



FEDERAL MARITIME COMMISSION, BUREAU OF TRADE ANALYSIS

# Study of the 2008 Repeal of the Liner Conference Exemption from European Union Competition Law

**Federal Maritime Commission**  
Bureau of Trade Analysis  
Staff Report

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Exemption from European Union Competition Law**

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January 2012  
Washington, DC

# FOREWORD

On September 25, 2006, the European Union (“EU”) announced the repeal of EC Regulation No. 4056/86, which provided a block exemption from EU competition law for liner shipping conferences in EU trades. It also announced a two-year transition period, until October 18, 2008, before the repeal would take effect. The decision to repeal the block exemption was based on the findings of a lengthy review initiated by the European Commission’s Directorate-General for Competition in March 2003.

As the expert, independent agency charged with regulating liner shipping in US trades, the Federal Maritime Commission (“Commission”) has a responsibility to keep abreast of changes in foreign laws and regulations, including the EU’s repeal, which might affect liner activities in US trades. To fulfill that responsibility, the Commission directed its Bureau of Trade Analysis (“Bureau”) to assess what impact the EU repeal might be having on shipping in US liner trades.

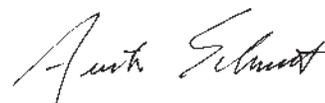
The Bureau embarked on this Study with the understanding that the global recession had a considerable impact on international trade in 2008–2009 and would present a major challenge to any effort to determine the impact of the EU repeal. To address that challenge, the Bureau focused the Study on the three main East/West liner trades and, in particular, a comparative assessment of two somewhat similar Asia-based trades – the Far East/United States trade and the Far East/North Europe trade.

The Study begins with an explanation of its origins; provides background on the Study’s EU and US legislative contexts; differentiates this Study from a number of relatively recent liner carrier antitrust reviews; and explains the analytical methods used. The heart of the Bureau’s research appears in Chapters Five and Six – the market analyses of the three major East/West trades and, in particular, the results of difference-in-differences estimations that compare the two largest of those trades. Chapter Seven presents the Study findings.

In the course of its research, the Bureau relied on a broad range of informational sources including PIERS, AlphaLiner, Drewry, Eurostat, Containerisation International, as well as the Commission’s own internal data sources such as filed service contracts and quarterly monitoring reports. Useful information was also provided by respondents to the Commission’s November 1, 2010 Notice of Inquiry, and a variety of trade press, carrier, and carrier agreement websites. In particular, we would like to acknowledge and thank the Shanghai Shipping Exchange for its assistance in providing the Bureau with helpful data on Asia-based trades.

Moreover, I personally would like to express appreciation to the staff members of the Bureau who devoted long hours and late evenings to complete this project. Their dedication and determination to produce an accurate and comprehensive study is commendable.

We hope the data and analyses contained in the Study will prove to be informative and useful to the international shipping community.



AUSTIN L. SCHMITT  
Director, Bureau of Trade Analysis  
Federal Maritime Commission  
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# Executive Summary

## The Core Issue

1. In 2006, the European Union (“EU”) decided to repeal its block exemption from European competition law for liner shipping conferences. After a two-year transition period, the repeal went into effect in October 2008. Shortly after the repeal was announced, the Federal Maritime Commission (“FMC” or “Commission”) decided to study its impact.
2. The primary issue addressed in this Study is: *What impact has the repeal of the liner conference block exemption in Europe had on US liner trades?* US shippers raised the possibility of such impacts in comments to the Antitrust Modernization Commission in 2006. A 2008 Congressional Research Service report raised similar concerns. Those concerns were premised on an expectation that the EU repeal of the liner conference block exemption would produce freight rate reductions in EU liner trades relative to US liner trades.
3. The possibility of unanticipated impacts on US liner trades resulting from differences in international liner shipping regulations is a topic of considerable interest to the Commission. As the expert, independent agency charged with regulating liner shipping in US trades, the FMC has a responsibility to keep abreast of changes in foreign laws and regulations that might affect liner activities in US trades.
4. To meet that responsibility, the Commission initiated this research, *Study of the 2008 Repeal of the Liner Conference Exemption from EU Competition Law* (“the Study”). By assessing whether the repeal of the conference block exemption has had any negative impact on US liner trades, the Commission hopes to determine whether any changes to its current regulations or oversight activities would be warranted.
5. To answer the Study’s core question it was necessary to address several related, preliminary questions:
  - What were the anticipated impacts of the repeal of the block exemption in EU trades?
  - Did those anticipated impacts occur?
  - Given observable impacts of the repeal on EU trades (if any), what follow-on consequences might one anticipate in US trades?
  - Did any such follow-on consequences occur?
6. The analysis of the effects of the repeal is complicated by two factors that, taken together, produce a substantial challenge to reaching clear and persuasive findings:
  - (1) The occurrence, nearly simultaneously with the repeal’s implementation, of a massive exogenous shock – a global recession that produced the largest decline in trade volumes in liner history; and
  - (2) The fact that any impacts from the repeal were likely to be relatively modest (that is, have a minimal intervention impact) because the market power of the carrier agreements being terminated had already been severely limited by earlier regulatory reforms and legal interventions.

In short, any effects of the repeal of the block exemption on liner shipping were likely to be not only small but also masked by the deeply felt effects of the global recession. Only now are markets recovering enough to allow a proper assessment of the impact of the repeal in isolation from the recession.

7. Based on an analysis of available information from 2006 through 2010, the Study's primary finding is that no significant changes in rate levels occurred between EU and US liner trades due to the repeal. During the period examined, the repeal of the block exemption appears not to have put US shippers at a disadvantage to EU shippers in Far East trades.
8. On a pre- and post-repeal comparative basis, differences in the changes in average revenue per twenty-foot equivalent unit (TEU) (as a proxy for all-in freight rates) between the eastbound Far East/US trade and the westbound Far East/Europe trade appear to have been trivial. Average revenue per TEU declined by \$150 in the Far East/US trade, and by \$141 in the Far East/EU trade, suggesting that the repeal of the block exemption had little or no effect on average revenue or freight rate levels in the largest US and EU import trades. A comparison between the westbound US/Far East trade and the eastbound Europe/Far East trade shows a similar minor difference in the US and EU export trades. On a pre- and post-repeal comparative basis, average revenue per TEU increased by \$149 in the US/Far East trade, and by \$125 in the Europe/Far East trade.
9. The Study's primary finding (item 7) is supplemented by tentative secondary findings derived from a comparative analysis of Far East-based US and EU trades. Those secondary findings are presented below (item 17).

