while also helping several newer shipping conglomerates and even countries to enter the fray. With the extent of container operations and technological developments and innovation increasing almost every day, it would not be wrong to say that freight movement in the present times cannot be visualized to fruition in the absence of container shipping (marineinsight.com).

Chapter 3: Review of Liberia Maritime Industry

3.1 Liberia Maritime

The maritime sector is one of Liberia's backbones. It encompasses a number of sectors, including ship registration, maritime transportation, seafarer registration, and documentation. Liberia is considered a coastal state, flag state, and port state making it a vibrant maritime nation that involves both alliance and non-alliance carriers trading (Bunte et al., 2018).

Over the last six decades, the Liberian maritime program has been established under the Liberian Maritime Act approved in 1948. Since Liberia became a member of the Intergovernmental Maritime Consultative Organization (IMCO) in 1949, later named the International Maritime Organization (IMO), the country has been and remains a committed member in the implementation of all IMO regulations being signed as a party (lima.gov.lr).

To ensure its commitment to the implementation of the IMO regulations signed, Liberia in 2010, Legislated an Act that transitioned the Bureau of Maritime Affairs to Liberia Maritime Authority, which broadens the scope, functions, and responsibilities of managing all commercial activities within the maritime domain of Liberia. The
intent was to diversify the Authority's activities from its long-standing focus on maritime shipping and corporate Registry to more building and supporting enterprises across the maritime domain to yield more socio-economic benefits for the country and its people (lima.gov.lr).

3.2 Liberia Container Shipping Review

Locally, the operation of alliances is uniquely gaining ground compared to other countries, as said operation takes root in prevailing facets comprising maritime transportation in Liberia. Over the years, both 2M and the Ocean Alliance have had an engaging relationship with the Liberian government, which positions carriers in these groupings at the forefront of the country's seaborne transportation sector. Ranging from long-term service contracts that give alliances operational edges over non-alliances, to unavailability of necessary logistics at the main Port in Liberia, are enablers that give rise to service discrimination against non-alliance carriers operating locally.

Non-alliance carriers find themselves at an unfavourable end, especially in the case of how vessels call at the Freeport of Monrovia - the main commercial port facility in Liberia. Run and operated by the Liberia National Port Authority, the Freeport of Monrovia is governed as a landlord port (Jovanovic SPM 2020 lecture note). Prior to the concession agreement between the government through the port authority and the APM Terminals, the port faced severe logistical constraints that emanated from fourteen years of civil wars, which left every critical infrastructure and superstructure within the Port of Africa's oldest republic disintegrated. Besides, the Freeport of Monrovia, unlike other modern and competitive ports around the world, did not have the specialized crane technology and other equipment and technology to provide the needed services to container ships and capabilities to carry out other essential tasks.
3.3 Liberia Ship Registry

Established in 1948, the Liberian Registry ranked as the world's second-largest vessel registry. It comprises more than 4,400 vessels aggregate, representing over 170 million gross tons, at 12% of the world's ocean-going fleet. The registry provides registration services to vessels including container alliance vessels operating in its waters and conducting business under its maritime jurisdiction under the Liberian flag.

Liberia has earned international respect for its dedication to flagging the world's safest and most secure vessels. Industries and organizations, including the International Maritime Organization and major Port State Control Authorities, have recognized the Liberian Registry at the top of their "white-list." As a founding member of the International Maritime Organization (IMO), the country took a leading role in global shipping at an early stage and continues to be a voice for ship-owners at the International Maritime Organization (lima.gov.lr).

The country's Registry is administered by the Liberian International Ship & Corporate Registry (LISCR, LLC), a private U.S. owned and globally operated company. Throughout its long history, the Registry has experienced exponential growth in fleet size and registered tonnage. This year, Liberia is the fastest-growing major open Registry in the shipping and offshore sectors, with a significantly higher growth rate than its nearest competitors. The Liberian Registry has built a global infrastructure of support and provides 24-hour service to its ship-owners and managers anytime and anywhere. In addition to the 28 full-service global offices in the major maritime centers of the world, the Registry is the first and so far the only major open Registry to have trained a worldwide network of more than 450 professionals, nautical inspectors, and qualified auditors. The Registry provides very convenient, efficient, and cost-effective certification services to ship-owners, with the option of Liberia's unique "Harmonized Audit Program," which includes the Annual Flag State...
Inspection, ISM, ISPS, and MLC, 2006 requirements. There are unique characteristics of the Liberian Registry, which include not requiring vessels to be constructed by a particular nation. Vessel manning requirements specified by the Liberian Registry are exclusively based on competence, international recognition, and safe operation. In contrast, many national registries require manning by citizens of the country of Registry. This promotes higher wages, inflated labour costs, and overheads, excessive bureaucracy, and the potential for interference from organized labour (Carlisle, 2009).