## Research Context

10. The two legislative measures that provide the context for this study are the Ocean Shipping Reform Act of 1998 ("OSRA") that took effect on May 1, 1999, and European Commission (EC) Regulation No. 1419/2006 that repealed the EU liner conference block exemption. The former achieved its pro-competitive reforms while allowing continued antitrust immunity for liner agreements with rate authority. The latter eliminated such immunity in EU liner trades by repealing the conference block exemption, but allowing immunity to continue for "consortia," which are roughly equivalent to vessel sharing agreements under FMC regulations, below a given market share threshold.
11. In practical terms, the main difference between the two regulatory approaches is that US regulations, based on OSRA reforms to the Shipping Act of 1984, allow *carrier rate discussion agreements* to operate in US trades. Carrier rate discussion agreements are prohibited in EU trades.
12. In March 2003, the EC initiated a review of the liner conference block exemption. The review's main objective was to ascertain whether the policy assumptions supporting the original exemption in 1986 were still valid. The block exemption had been justified on the assumption that liner conferences brought stability, ensuring shippers reliable services that could not be achieved by less restrictive means. Following a number of European court cases challenging how the block exemption was to be interpreted, the Directorate-General for Competition ("DG Comp") came to the view that the liner shipping industry had changed considerably since 1986 and the block exemption was overdue for review.
13. With respect to application of the exemption, DG Comp determined that it applied only to *conferences* and not carrier rate discussion agreements. As a result, the EC review

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was conducted in terms of whether existing liner organizations with pricing authority (nominally *conferences*) were (a) doing what conferences traditionally (at least in theory) were supposed to do – collectively set rates and manage trade-wide capacity, and (b) thereby providing the presumed benefits of traditional conferences – reliable service and stable rates.

14. In practice, however, EU-based carrier agreements like the Trans-Atlantic Conference Agreement and the Far Eastern Freight Conference already had – because of the prevailing practice of pricing via confidential, individual contracts (rather than conference tariffs) – even less authority than discussion agreements.<sup>1</sup> Thus, DG Comp’s review was essentially an evaluation of the performance of carrier organizations that were less than carrier discussion agreements in terms of the effectiveness (or lack thereof) of conference tariffs.

### Methods and Results

15. In developing a comparative assessment that would allow the Commission to compare US and EU trades in a way that would identify any effects of the repeal of the block exemption, it was important to apply multiple approaches in the analysis. These approaches included:
  - Descriptive studies of the three major East/West trade lanes with respect to market structure, carrier conduct, and economic performance. That data also provided the basis for a subsequent comparative analysis of those trades.
  - A difference-in-differences analysis of elements contained within a traditional structure-conduct-performance framework for analyzing markets, for example, average revenue per container (as a proxy for all-in rates), vessel utilization levels, and the like, to help identify any “intervention effects” attributable to the repeal of the block exemption.<sup>2</sup>
  - A general assessment, taking account of the above research, of significant changes in the major East/West trades, in particular, the likelihood of any impact on shippers in US-based trades.
16. Once the relevant structure, conduct, and performance data were collected and reviewed, the main analytical method applied in the Study was a difference-in-differences comparison of the Far East/US trade, which was not directly affected by the repeal, and the Far East/North Europe trade, which was.<sup>3</sup> Those two trades were selected because they were similar in such respects as magnitude of container volumes, commodity mixes and values, trade imbalances, shipper characteristics, and market

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1 During the period of the EC review, “conferences” in EU trades operated under legal constraints with respect to sharing member lines’ rate and revenue information, and to producing guidelines applicable to confidential rate agreements that did not apply to discussion agreements in US trades. So, arguably, members of EU trade “conferences” had fewer tools for cooperative action than did members of US trade discussion agreements.

2 Difference-in-differences estimation is commonly used to measure the effect or impact of a new policy, law, medical treatment, or other type of program intervention. The difference in outcomes before and after the change in policy, law, or treatment for the (treatment) group affected by that intervention is compared to the difference in outcomes for a (control) group for whom there is no such intervention. In the context of our study, one can compare changes in outcomes among carriers operating in a liner trade that has had antitrust immunity repealed (the treatment group) to outcomes among carriers operating in a trade where that immunity still remains (the control group).

3 Generally, the Asia-based trades reviewed in this Study are referred to as the Far East/US and Far East/North Europe trades rather than Asia/US and Asia/North Europe. However, sometimes, the latter terms are used, and sometimes the Far East/US trade is referred to as the transpacific trade. The terms Far East and Asia are synonymous for the purpose of this study. They exclude the India Subcontinent (South Asia), Russian ports (Vladivostok), and Central Asia, but do include Southeast Asia.

participants. In addition, they are the largest and most important liner trades globally and were similarly affected by the global recession.

17. The analysis of the two Far East-based trades showed:

- *The impact of the repeal on average revenue per TEU appears to have been trivial* – A result that suggests that the repeal likely did not, independent of the global recession’s impact, produce a relative decline in average rate levels in EU trades as compared with US trades from October 2008 through 2010.
- *There appears to have been an increase in rate volatility in the EU trades* – A result that suggests the possibility that the activities of the discussion agreement in the Far East/US trade may have had a dampening effect on rate volatility. However, other factors, such as the prevalence of annual contracts in the Far East/US trade and the difficulty in redeploying very large vessels from the Far East/North Europe trade, may also have contributed to the differences in rate volatility.
- *Following the repeal, there appears to have been a small increase in market concentration* – A result that suggests that, in the absence of a forum for carrier discussions and information sharing, market concentration may increase slightly more rapidly.
- *There was a relative decline in market share stability that may be related to rate volatility and market concentration* – Market share stability noticeably declined in the Far East/North Europe trade in the post-repeal period. That was also the trade in which relative rate volatility and market concentration appeared to have increased. In contrast, there was increased market share stability in the Far East/US trade.