Figure 5: Liberian fleet growth (2000-2010)

The Liberian Registry is also a sovereign maritime jurisdiction responsible for the registration, regulatory enforcement, and safety of ocean-going ships, establishing identification details for ships and recording legally enforceable documents, such as mortgages and bills of sale; and the enforcement of maritime treaties, including Prevention of Pollution from Ships, (MARPOL), Safety of Life at Sea (SOLAS), Maritime Labour Convention (MLC), Standard for Training, Certification, and Watchkeeping (STCW) that are considered legally enforceable. The Liberian Ship Registry runs parallel with the Liberian Corporate Registry, which performs similar functions to other governments’ corporate registration service. The Liberian Registry over the years has seen tremendous growth supported by first-rate ship owners throughout its long history. The Registry is also one of the few with an independent association of
ship owners, known as the Liberian Ship-owners Council (LSC), a member of the International Chamber of Shipping (Piniella, et al., 2017).

3.4 APM and NPA Freeport Terminal Concession Agreement

Maersk Liberia Limited, as an agent of Maersk Line through the APM Terminal Liberia, runs a cutting-edge multi-purpose port in the Freeport of Monrovia - the main seaport system in Liberia, and through a concession-based agreement that lasts for 25 years. Maersk finalized a 125 million upgrade of the Freeport of Monrovia, between 2011 and 2017, as port concession has become the leading force in broadening market competition among liners. This takeover marks the renewal of privatization in port terminal operation. Thus APM Terminals, a subsidiary of the AP Moller (the Maersk-Sea-land freight-handling) acquisition of the concession for the Freeport of Monrovia, illustrates the gradual process of extension by liners to tighten their strongholds against competitors.

Figure 6: Legislative option strength Liberia’s PPP, the concession framework
Chapter 4.0 Methodology

4.1. Introduction

This chapter covers the scope of the study, method of data collection, the sample size of the study, sampling techniques, and finally, the analysis of data gathered through the questionnaires sent out and the procedure thereof (Jarvis, 2018).

4.2 Scope of Study and Data Collection

The scope of the research utilizes a qualitative approach to establish the impact of container shipping alliance operations on non-alliance carriers in the container shipping sector of Liberia. The process of data collection was carried out using questionnaires sent via email to respondents selected across the maritime industry including alliance and non-alliances operators. The questionnaires were completed and returned through the same channel (email). The selected respondents were a mixed of experienced professionals and inexperienced individuals working across the industry, including the ports and the Liberia maritime authority (Jarvis, 2018).

The research structure utilized both open and closed-ended questions to gather primary qualitative data through the means of administered questionnaires. The research also utilized secondary data collection from sources recommended by WMU for research, including scholastic articles, journals, publications, and books. The collection of data through secondary sources was very significant to the study as it ensured a proper and in-depth understanding of past literature on the perspective of different researchers and scholars relative to the topic being considered (Hurreveld et al., 2016).
4.3 Sample Size and Sampling Techniques

The research sample was collected from a cross-section of shipping professionals, experienced and inexperienced maritime professionals, and port administrators who have links and are stakeholders in the Liberia Shipping Industry. It was important to consider both experienced professionals and inexperienced workers across the industry through the use of random sampling as they were very useful in reflecting a balance to the given questions. Due to the significant nature of the study, which focused on identifying the impacts, relationship and gap of container alliances operations on non-alliance carriers in Liberia, and the delivery of quality service at the container port terminal, the study decided on 30 respondents. However, due to difficulty in accessing the different offices and individual respondents due to the COVID pandemic, the sample size was reduced to 20. The number still achieved the required objectives outlined in the study (Singleton et al., 2018).

4.4 Data and Analysis

The research questionnaire was an open and closed-ended; this was intended to reflect the mind of respondents targeted for the study. The questionnaire was designed to consist of two parts, A and B. The first part, A, covered the primary details of the respondents, which included their name, gender, experience, level of education, and information on specialized training acquired. The second part of the study, Part B, consisted of the research questionnaire, which includes 25 questions of both opened and closed-ended nature. It aimed to address the objectives derived from the topic of the research and respondents’ experience about the sector and how the identified problems can be addressed. The study utilized a qualitative approach as the method to analyze the data collected, and presented the results using tables for inserting data and figures (Singleton et al., 2018).
Chapter 5.0: Findings/Data Presentation and Results

5.1 Introduction

This chapter presents the data collected from the questionnaires issued to respondents, and provides the results of the responses to open-ended questions provided therein. The questionnaires were issued to maritime professionals across the industry and sector, and endeavoured to address strategic alliances in container shipping operations and their impacts on non-alliance members from the Liberian perspective. The number of administered questionnaires totalled twenty (20) to mixed respondents (most experienced and less experienced) to represent and reflect views across the entire sector. From the twenty (20) respondents targeted, eight (8) responded successfully, while twelve were proxy responses for respondents who could not be reached directly. The questionnaires were returned by email.

The data presentation and results from the questionnaires separately deal with the two parts; the questionnaire is divided into parts A and B. Part A contains the respondent's primary details, while part B addressed the topic and objectives of the study.

5.2 Part A: Respondents Primary Details

This section includes basic information about the respondents selected across the Maritime sector in Liberia to respond to the research questions.

5.3 Closed ended questions responses

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Responses</th>
<th>Gender ratio percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>65%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 7: Gender ratio
Table 7 addresses the first part of the questionnaire, part B, which includes respondents' gender. Of the twenty (20) respondents sampled, seven (7) were female, representing thirty-five percent (35%) of the total respondents, while thirteen (13) were male, representing sixty-five percent (65%) of the total respondents. This indicates a lower number of females represented compared to the number of males across industry in Liberia.

![Gender Ratio](image)

Figure: 7 Gender ratio percentage

Figure 7 represents a chart divided into 2 parts, indicating the gender ratio between females and males. The blue shaded part represents the percentage of female respondents, while the orange part represents the male respondents.

<table>
<thead>
<tr>
<th>Respondents Years of work experience</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5 years</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>5 to 10 years</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>10 to 15 years</td>
<td>3</td>
<td>0.15</td>
</tr>
<tr>
<td>15 years above</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 8: Respondents work experience
Table 8 highlights the respondents' years of work experiences. The research questionnaire endeavoured to establish the experience of respondents in the sector according to the number of years served. According to the information gathered from the 20 respondents, 6 have between 0 to 5 years’ experience, which represents 30% of the total respondents (30%), 11 have between 5 and 10 years’ experience, which represents 55% of the total respondents, 3 have between 10 and 15 years’ experience, which represents 0.5%, while there was no respondent who worked 15 years or more. From Table 8, it can be realized and concluded that more professionals have worked 5 and 10 years, followed by those who have worked just 0 to 5 years, with relatively average experience, while the highest level of experience was least represented by the respondents. This indicates that the sector does not have many very experienced individuals.

![RESPONDENTS WORK-YEAR EXPERIENCE](image)

**Figure 8: Respondents work-year experience**

Figure 8 represents a pie chart divided into 4 parts, each representing respondents’ years of work experiences from zero 0 to 15 years and more. The blue shaded part represents the percentage of respondents who have worked between 0 and 5 years, the orange part represents the percentage of respondents who have worked between 5 and...
10 years, the grey represents the percentage of respondents who have worked between 10 and 15 years, and there was no space captured for those with 15 years’ experience and more.

<table>
<thead>
<tr>
<th>Respondents Education Level</th>
<th>Number of Respondents</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Master Degree</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Specialized Maritime Education</td>
<td>8</td>
<td>40%</td>
</tr>
</tbody>
</table>

Table 9: Respondents level of education

Table 9 indicates the different levels of education for all respondents. The table shows a high school diploma as the minimum education level considered to a master degree as the highest. The table also shows the number of respondents who have acquired specialized maritime training or education. From the data shown in the table, 0 or no person was captured with just a high school diploma, which indicates 0% of the total respondents; 2 persons have an associate degree, representing 10% of the total respondents, 8 persons have a bachelor degree, representing 40% of the total number of respondents, 2 persons have master degree, representing 10% of the total number of respondents, while 8 persons have benefited from some specialized maritime training, representing 40% of the total respondents.
Figure 9: Respondents Education level

Figure 9 is a representation of the respondent’s education level in a pie chart divided into segments. Each segment is indicative of a colour representing the percentage of respondents in that category. The deep blue represents the total number of respondents who have acquired specialized maritime education; the orange represents the total number of respondents who have acquired an associate degree, the gray represents the total number of respondents who have acquired a bachelor degree, while those in the high school diploma and master degree categories are not represented on the graph, as no one was captured in those categories.

**Part B Respondents responses to general questions**

Part B includes general questions of both open and close nature that address the topic of the research and the objectives thereof.
<table>
<thead>
<tr>
<th>Respondents Work Sector</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping company/terminal operator</td>
<td>14</td>
<td>70%</td>
</tr>
<tr>
<td>Liberia Maritime Authority/Port state control</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>National Port Authority</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Flag Registry (LISCR)</td>
<td>1</td>
<td>5%</td>
</tr>
</tbody>
</table>

Table 10: Respondents Sector of work

Table 10 indicates the different sectors and industries across Liberia that deal with maritime and maritime-related activities. The table shows respondents from shipping companies, the Liberia Maritime Authority and the Port State Control, a container terminal operator represented by APM Terminals, the National Port Authority (NPA), and the flag registry, represented by the Liberia International Ships and Corporate Registry (LISCR). The table shows 14 respondents from across the container shipping sector and port terminal operator; the number represents 70% of the total respondents, 4 respondents from the Liberia Maritime Authority/Port State Control, representing 20% of the total respondents, 1 from the National Port Authority (NPA) representing 5% of the total respondents, and one (1) respondent from the Liberia Ship Registry (LISCR), representing five percent (5%) of the total respondents. The table shows the chronological order from the highest to lowest order of respondents from the different sectors.
Figure 10 represents the respondents' work sectors. The chart is divided into segments. Each segment is indicative of a colour representing the percentage of respondents in that category. The light blue represents the percentage of the total number of respondents working with shipping companies/terminal operators both in alliances and non-alliances, the orange represents the percentage of the total number of respondents working with the Liberia Maritime Authority/Port State Control, the gray represents the percentage of the total number of respondents working with the National Port Authority, the yellow represents the percentage of the total number of respondents working with the Liberia Flag Registry (LISCR).

<table>
<thead>
<tr>
<th>Respondents Working in container alliances and non-alliances</th>
<th>Respondent(s)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliances</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>Non-Alliances</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Others Service Providers/Agents</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>Total Respondents</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 11: Respondents working in Container Alliances and Non-alliances

Table 11 shows respondents working in container alliances and those in non-alliances. The data gathered shows 9 respondents working with alliances; the number represents
45% of the total respondents across the sector, and 4 respondents from the non-alliances companies representing twenty 20% of the total number of respondents. The combined total number of respondents is 20 representing 100%.