18. In summary, the Study’s findings are:

- The repeal of the block exemption does not appear to have resulted in any negative impact on US liner trades. Average revenue per TEU (a proxy for all-in rates) declined to the same degree in both US and EU import trades being compared. Average revenue per TEU increased to a similar degree in both US and EU export trades being compared.
- While the activities of carrier rate discussion agreements in US trades do not appear to have increased average rates relative to rates in EU trades (nor to have improved carriers’ revenues), they may have contributed to modestly reduced rate volatility.
- The repeal of the block exemption may have resulted in a modest increase in market concentration. However, given the lack of concentration in the liner trades studied, such an increase is unlikely to present problems.

19. The results of the difference-in-differences analysis raise the following questions: Given the results for average revenue per container in the two trades, what difference, if any, does it make to carriers or shippers if a block exemption or antitrust immunity is granted or withheld for conferences or rate discussion agreements? Given the results of the rate volatility comparison, does discussion and information sharing among rate discussion agreement member lines have a separate and distinct utility apart from the success or failure of the lines’ common pricing proposals (general rate increases and other pricing guidelines)?

20. Finally, trends in rates, volatility, and concentration in the Far East/Europe and Far East/US trades beyond the period studied, merit further review.

## Chapter 1:

# Origin and Goals of the Study

On September 25, 2006, the European Union (“EU”) announced the repeal of its block exemption from European competition law for liner conferences (“the repeal” or “the repeal of the block exemption”) while allowing a two-year transition period that postponed implementation of the repeal until October 18, 2008.<sup>1</sup> The block exemption, EC Regulation No. 4056/86, had been in place for roughly two decades. A review of the block exemption conducted by the European Commission’s Directorate-General for Competition (“DG Comp”), between March 2003 and December 2005,<sup>2</sup> determined that liner conferences operating in EU trades were not producing the anticipated benefits that provided the original rationale for the exemption, namely reliable service and rate stability.<sup>3</sup> In 2010, international container trade to or from the EU, now subject to EU competition law, accounted for over 40 percent of the world’s container traffic.<sup>4</sup> Trade to or from the US accounted for almost 20 percent of world container traffic.

Shortly after the September announcement, a DG Comp official participating in a hearing held by the Antitrust Modernization Commission (“AMC”)<sup>5</sup> in Washington, DC stated that the transition from a block exemption to no exemption in the transatlantic trades likely would go smoothly because most US/EU cargo already was being shipped under individual service contacts (and thus was not subject to conference regulation), and there were few rate-fixing agreements in US/EU trades.<sup>6</sup> Two years later, when the repeal took effect, that prediction proved accurate.

However, a separate question concerning possible indirect and longer term consequences of the EU repeal for US trades was raised in the context of the same October 2006 AMC hearing. Testimony submitted on behalf of American exporters and importers raised a question as to whether US shippers might suffer a competitive disadvantage if carrier

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1 EC Regulation No. 1419/2006, repealing EC Regulation No. 4056/86.

2 The review of the block exemption was initiated with the publication of a Consultation Paper in March 2003. A White Paper was published in October 2004, and the European Commission adopted a legislative proposal to repeal the block exemption for liner conferences on December 14, 2005. The European Commission’s proposal for a new Council Regulation repealing Regulation 4056/86 was subsequently submitted to the EU Council of Ministers for adoption and to the European Parliament for consultation.

3 The results were summarized in the recitals of EC Regulation No. 1419/2006.

4 Drewry Container Forecaster (Table 2.8, October 2011) reports that in 2010 global container traffic volume was 152.1 million TEUs; this figure represents loaded TEUs moved by ship, excluding transshipments. Inclusive of intra-EU shipping movements, EU container trade with the world totaled 62.6 million TEUs in 2010, while the US container trade with the world totaled 29 million TEUs. Excluding intra-EU trade, EU container trade with the rest of the world was 37 million TEUs in 2010. US container trade with the EU accounted for 11.8 percent of the total US container trade in 2010 and 13.6 percent in 2006.

5 The Antitrust Modernization Commission was a panel of experts in US antitrust law established by Congress to examine whether there was a need to modernize existing US antitrust laws and make appropriate recommendations. Its first public meeting was held on July 15, 2004, and its final report was submitted on April 2, 2007.

6 Fabrizia Benini, Directorate-General for Competition of the European Commission, before the Antitrust Modernization Commission’s hearing on Shipping Act antitrust immunity, October 18, 2006, hearing transcript, page 83. The only liner conference operating between Europe and the US when the repeal was announced was the Trans-Atlantic Conference Agreement (“TACA”). TACA members ceased all commercial activities under the Agreement as of June 30, 2008 and formally terminated the Agreement on file with the Federal Maritime Commission as of October 1, 2008. In addition, various liner companies operating in US/EU trades filed a new agreement, the Container Trade Statistics Agreement to allow member lines to gather, compile, aggregate, exchange, disseminate, and to meet and discuss certain trade statistics.

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agreements that were prohibited in EU trades were allowed to continue in US trades. Subsequently, a similar question was raised in a Congressional Research Service report.<sup>7</sup>

The possibility of unanticipated negative impacts on US shippers resulting from international differences in shipping regulations is a topic of considerable interest to the Federal Maritime Commission (“FMC” or “Commission”). As the independent federal agency charged with regulating liner shipping in US trades, the Commission has a responsibility to keep abreast of changes in foreign laws and regulations that may affect liner activities in US trades. To meet that responsibility, the Commission initiated this research study, *Study of the 2008 Repeal of the Liner Conference Exemption from European Union Competition Law* (“the Study”). By assessing the impact of the repeal of the block exemption on US trades, particularly any negative impact, the Commission hopes to determine the need for changes to its current regulations or oversight activities.

In undertaking the Study, the Commission noted the recommendations made by American shippers to the AMC. Shippers told the AMC that, in light of the EU repeal of the block exemption, it would be appropriate for the US government to undertake a review of the antitrust immunity granted under the Shipping Act. In particular, shippers opined that such a review should include an analysis of any impact that changes adopted in Europe might have on the shipment of goods in US trades.<sup>8</sup> The Study aims to provide such an analysis.