Figure 11: Respondents working in Container Alliances and Non-alliances

Figure 11 represents segmented coloured chart of respondents working with either container alliance companies or non-alliance companies, each of which is indicative of a percentage of respondents in that category. The blue represents the percentage of the total number of respondents working with container alliance companies, the orange represents the total number of respondents working with non-alliance companies, the gray represents the number of other service providers/agents, and the yellow represents the combined total.
<table>
<thead>
<tr>
<th>Respondents Work Experience in the sector</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mts 0to 1year</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>1year to 3years</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>3years to 5years</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>5years to 10years</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>10years and above</td>
<td>2</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 12: Respondents work experience in Container shipping sector

Table 12 shows respondents’ years of work experience across the industry generally. The data shows 2 person in the category 6 months to 1 year, representing 5% of the total number of respondents, 4 persons in the category 1 to 3 years, representing 20% of the total number of respondents, 6 persons in the category 3 to 5 years, representing 30% of the total number of respondents, 6 persons in the category 5 to 10 years, representing 30% of the total number of respondents, and 2 respondents in the category 10 years and above, representing 10% of the total number of respondents interviewed.

![Respondents work experience in the sector](image1)

Figure 12: Respondents work experience in Container shipping sector
Figure 12 represents the respondents’ years of work experience in shipping industry across the country. The chat is divided into segments. Each segment is indicative of a colour representing the percentage of respondents in that category. The yellow represents the percentage of respondents who have worked between 5 and 10 years, the deep blue represents the percentage of respondents who have worked from between 10 years and above, the gray represents respondents who have worked between 3 and 5 years, and the light blue represents the percentage of respondents who have worked between 6 months and 1 year.

<table>
<thead>
<tr>
<th>Company's years of existence in Liberia</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3 years (to indicate the name of the company)</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>3 - 5 years</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>5 - 10 years</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>10 years and above</td>
<td>4</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 13: Company’s years of existence in Liberia

Table 13 shows respondents' company years of existence as a container shipping company in Liberia. The table shows that 6 respondents are currently working in companies that have operated in Liberia between 1 and 3 years, representing 30% of the total number of respondents; 3 works in companies that have existed between 3 and 5 years, representing fifteen 15% of the total number of respondents, 7 works in companies that have existed from 5 and 10 years, representing 35% of the total number of respondents, and 4 works in companies that have existed in Liberia for 10 years and above, representing 20% of the total number of respondents.
Figure 13: Company's years of existence in Liberia

Figure 13 illustrates the percentages of respondent's company years of existence as a container shipping company in Liberia. The chat is divided into segments. Each segment is indicative of a color representing the percentage of respondents in that category. The blue represents the percentage of respondents whose company has existed for 1 and 3 years, the orange represents respondents whose company has existed for 3 and 5 years, the gray represents respondents whose company has existed for 5 and 10 years, and the yellow represents the percentage of respondents whose company has existed 10 years and above.

<table>
<thead>
<tr>
<th>Equal privileges to container terminal facilities by alliances &amp; non-alliances</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Maybe</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>I Don't Know</td>
<td>5</td>
<td>25%</td>
</tr>
</tbody>
</table>

Table 14: Equal privileges to container terminal facilities afforded both alliances and non-alliances
Table 14 shows responses to the question of equal privileges to the container port facilities for both alliance companies and non-alliances. From the responses generated as indicated in the 6 respondents answered "yes" to equal access by alliances and non-alliances, representing 30% of total respondents. Eight (8) responded "no" to equal access by both alliances and non-alliances, representing 40% of total respondents. They indicated that alliances are given priority over non-alliances in accessing terminals and facilities. One (1) respondent was not certain, which represents 5% of the total respondents, while 5 said "I don't know" representing 25% of the total number of respondents.

Figure 14: Are Container terminal facilities equally accessible to alliances and non-alliances?

Figure 14 illustrates the percentage of respondents who answered yes and no the question of equal privileges accorded both alliances and non-alliances to container terminal facilities. The chart is divided into segments. Each segment is indicative of a colour representing the percentage of respondents in that category. The blue represents the percentage of respondents who said yes; the orange represents the percentage of respondents who said no; the gray represents the percentage of respondents who said "maybe," and the yellow represents the percentage of respondents who said, "I don't know."
Table 15 shows responses to the question of variance in the container import and export freight rates between alliances and non-alliances. As indicated in the above table, 14 respondents answered "yes" that there is variance in freight rate, representing 65% of the total number of respondents, 7 responded "no" that there is no variance in freight rate, representing 35% of the total number of respondents, and the combined total of 20 out of 20 respondents answered, indicating hundred percent (100%) of the total.

Figure 15 illustrates the percentages of respondents who responded "yes," "no," and the combined total of the 2 responses in both categories. As indicated above, the blue
illustrates the percentage of respondents who answered "yes" the orange illustrates the percentage of respondents who said "no," and the gray illustrates the percentage of the combined total of the two groups who responded to the variance in freight rate.

<table>
<thead>
<tr>
<th>TEU volume increased over last five years</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>65%</td>
</tr>
<tr>
<td>No response</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Total Respondents</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 16: TEU volume increase over the last five years

Table 16 shows responses to the question of an increase in container import and export TEU volume over the last 5 years of the different container shipping companies. As indicated in the above table, 3 respondents answered "yes" there has been an increase in the volume of container import and export TEU over the last 5 years, representing 15% of the total number of respondents. 13 responded "no," representing 65% of the total number of respondents. 4 didn't give any response, representing 20% of the total number of respondents, and the total number of respondents who answered "yes" or "no" and those who did not respond equalled 20, representing 100%.
Figure 16: TEU Volume increased over the last five years

Figure 16 illustrates the percentages of respondents who responded “yes” or “no”, and those who did not give any response to the question of an increased in the container import and export TEU volume over the last 5 years. As indicated above, the blue illustrates the percentage of respondents who answered “yes”; the orange illustrates the percentage of respondents who said “no”; the gray illustrates the percentage of those who did not give any response, and the yellow illustrates the combine total of those who responded and those who did not.

<table>
<thead>
<tr>
<th>General condition of Port</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Good to Int'l standard</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Good</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Fair</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>Poor</td>
<td>2</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 17: General port condition

Table 17 shows responses to the question of the general condition of the port, which includes the container terminal and other terminals. The question also compared the port's condition relative to international standards. As indicated above, four (4)
responded that the port is in very good condition up to international standards, representing 20%. Of the total number of respondents, 8 responded that the port is in good condition, but does not meet all the standards of an international port, which represents 40% of the total number of respondents, 6 responded that the port is in fair condition, meaning, it is neither in a bad state or good state, representing 30% of respondents, and 2 responded that the port is in poor condition, below international standard, and need serious work. This number of respondents represents 10% of the total number of respondents.

Figure 17: General port condition

Figure 17 illustrates the percentages of respondents who responded to the question of the general condition of the port, as indicated in Table 16. As indicated above, the blue illustrates the percentage of respondents who said the port is in a very good condition up to international standards, the orange illustrates the percentage of respondents who said the port is in good condition but not up to full international standards; the gray shade illustrates the percentage of those who said the port is in a fair condition, and the yellow illustrates respondents who categorized the port in poor condition.
<table>
<thead>
<tr>
<th>Gap between Alliances and Non-alliances</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very wide</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Wide</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>Narrow</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Very narrow</td>
<td>2</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 18: Gap between alliances and non-alliances

Table 18 shows responses to the question of the operational gap between container alliances and non-alliances in the Liberian container shipping sector. From the responses generated as indicated in Table 17, 3 described the gap as very wide, representing 15% of the total number of respondents. 11 described the gap as wide, representing 55% of the total number of respondents. 4 described the gap as narrow, representing twenty 20%, and 2 described the gap as very narrow, representing 10% of the total number of respondents.

Figure 18: Gap between alliances and non-alliances

Figure 18 illustrates the percentages of operational gaps in colour. As indicated above, the blue illustrates the percentage of respondents who described the gap as wide; the
orange illustrates the percentage of respondents who described the gap as rather wide; the gray shade illustrates the percentage of those who described the gap as narrow, and the yellow illustrates respondents who described the gap as very narrow.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes Fair</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>No Unfair</td>
<td>14</td>
<td>70%</td>
</tr>
<tr>
<td>Don't know</td>
<td>2</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 19: Fair competition policy in the container sector

Table 19 shows responses to the question relative to whether there are local competition policies that reflect fairness, how fair the policy is if it reflected fairness, and how it has affected any of the groups (alliances and non-alliances). From the responses generated as indicated in Table 18, 4 respondents indicated that there are local competition policies that reflect fairness and have not affected in any form or way the company they work for; this number represents 20% of total respondents. 14 indicated that local policies are unfair, and only favour the bigger container companies (alliances), which has caused smaller companies to go out of business most of the time. The situation led one non-alliance company (Pacific International Lines (PIL)) to shut down its operations in Liberia in mid-2020. The number represents 70% of the total number of respondents, and two (2) said they "don't know" representing 10% of the total number of respondents.
Figure 19: Fair competition policy in the container sector

Figure 19 illustrates the percentages of respondent's responses to the fairness of local competition policies in the container shipping sector. As indicated above, the blue illustrates the percentage of respondents who described the policy as fair; the orange illustrates the percentage of respondents who described the policy as unfair; the gray shade illustrates the percentage of respondents who indicated they "don't know."

<table>
<thead>
<tr>
<th>Container Port terminal Service Delivery</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Good</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>Good</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Poor</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Very Poor</td>
<td>2</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 20: Container port service delivery

Table 20 shows responses to the question of the container port terminal service delivery. The question gauged respondents on how efficient and effective the container port terminal service delivery systems are. From the responses generated as indicated in Table 19, 7 respondents indicated that the service delivery system is very good,
indicating 35% of the total number of respondents. 8 respondents indicated that the port terminal service delivery system is good, but need some level of enhancement. The number represents 40% of the total number of respondents. 3 respondents indicated that the system is poor, and need improvement. The number represents 15% of the total number of respondents, while 2 indicated that the system is very poor and requires serious improvement to ensure it works for all and not few. The number represents 10% of the total number of respondents.