The EU repeal produced a striking difference in how liner shipping is regulated in the major East/West trades. In the transpacific trade, regulated under the Shipping Act of 1984 (“Shipping Act”), carriers, under a legislative grant of antitrust immunity, maintain carrier discussion agreements (“CDAs”) that, among other things, exchange market information, jointly conduct market research, and develop non-binding proposals (voluntary guidelines) dealing primarily with rates and auxiliary charges, for member lines’ use when negotiating service contracts.<sup>9</sup>

In the post-repeal North Europe/US and Far East/North Europe trades, collective development of rate and surcharge guidelines is prohibited, and the exchange of market information among lines is constrained. So, due to the now considerable differences in international liner shipping regulations, the question arises: Did the EU’s prohibition of certain forms of carrier cooperation have any negative consequences for shippers in US trades?

To answer the core question – what impact on US liner trades is the repeal of the conference block exemption in Europe likely to have<sup>10</sup> – it was first necessary to address several interrelated, preliminary questions:

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7 John Frittelli, Congressional Research Service, “Reauthorization of the Federal Maritime Commission (FMC): An Opportunity to Reexamine the Congressionally Mandated Antitrust Exemption for Ocean Liner Carriers?” September 18, 2008. Frittelli speculated about a hypothetical ability of carriers to raise rates in, for example, the transpacific trade to off-set any rate reductions in EU trades that might follow repeal of the block exemption.

8 Comments submitted by Nicholas J. DiMichael and Karyn A. Booth, on behalf of the National Industrial Transportation League (“NITL”), to the Antitrust Modernization Commission, October 18, 2006, page 9.

9 The distinction between “discussion agreements” and “conferences” is an important one, and is discussed in more detail later in this Study. For the moment it is worth noting that the original EU block exemption was rationalized in terms of the activities of traditional liner conferences (such as establishing a common conference tariff as the vehicle for the member lines’ collective pricing activities, accompanied by the legal requirement that member lines actually charge the prices posted in the common tariff). At least in theory, traditional conferences also had the authority to collectively control capacity in the trade in which they operated. In the late 1980s, as traditional conferences struggled to maintain rates in the face of competition by new non-conference competitors, a new type of organization – carrier discussion agreements (“CDAs”) – was developed in which conference member lines and non-conference lines could discuss market conditions, pricing levels, and the like. Unlike traditional conferences, CDAs have no common tariff and are not required to abide by jointly proposed rates or rate levels. After the Ocean Shipping Reform Act of 1998 took effect and confidential one-to-one contracting spread, traditional conferences were largely replaced by CDAs in the US trades.

10 During the open session of the October 27, 2010 FMC meeting, Chairman Lidinsky explicitly confirmed that the “core purpose” of the Study was to analyze the impact of EU government’s decision to repeal the liner conference block exemption on US trades. (FMC meeting transcript, page 48.)

## Origin and Goals of the Study

1. What were the anticipated impacts of the repeal of the block exemption in EU trades?
2. Did those anticipated impacts occur? Why or why not?
3. Given observable impacts of the repeal on EU trades (if any), what follow-on consequences might one anticipate in US trades?
4. Did any such follow-on consequences occur?

To address those preliminary questions and related issues,<sup>11</sup> this Study examines the changes that occurred in carrier activities, especially with regard to pricing and service, in selected US and EU trades from 2006 through 2010. It investigates how the repeal of the liner conference block exemption might have affected market structure (such as market concentration), carrier conduct (such as capacity decisions), and the economic performance of liner shipping operations (such as rate levels and volatility) in each trade. More specifically, the Study was designed to meet the following goals:

1. To identify and collect relevant data that accurately describes key developments in each of the three major East/West liner trades (Far East/US, North Europe/US and Far East/North Europe) for the research period 2006 through 2010;
2. To identify and quantify any *significant changes* in market structure, carrier conduct, and economic performance that occurred between the Study's designated pre-repeal and post-repeal periods in each trade;
3. To determine whether any of the identified changes can be ascribed, with reasonably credible evidence and analysis, to the EU's repeal of the liner conference block exemption; and
4. To determine, to the extent possible, whether the EU repeal has had or is likely to have any significant impact on shippers in US liner trades.

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<sup>11</sup> At the open session of the Commission's April 21, 2010 meeting, staff identified several related issues, including: carrier pricing, US exporter competitiveness, freight rate volatility, and the effectiveness of ocean carrier agreements in the absence of authority to discuss rates.

## Chapter 2:

# Legislative Contexts and Recent Competition Reviews

Before introducing the Study’s technical analyses, it may be helpful to briefly review the US and European legislative contexts within which concerns about the EU block exemption repeal’s possible impact on US liner trades were raised, and several relatively recent assessments of carrier competition. The two most important measures that provide this Study’s legal and policy context are the Ocean Shipping Reform Act of 1998 (“OSRA”) that took effect on May 1, 1999; and EC Regulation No. 1419/2006 that repealed the EU liner conference block exemption.<sup>1</sup>

### OSRA’s Regulatory Reforms

Described as “the culmination of a nearly four-year effort to update and revise the Shipping Act, with virtually all segments of the industry represented in the legislative reform process,”<sup>2</sup> OSRA was designed to change the way liner shipping operated in US trades. The effort that culminated in the passage of OSRA began in mid-1995 with an inter-industry accord on fundamental principles for revising the Shipping Act of 1984, including: (1) the ability of shippers to negotiate confidential service contracts with individual lines free from liner conferences regulating their members’ contracting decisions; (2) removal of the statutory requirement that lines publicly disclose rates and offer the same rates to “similarly situated” shippers; and (3) continuation of antitrust immunity, subject to FMC oversight, for filed carrier agreements in US trades.

The legislative phase of the reform movement began when the House Transportation and Infrastructure Committee took up H.R. 2149, the Ocean Shipping Reform Act of 1996. After the House passed H.R. 2149, a similar measure, S. 414, was introduced in the Senate on March 1, 1997. Following a series of revisions, S. 414 passed the Senate in May 1998, was amended and passed in the House in August 1998, received final Senate approval in October 1998, and was signed into law. It took effect on May 1, 1999.