![Container port service delivery](image)

Figure 20: Container port service delivery

Figure 20 illustrates the percentages of respondents’ responses to the effectiveness and efficiency of the container port terminal service delivery system. As indicated above, the blue illustrates the percentage of respondents who described the system as very good; the orange illustrates the percentage of respondents who described the system as good; the gray shade illustrates the percentage of respondents who described the system as poor, and the yellow indicates respondents who described the system as very poor.
5.4 Part B: Responses to opened ended questions

This section includes 6 opened ended questions in the questionnaire. The questions were meant to get the expressions of respondents in their own words relative to the objectives of the study.

<table>
<thead>
<tr>
<th>Responses to Opened Ended questions</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of respondents who attempted all questions</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>Number of respondents who answered 5 of 6</td>
<td>3</td>
<td>10%</td>
</tr>
<tr>
<td>Number of respondents who answered 4 of 6</td>
<td>4</td>
<td>15%</td>
</tr>
<tr>
<td>Number of respondents who answered 3 of 6</td>
<td>2</td>
<td>5%</td>
</tr>
</tbody>
</table>

Table 21: Responses to opened ended questions.

![Responses to opened ended questions](image)

Figure 21: Responses to opened ended questions

Table 21 and Figure 21 both show respondents' responses to the opened-ended questions. Table 21 shows the number of questions and the number of responses generated from the total number of respondents reached. It can be revealed from that from the 6 opened-ended questions, 9 of the 20 respondents attempted or answered all; this number represents 45% of the total number of respondents, which is also indicated
on the graph by the blue colour. 3 of the 20 respondents answered 5 of the 6 questions, representing 10% of the total number of respondents, as indicated on the graph by the orange colour. 4 respondents answered 4 of the 6 questions, representing 15% of the total number of respondents, indicated on the graph by the gray colour, and 2 of the 20 respondents answered just 3 of the 6 questions, representing 5% of the total number of respondents, and indicated on the graph by the yellow colour.

5.5 Respondents views, reactions and responses to the questions

Respondents gave mixed responses to the six questions asked in the opened-ended questions, which focused directly on getting the views from respondents on what their thoughts are about the sectors, the identified problems, and how to derive a unified solution to addressing the problems.

5.5.1 Names of current container shipping Alliances and Non-Alliances operating in Liberia

Though the literature review section mentioned the existing container shipping alliance and non-alliance companies in Liberia, it is possible that there might have been a change in the sector, that is, either there has been an addition of new container alliance carriers and non-alliance container carriers, or it might be the case that some of these carriers no longer operate in the country for some reason which we seek to establish. For these, the names of current container alliance and non-alliance carriers operating in Liberia were asked. From the responses, the research gathered that alliances currently in operating in Liberia include Maersk and MSC, both members of the 2M alliance, CMA-CGM, and COSCO, both members of the Ocean Alliance. Meanwhile, independent carriers include Bollore container and Logistics company, Pacific International Lines (PIL), and Grimaldi container shipping line.
5.5.2 Operational Impacts of Container alliances on non-alliance carriers and the relationship between the two groups in Liberia

From the responses generated from this question, there were mixed views on the impacts of container shipping alliance carriers on non-alliances. Of the twenty respondents, 8 respondents revealed that alliance carriers negatively impact non-alliance carriers, as non-alliance carriers do not have the capacity to compete with container alliance carriers due to the capacity and many optional routes they make available to customers. 7 respondents revealed that the impact is rather positive, indicating that the fact that non-alliances are outside of the alliances, makes the relationship a good one, while 3 respondents declined to answer the question.

<table>
<thead>
<tr>
<th>Operational Impacts of Container alliances on non-alliance carriers in Liberia</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Impact, unfriendly relationship and wide gap</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>Positive Impact, cordial relationship and narrow gap</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>No Response</td>
<td>3</td>
<td>15%</td>
</tr>
</tbody>
</table>

Table 22: Operational Impacts of container alliances on non-alliance carriers, relationship and gap
5.5.3 Impacts and influences of alliances and non-alliances on the container shipping sector, container port terminal, and container terminal service delivery

Respondents had divergent views about the impacts and influences alliances, and non-alliances have made to the Liberia Shipping sector, the container port terminal, and the service delivery. Some respondents also did not respond to the question for reasons the research could not establish. 17 respondents stated that the presence of alliances and non-alliances in Liberia had improved the delivery of goods in a timely manner. It has improved the country's economy and provided jobs for Liberians, which has helped to significantly improve the livelihood of families and the growth of the country's economy.
Chapter Six 6.0: Discussion and Conclusion

Chapter six (6) aimed to establish the impacts container shipping alliances have made on non-alliance carriers in the container shipping sector of Liberia in the midst of sectorial dominance by giant alliance carriers globally, which makes non-alliance carriers increasingly non-competitive.