The importance that reformers attached to confidential service contracting under OSRA can be understood in light of several studies of liner competition conducted during the late 1980s through the mid-1990s. In those years, liner shipping in US trades was the subject of

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1 In discussing the repeal of the liner conference block exemption, the Study makes reference to three European institutions: The European Union, the European Commission, and the Directorate-General for Competition. This note explains their roles for readers not familiar with the European Union’s system of governance.

The **European Union** (“EU”) is an economic and political union of 27 independent member states that was formally established in 1993. It operates through a hybrid system of supra-national institutions and intergovernmental decisions negotiated among the member states. The EU has developed a single market through a standardized system of laws that apply in all member states, and operates under a common competition policy within that market.

The **European Commission** (“EC”), one of the EU’s supra-national independent institutions, is the executive arm of the EU and is responsible for initiating legislation and for the day-to-day administration of the EU. It proposes legislative acts for the European Parliament and the Council of Ministers to adopt. It is also responsible for managing the EU’s budget and programs and implementing common policies. The EC is divided into several departments known as Directorates-General.

The **Directorate-General for Competition** (“DG Comp”) is the EC department responsible for direct enforcement of EU competition rules. Its policy areas include antitrust, mergers, cartels, market liberalization, control of state aid, and the promotion of competition principles in EU legislation. It monitors markets and conducts sector inquiries. It had the central role in the review of the liner conference exemption and the recommendation for its repeal.

2 FMC, “The Ocean Shipping Reform Act: An Interim Status Report,” June 2000, page 2.

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extensive congressionally mandated research and an accompanying public debate. Section 18 of the Shipping Act of 1984 required the FMC to conduct a five-year study of the performance of the liner industry under the new law. The results of that study (“Section 18 Study”) were reviewed and commented on by the Department of Justice (“DOJ”), the Federal Trade Commission (“FTC”), and the Department of Transportation (“DOT”). The Section 18 Study and DOJ, FTC, and DOT comments then provided the basis for a subsequent policy review by the Advisory Commission on Conferences in Ocean Shipping (“ACCOS”).<sup>3</sup> ACCOS completed its review and submitted its report and recommendations to the President and Congress in April 1992.<sup>4</sup>

Although Congress ultimately took no action on the ACCOS Report’s recommendations, two ACCOS staff economists (one from DOJ and one from FTC) subsequently published their own assessment of liner cooperation and competition. Their paper, an econometric analysis entitled “The Effectiveness of Collusion under Antitrust Immunity: The Case of Liner Shipping Conferences” (1995),<sup>5</sup> was based on data collected by the FMC for the Section 18 Study. In the Concluding Remarks section of their paper, the authors note that:

Although we find no significant relationship between conference market share and freight rates, our evidence indicates that freight rates were significantly lower on those routes where individual conference carriers were allowed to enter into service contracts with individual shippers. These results suggest that some conference rules, perhaps when combined with relatively high market share, may allow carriers to maintain rates at higher levels than they would otherwise. Market power is undermined when carriers within a conference are allowed to independently contract with shippers.<sup>6</sup>

Based on a period between late 1984 and early 1986 when transpacific conference member lines were allowed to enter into “autonomous” service contracts, the authors’ speculated that independent contracting between shippers and individual carriers (free from regulation by conferences) likely would undermine any market power that conferences with high market share might be able to exercise.<sup>7</sup> In other words, individually negotiated confidential service contracts, which OSRA would later introduce, should effectively undermine any conference collective pricing effort.

As expected, the implementation of OSRA in US trades had immediate and dramatic consequences. It ended the authority of liner conferences to regulate their member lines’ contract rates and terms, and strongly encouraged service contract confidentiality.<sup>8</sup> OSRA’s promotion of one-to-one, confidential service contracts between shippers and individual liner operators introduced a degree of commercial freedom and flexibility that soon made service contracting the overwhelmingly preferred method of doing business. As one major US shipper organization later noted,

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3 ACCOS was established on April 10, 1991 to conduct a comprehensive review of the liner conference system in US trades. It held five field hearings around the country, took testimony from over 100 witnesses, and conducted in-depth interviews with 120 industry representatives supplemented by information provided by the FMC (Section 18 Report), DOT, DOJ, and FTC. It issued its final report on April 10, 1992.

4 *Report of the Advisory Commission on Conferences in Ocean Shipping*, April 10, 1992, Washington, D.C.

5 P.S. Clyde and J.D. Reitzes, (1995), “The Effectiveness of Collusion under Antitrust Immunity: The Case of Liner Shipping Conferences,” US Federal Trade Commission, Bureau of Economics Staff Report, December 1995.

6 Clyde and Reitzes, pages 37 and 38.

7 The authors’ econometric analysis found no statistical relationship between market share and freight rates, indicating, as they acknowledged, that conferences in US trades were not acting as profit maximizing cartels. They did, however, determine that increases in market concentration were associated with statistically significant, but economically small, increases in freight rates. (Pages 2 and 3.)

8 For example, OSRA ended a previous Shipping Act requirement that certain service contract information, including rates, be made publicly available.

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“[t]he US regulatory system implemented under OSRA is working well and has resulted in significant benefits to the industry stakeholders ... [and] has allowed the US maritime industry to become more reliant on competition than in the past and to operate more efficiently now that the bureaucracies of the old conference systems no longer exist to control the dealings between shipper and carriers.”<sup>9</sup>

As the FMC’s 2001 OSRA Impact Study noted: “The liner shipping industry has been experiencing dynamic structural changes over the past several years. OSRA was enacted in full recognition of these changes and has helped to foster their continuing evolution.”<sup>10</sup> In the context of those industry changes, OSRA was seen as achieving its main regulatory objectives:

- Encouraging greater choice, flexibility, and innovation in the contracting process;
- Providing contract confidentiality; and
- Facilitating closer working relations between shippers and their chosen carriers.

In the dozen or so years since OSRA was first implemented, contract carriage under confidentially negotiated arrangements has become the norm in US trades and beyond. For example, on November 29, 2001, the European Commission published a notice stating its intention to exempt the maritime aspects of a revised Trans-Atlantic Conference Agreement (“TACA”), formerly the Trans-Atlantic Agreement, from EU competition law. The revised TACA embodied a comprehensive attempt to put into effect a set of guiding principles for future EU-based conference agreements. As DG Comp officials noted: “From the [European] Commission’s perspective, the most important of these principles was that conference members would be free to enter into confidential individual contracts with shippers.”<sup>11</sup>

Thus, within three years of its passage, OSRA’s general approach to contracting had been extended to all three major East/West trades and many North/South trades. Although the service arrangements in non-US trades did not necessarily take the form of service contracts as defined in the Shipping Act, the underlying regulatory approach was essentially the same.

In US trades today, the Shipping Act of 1984 allows liner companies to establish various sorts of multi-member liner agreements that have limited antitrust immunity, including some that authorize member lines to discuss and voluntarily agree on pricing matters. Antitrust immunity under the Shipping Act is, however, constrained by a variety of explicitly prohibited acts and restrictions on “unreasonable practices.” Carrier agreements are also subject to ongoing monitoring and enforcement actions by the FMC.

### EU Review of the Liner Conference Block Exemption

Even before the DG Comp began its review of the block exemption in 2003, it took steps to ensure that EU-based liner conferences could not restrict the availability to shippers of individual, confidential service contracts. In particular, DG Comp adopted the position that

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9 Nicholas J. DiMichael and Karyn A. Booth, comments on behalf of NITL to the AMC, October 18, 2006, page 4.

10 The Impact of the Ocean Shipping Reform Act of 1998, FMC, September 2001, page 2. Presumably, the reference to the liner shipping industry “experiencing dynamic structural changes” during the period prior to the reform initiative refers to several trends, including:

- An expanded role for trade-wide, non-binding carrier discussion agreements;
- Substantial increases in vessel sizes to capture economies of scale;
- The creation and expansion of multi-trade operational alliances (“global strategic alliances”) among ocean carriers to expand service networks;
- Carrier expansion beyond ocean and intermodal carriage into related logistics services;
- Industry consolidation; and
- Increased use of sophisticated electronic information management systems.

11 Jean-Francois Pons and Eric Fitzgerald, “Competition in the maritime transport sector: a new era,” Competition Policy Newsletter, February, 2002, page 11. This article, by two DG Comp officials, contains a sub-section which outlines the litigation and discussions that eventually led to the consensus conference guidelines mentioned.

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the block exemption for liner conferences applied only to rate setting via conference tariffs and not to service contracting. DG Comp officials entered discussions with carriers and shippers with a view, in the words of DG Comp officials, “to breaking the sterile cycle of litigation and establishing a consensus on the way forward. Out of these discussions came an indicative set of guiding principles for future conference agreements. From the [European] Commission’s perspective, the most important of these principles was that conference members should be free to enter into confidential individual contracts with shippers.”<sup>12</sup>

It is also worth noting that the US and EU push for individual confidential contracts had a direct and substantial impact on TACA. As the OSRA Impact Study noted: “A combination of regulatory actions both in the US and Europe dramatically altered the structure and influence of the conference [that is, TACA]...the collective market share of the conference dropped from close to 80 percent to roughly 50 at present.”<sup>13</sup> By 2006, the combined market share of the remaining TACA members had declined to only 40 percent. “In terms of conference participants, TACA’s membership has fallen from a high of 17 carriers to a low of 7 carriers.”<sup>14</sup> In terms of contracting, TACA went from being a conference in which a major portion of the trade’s cargo moved under TACA service contracts (reportedly almost 600 such contracts in 1998) to a situation at the end of 1999 in which 80 percent of the cargo moved under non-conference service contracts (approximately 30 conference contracts remained). By 2000, there were only three conference contracts.<sup>15</sup>

In short, by 2000, TACA was substantially smaller, less influential, and had lost the ability to regulate its diminished membership’s pricing activities. Beyond publishing conference tariff rates, TACA’s only method for affecting rates was its authority to publish a model contract and a set of rate matrices that member lines could reference or adopt when negotiating their own individual, confidential contracts. The model contract and proposed rate matrices amounted, in effect, to a European equivalent of the voluntary service contract guidelines that were allowed under OSRA. Thus, while TACA remained a traditional liner *conference* in name, in practice it appears to have operated much as what in US trades is known as a *discussion agreement*.

In March 2003, the EC initiated a review of the liner conference block exemption, the main objective of which was to ascertain whether the policy assumptions supporting the original exemption were still valid. The block exemption was justified on the assumption “that conferences bring stability, ensuring exporters reliable services which cannot be achieved by less restrictive means.”<sup>16</sup> But by March 2003, following a number of court cases challenging how the block exemption was to be interpreted, DG Comp’s view was that the liner shipping industry had changed considerably since 1986, and Regulation 4056/86 was overdue for review.<sup>17</sup>

During the course of its review of the block exemption, DG Comp focused on the four conditions listed in Article 101(3) of the EC Treaty that were required for any exemption from competition law:<sup>18</sup>

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12 Pons and Fitzgerald.

13 OSRA Impact Study, page 11.

14 Ibid.

15 OSRA Impact Study, page 12.

16 Council Regulation (EC) No. 1419/2006, paragraph (3).

17 A summary recounting of the historical context, review process and ultimate findings of the EC Review can be found in Fabrizia Benini, and Carsten Bermig, “The Commission proposes to Repeal the Liner Conference Block Exemption,” EC Competition Policy Newsletter, Spring 2006, pages 43-49.

18 Council Regulation (EC) No. 1419/2006, paragraphs (4) through (7).

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**Condition One — Efficiency Gains:** The exemption must contribute to improving the production or distribution of goods or to promoting technical or economic progress (in this case, stability of freight rates and reliability of service) in ways that flow from (i.e., have a direct causal link to) a conference’s price setting and capacity regulation.

**Condition Two — Fair Share for Consumers:** Any economic benefits achieved by the restriction of competition (i.e., a conference’s rate setting or capacity management activities) must be fairly shared with consumers.

**Condition Three — Restrictions are Indispensable:** The exempted conduct must be *indispensable* to achieving the presumed benefits (stable rates and reliable service) flowing from conference price setting or capacity management. That is, no less restrictive way of achieving the presumed benefits is available.

**Condition Four — No Elimination of Competition:** Conference lines must remain subject to effective competitive constraint (i.e., competition among carriers cannot be eliminated in a substantial part of the market).