Strategic alliances are cooperative concepts of agreements formed among bigger companies for the joint execution of functions, which entails collaboration around the mutual interest that benefits all parties in the alliance. Strategic alliances are mainly formed between bigger companies with larger vessels or fleet capacities and wider global connectivity that serves the interests of each member within the group. Currently, the container shipping sector has three major alliances that dominate all container seaborne trade routes in the modern era. These giant alliance container carriers are able to bargain with major ports that enable them to enter concession agreements that provide the opportunity for them to operate their own dedicated terminal services to provide exclusive privilege services to members of their respective alliances. These terminal operations offer priority services to members within these alliances, which is a huge advantage over non-alliance cooperatives who do not have such privilege.

Additionally, alliance cooperatives are able to set freight rates along these set routes they travel to, over which they have a massive level of control. They have the ability to increase or decrease freight rates based on prevailing market circumstances that are mostly tailored to the interests of the groups and their members. The situation raises the question of what happens to container carriers that are not a member of those alliance groups? What impacts do alliance conglomerate operations across these sea routes and different regions have on non-alliance carriers similarly operating along those routes?
In response to these questions, the study engaged the Liberian shipping industry, specifically, the container shipping sector, to gauge the views of actors, directly and indirectly, working in the sector, including the regulatory and policymaking bodies, through a structured questionnaire of open and close-ended nature to establish the impacts container shipping alliances have on non-alliance carriers in the Liberia container shipping sector. The study considered twenty (20) respondents selected randomly across the shipping industry of Liberia.

Upon establishment of the impacts and gaps between alliances and non-alliances, the study aimed to ensure that policies affecting the container shipping sector reflect openness and competitiveness for all players, void of oligopolistic influence and control, ensuring openness and accessibility to container terminals for both alliances and non-alliances in the execution of their import and export operations, as well as access to more balanced service delivery at the port terminal for the enhancement and growth of the sector, through recommendations to policymakers within the sector.

6.1 Respondents Gender and Selected Sectors

The preceding chapter 5 presented the data, and the results from the data gathered, including respondents' gender and primary details. The report shows that 35% of respondents were female, while 65% were male. The respondents were selected from across the Liberian shipping industry, including the container shipping alliance companies, non-alliance container shipping companies, the National Port Authority of Liberia, Liberia Maritime Authority Port State Control Officers, and the Liberia Ship Registry LISC. The selected sectors were considered based on the nature of work they do in the capacities in which they function and the fact that there are professionals who work directly and indirectly in these sectors with diverse experiences that gave meaningful contributions relative to the focus of. The selection of respondents across the sectors was made randomly to avoid biases in the process.
Container shipping is a sector governed by IMO regulations and other relevant UN agencies. The International Maritime Organization is a specialized agency of the United Nations charged with the responsibility to regulate international shipping, including ensuring the safety, security, and environmental protection of the oceans. Meanwhile, the World Maritime University was founded by the IMO in 1983 as an academic institution to provide advanced training for both men and women involved in activities, particularly those in developing countries. The University supports the IMO member states and maritime industry stakeholders in the implementation of nine (9) of the seventeen (17) UN SDGs adopted by the UN and all its member states in 2015, entered into force on January 1, 2016, and expected to be achieved by 2030. SDG five (5) focuses on Gender Equality. WMU has responded to attaining this goal of the UN by developing a series of programs aimed at promoting women's participation in the maritime industry.

With these efforts being exerted by the UN and IMO through WMU, the study discovered that there are still fewer women participating in the maritime industry of Liberia, evidenced by the proportion of female respondents, 35%.

6.1.2 Identified Problems and Gap between alliances and non-alliances

The literature has revealed that the advantages of alliances in the container shipping sector over non-alliance groups are vast. Alliances operate based on cooperative agreements between parties in the alliance, which makes shipping easy for them, including access to priority services at dedicated terminal services operated by the alliance, huge vessel capacity, and many routes that attract customers to them. In contrast, non-alliances operate individually, and cannot, therefore, compete with alliance carriers due to their limited capacities.
The study gathered responses of identified problems outlined by respondents in response to the research questions. Rating the existing gap between alliances and non-alliances, from very wide, wide, narrow, and very narrow, it was established that 70% of respondents rated the existing gap between alliances and non-alliance carriers as either very wide or wide. The indication is that alliances dominate the sector in the country. The gap created between the two groups of container carriers is tied to factors identified by respondents, such as unfair local sector policy that does not promote balanced competition. 70% of the respondents acknowledged that the local policy governing the container shipping sector favours and promotes alliance companies due to their carrying capacity, global connections and routes, and market position. 30% of the respondents stated that non-alliance carriers are not accorded equal privileges as done to alliance carriers at the container terminal facilities in the port. The issue with pre-fixing of freight rates by alliance carriers on fixed routes leaves non-alliances with less hope of securing customers who would rather opt for alliance carriers to non-alliances. The situation leaves huge problems for the income of non-alliances who would operate at a loss.

6.1.3 Impacts of Alliance Operations on Non-Alliances Operations in Liberia

Responses gathered proved that non-alliance container carriers operating in Liberia are negatively impacted by the operations of alliances. Alliance operations herein refer to container handling operations, including the import and export of containers, port terminal handling activities, warehousing operations, and any other container-related activities carried out in Liberia by alliance groups that affect non-alliances. As mentioned in 6.1.2 above, 70% of respondents alluded to a wide or very wide gap between alliances and non-alliances due to favour from the local system toward them. That has given alliances leverage in every area of local operations in the sector. The situation has dealt a negative impact on non-alliance carriers in that more cargo owners shippers prefer doing business with alliance carriers due to their capacity and many or
alternative route advantages, offer of pre-fixed and lower freight charges, and other services that are not offered by non-alliances.