On June 12, 2003, Professor Mario Monti, then European Commissioner for Competition Policy, elaborated, in a speech entitled “A Time for Change? Maritime Competition Policy at the Crossroads,” on the approach being taken in the DG Comp review process. He said that:

- The burden of proof would be on the carriers.
- The carriers would have to present arguments and evidence that established a causal link between the restrictions authorized by the block exemption (price setting and capacity management) and its alleged benefits. It would not be sufficient merely to demonstrate that service was reliable and rates were stable.
- DG Comp “would want to see hard evidence that the benefits could not be achieved by less restrictive means, such as by the increase in the number of long-term contracts and a greater use of operational agreements such as vessel sharing and consortia.”<sup>19</sup>
- Any benefits generated under the authority to set rates or manage capacity must clearly outweigh any negative effects – with the onus on the carriers to demonstrate a net benefit to shippers.

In outlining its reasons for re-evaluating the block exemption, the European Commission highlighted the impact of individual confidential service contracts.<sup>20</sup> So, it was perhaps inevitable that the liner industry’s reliance on confidential service agreements played a role in DG Comp’s rationale for eliminating the block exemption.

DG Comp’s findings, listed by the relevant Article 101(3) conditions, were:

**Condition One:** The carriers had not provided data showing that (1) actual freight rates had been stable, or (2) that rate setting via the conference tariff or conference capacity management efforts had contributed to rate stability or service reliability. DG Comp, after adopting a definition of price stability as “the maintenance of freight rates at a more or less constant level by liner conferences, in accordance with a set structure over a substantial

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<sup>19</sup> Mario Monti, “A Time for Change? Maritime Policy at the Crossroads,” June 12, 2003, speech to the European Shippers Council, Antwerp, Speech/03/294.

<sup>20</sup> Staff Working Document: Annex to the Proposal for a Council Regulation, December 14, 2005, page 5, paragraphs 9 and 10.

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period of time,” asserted that “with or without conferences there is rate volatility.”<sup>21</sup>

**Condition Two:** DG Comp asserted that, even though member lines did not enforce the conference tariff, the existence of published conference rates provided a “benchmark” for member line’s use in setting individually negotiated contact rates. Such “benchmarks” were said to result “in a reduction of shippers’ negotiating power.” In addition, the listing of surcharges and ancillary charges in a conference’s tariff, charges which were subsequently adopted by non-conference lines as well, resulted in there being “no price competition between conference members and non-conference members for this part of the trade.”<sup>22</sup>

**Condition Three:** DG Comp noted the growth of operational arrangements such as consortia and alliances that did not involve common pricing, and pointed out that such consortia and global alliances supported operational efficiencies. In effect, DG Comp suggested that such non-price setting operational agreements combined with the wide use of service contracts were the real sources of any relative service and rate stability in EU trades, and consequently represented a less anti-competitive way to accomplish the policy goal of the liner block exemption.

**Condition Four:** DG Comp determined that while it appeared that the fourth condition of Article 101(3) was being fulfilled – that is, competition was not being eliminated from the market – the review’s previous findings (e.g., no clear benefits, restrictions on shipper negotiating power due to tariffs’ benchmark effects and a lack of competition on surcharges), and the increasing links among carriers via operational agreements, made it necessary to evaluate the effectiveness of competition on a case-by-case basis rather than endorse a broader block exemption.

While the first finding alone (i.e., no evidence of benefits from allowing carriers collectively to propose common rates or manage capacity) would, in principle, have been enough to support a recommendation to end the exemption, DG Comp strengthened its argument for repeal by claiming shippers were being harmed and the existence of a less anti-competitive alternative to conferences.

On August 6, 2004, the European Liner Affairs Association (“ELAA”) proposed a third option, an alternative between the then existing block exemption for liner conferences and no exemption at all. ELAA, on behalf of 21 carriers that reportedly held roughly 90 percent of liner capacity worldwide, submitted a proposal for the creation of an “exchange of information system” (“EIS”) to replace the conference system in EU trades.<sup>23</sup> On March 10, 2005, it

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21 Benini and Bermig, “The Commission proposes to repeal the Liner Conference Block Exemption,” Spring 2006, page 45. It is worth noting that the definition of price stability adopted by DG Comp seems to be based on a (somewhat vague) Stability-vs.-Volatility test that treats “stability” more as a binary *yes-or-no* concept rather than a relative *more-or-less* one. To meet such a test the carriers would have had to show that the freight rates actually charged were more or less flat over some extended period of time (which they were not) as a direct and demonstrable result of conference tariff enforcement (which, under a system dominated by pricing via individual, confidential service contracts, was not possible).

22 Benini and Bermig, page 45.

23 The EIS as proposed by ELAA would have allowed members of that agreement to exchange aggregated data on capacity, demand, and rate levels expressed through indices, via an independent data service, and to exchange views in Trade Committee meetings in order to better understand market developments.

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further supplemented its original EIS proposal.<sup>24</sup>

The ELAA's EIS proposal was supported by a June 2004 economic analysis undertaken for ELAA by Charles River Associates ("CRA") entitled "Competitive Impacts of Information Exchange," ("CRA Analysis"). The authors of the CRA Analysis noted that the economic literature on information exchange claims that, in theory, such information exchanges can have pro-consumer or anti-competitive impacts depending on whether collusion is likely to be a problem or not given the type and specific characteristics of the information being exchanged.<sup>25</sup> The CRA Analysis contained a review of the likely benefits and potential concerns of an EIS of the type that ELAA subsequently proposed.

The ELAA's EIS proposal is noteworthy for at least two reasons. First, DG Comp gave the proposal serious consideration including a preliminary assessment meeting on July 13, 2005, and a subsequent external consultant's report on its merits.<sup>26</sup> Second, the willingness of ELAA to propose an EIS suggests that its members may have viewed the exchange of market information among lines in a trade (even absent any collective ability to propose rates or surcharges) as being a substantial element in their ability to provide reliable liner service. The EIS proposal appears to be an option that would preserve the lines' authority to participate in what they viewed as helpful information sharing and collective discussions regarding market conditions.