Alliance carriers are provided priority services at the main port of Liberia, the Free Port of Monrovia, where most of the container activities take place. Vessels calling the port outside the alliance group are not afforded such an opportunity. Also, alliances have bigger warehousing facilities available to store cargo for a longer or shorter time, or in transit due to the advantage of operating the port terminal.

Liberia mostly imports and exports in TEU (Twenty-Foot Equivalent Unit). 65% of respondents indicated that container TEU volume over the last 5 years has reduced for both alliances and non-alliances due to the situation of a decrease in demand caused by the high port tariff.

6.1.4 Impacts of container Alliances and Non-alliances on container terminal operations and container shipping sector

Twenty-first-century shipping has greatly advanced in terms of technology. The improvement and advancement have led to the innovation of fast-moving vessels, the development of megamix vessels, the latest being launched by HMM of Korea, a member of THE Alliance group with the capacity of twenty-four thousand TEU (seatrade-maritime.com). Modern vessels in these big alliances have contributed to ports improving their systems with automated cranes and gates at ports for ensuring effectiveness, efficiency, saving cost, time and money. It has also improved competitiveness in service delivery to meet up with the growing demands of customers around the world.

Liberia is a coastal state, and shipping is one of the most important sectors that generate income for the national government. Container shipping a very important sector in ocean transportation with growing interest globally by various actors and stakeholders
within and across the sector. Like other countries, the study looked at how these container alliances and non-alliances have impacted the Liberia shipping industry including the container terminal operations and the container shipping sector.

Container terminal operations herein refer to all services offered to container vessels at the container port terminal, including container loading and unloading. The study revealed that eighty 80% of respondents indicated that alliances and non-alliances have had a positive impact on the container shipping sector and their presence have helped to improve the container terminal service delivery as well as its efficiency.

Respondents have also indicated that alliances and non-alliances contributes to the development and improvement of container terminal facilities, improvement of the warehousing facilities in the port, the introduction innovative IT services to enhance the speed of processing and service delivery at the port.

On the contrary, 20% of the respondents indicated that, though they agreed to the improvement of services at the container terminal, alliances and non-alliances have however not done enough for the Liberian container shipping sector.

6.2 Limitations

The limitations of the research were that the desired number of respondents initially anticipated to be sampled was not possible due to the prevailing global COVID pandemic, which rendered many workers in the Maritime industry in Liberia non-essential. Furthermore, due to global travel restrictions caused by the pandemic, the researcher could not physically interact with respondents and had to use a proxy for distribution, collection, and submission of questionnaires via email.
6.3 Conclusion

To conclude, the research aimed to identify and establish the level of impact container shipping alliance operations have on non-alliance carriers in Liberia and the Liberia container shipping sector as well as the port service delivery. The study developed a well-structured questionnaire of open and close ended nature to solicit the views of professionals working across the Liberian Maritime Industry, which gave a deep understanding of the focus and objectives of the study.

A comprehensive review of the literature relative to understanding the operations of container shipping alliances globally, and their dominance in the sector which has overshadowed the operations of non-alliance carriers, as well as qualitative analysis of responses from data collected, helped the study understand the impact level and the gap between container shipping alliances and non-alliances operations in the Liberian shipping sector. Additionally, the study explained the relationship between alliances and non-alliances and the impacts the two groups have made on the Liberian shipping sector, container terminal and port facilities, and service delivery, which serves as the fulcrum of the industry in terms of regional competitiveness.

However, through the period of the research and review of literature, there was no trace of a study conducted relative to understanding the full operations of the two groups, to understand what could happen in the coming years ahead in the sector. That is, looking at the increasing dominance of alliance groups in every operational spectrum of the sector, including control and setting freight rates, control of major trade routes, influence in major ports could cause non-alliance carriers to completely collapse and stop operations.

In conclusion, the study successfully accomplished the objectives to identify the alliances and non-alliances operating in Liberia; identify the impacts of container alliance operations on non-alliance carriers; identify and analyze the relationship and
gap between alliances and non-alliances operating in Liberia; identify the impacts container shipping alliances and non-alliances have made on the Liberia container terminal operations in terms of the port terminal infrastructural development and improvement of the container handling service delivery in the sector, and successfully answered the research questions as well. This was possible due to the qualitative data application process and interpretation of the given results from the analysis thereof, which provided the basis for the conclusion establishing the impact of alliances operations on non-alliance carriers and the gap between the two groups operating in Liberia.

6.4 Recommendation

Given that the study has established through the research questions that the Liberian container shipping sector proves to favour alliance carriers, the research would like to recommend an open and conducive sector that promotes and encourages competition among all groups, and as well as provides opportunities.

The researcher would like to also recommend that further study be conducted in Liberia with larger sample size and increase number of respondents where physical interaction will be made with respondents either through interviews, focus group discussions or distribution of questionnaires to actors within the sector. This will enable an outcome that reflects a clearer picture of the realistic happenings in the industry across the country.
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