Another point worth noting is that, in reaching its findings, DG Comp determined that the liner block exemption could be applied only to *conferences* and not to later organizational variations such as carrier discussion agreements. Consequently, the EC review was conducted mainly in terms of whether existing liner organizations with much weakened pricing authority (nominally *conferences*) were doing what conferences traditionally, at least in theory, were supposed to do (collectively set rates and manage trade-wide capacity), and were thereby providing the presumed benefits of traditional conferences – namely, reliable service and stable rates.

In practice, however, EU-based carrier agreements like TACA and the Far Eastern Freight Conference ("FEFC") had already become much weaker than carrier discussion agreements in the US trades.<sup>27</sup> DG Comp's review was essentially an evaluation of the performance of weaker quasi-CDAs in terms of the legislative assumptions that had justified the original exemption for traditional conferences (such as achieving rate stability via conference tariff pricing). Consequently, when the repeal took effect in October 2008, the EU was, in effect, proscribing quasi-CDAs and the sort of EIS proposed by ELAA.

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24 A brief discussion of what is characterized as "a new regime to replace the conference block exemption" can be found in the EU's December 14, 2005, MEMO/05/480, entitled "Proposal to repeal block exemption for liner shipping conferences – Frequently Asked Questions." Referring to the ELAA proposal for "an exchange of information" system, the memo noted: "To be acceptable, any new system for information exchange must respect the competition rules. Some elements of the current ELAA proposal appear to be in line with these requirements. However, others are problematic notably because they do not differ in effect from what conferences do today. Accepting the ELAA proposal as it is today would remove all the pro-competitive effects of the abolition of the conference system."

25 Dr. Rainer Nitsche and Nils von Hinten-Reed, "Competitive Impacts of Information Exchange," Charles River Associates, Brussels, June 2004, page 5.

26 Directorate-General for Competition, Information Note, "Issues Raised in Discussion with the Carrier Industry in Relation to the Forthcoming Commission Guidelines on the Application of Competition Rules to Maritime Transport Services," paragraphs 3-6, (undated).

27 During the 1990s there were a number of conflicts over the interpretation of the liner conference block exemption, resulting in decisions (upheld by the Court of First Instance) prohibiting inland haulage collective price setting on the inland leg of a multi-modal shipment, conference prohibition of members entering into individual contracts, and restrictive clauses applied to individual service contracts. In November 2002, an individual exemption was granted to the revised Trans-Atlantic Conference Agreement that noted that provisions in a carrier agreement regarding individual and multi-carrier service contracts were outside the scope of the block exemption. Subsequently, the practical importance of conference tariffs disappeared as most rates were established in individual contracts, and "conferences" became *de facto* CDAs.

### Recent Reviews of Liner Competition

This Study is the most recent in a series of US and European reviews addressing liner shipping competition since OSRA became effective in May 1999.<sup>28</sup> Because the shift to pricing via confidential, individual service contracts brought about the virtual elimination of traditional liner conferences in US trades, the focus of contemporary policy discussions about liner competition has tended to focus on the role of *carrier discussion agreements* (with non-binding rate authority). The repeal of the EU's block exemption has now made it possible to attempt to compare the real-world impact of two differing regulatory approaches – one authorizing, the other prohibiting CDAs. Because this Study analyzes empirical data on the structure, conduct, and performance of liner shipping under these two regulatory approaches, it offers a perspective not available in previous reviews of liner competition. Those previous post-OSRA reviews include:

- The FMC's September 2001 study entitled *The Impact of the Ocean Shipping Reform Act of 1998* ("OSRA Impact Study").

Based on an evaluation of changes during the first two years that the new legislation was in effect, the OSRA Impact Study concluded that the reform measures were achieving Congress' policy objective of promoting a more market-driven, efficient liner shipping industry. The OSRA Impact Study found that, although market forces were mainly responsible for developments in liner shipping, US trades experienced a markedly changed business environment under OSRA. In particular, that study cited the ability of shippers to contract directly with individual carriers (rather than being subject to conference regulation), and the confidentiality of service contract terms as major pro-competitive reforms promoting greater market responsiveness.<sup>29</sup>

- The Organization for Economic Cooperation and Development's ("OECD") April 16, 2002 report on *Competition Policy in Liner Shipping* ("OECD Report").

The OECD Report's authors found no clear evidence that allowing carriers to collectively agree on rates was necessary for service reliability or generated net benefits to shippers. Consequently, they recommended that OECD member states no longer extend antitrust immunity to liner companies to collectively discuss and agree on rates. A lack of unanimity among OECD states regarding the Report's recommendations, however, led to its failure to gain OECD endorsement. Nevertheless, the Report's primary impact — as two DG Comp officials pointed out — was in simply raising the policy issue.<sup>30</sup>

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28 In addition to the series of US and EU reviews discussed here, Australia and Singapore also conducted reviews of their liner competition policies, and New Zealand's Productivity Commission recently announced (July 2011) a study of its international freight transport service – air and ocean – to be completed by April 1, 2012. Liner shipping antitrust immunity will be one topic in a broad range of questions to be addressed. Australia's review, the Productivity Commission Inquiry ("PCI"), into the justification for, and possible alternatives to continued industry specific competition regulation for liner shipping, was conducted from June 23, 2004 to February 23, 2005. The PCI report recommended repeal of the liner industry exemption (Part X of the Trade Practices Act of 1974) from otherwise applicable competition law. However, its recommendations were not acted on by the Government of Australia. The Singapore review, conducted by the Competition Commission of Singapore ("CCS"), assessed the necessity of continuing Singapore's block exemption for liner shipping agreements. The CCS review began in January 2010 and ended in December of the same year. On December 16, 2010, based on the CCS review findings, Singapore's Minister of Trade and Industry extended their block exemption for five years (until December 31, 2015) without substantial changes in its scope.

29 OSRA Impact Study, "Executive Summary," page 2.

30 "The great merit of the OECD's initiative on liner shipping competition policy is to have opened the debate on a topic that has long been taboo. Whatever the shortcomings, real or perceived, of its various reports, the OECD Secretariat has undoubtedly asked the right questions." Jean-Francois Pons and Eric Fitzgerald, "Competition in the maritime sector: a new era," February 2002. A critique of the "shortcomings" referred to can be seen in the December 2001 paper "Analysis and Comments on the OECD Secretariat's Paper, 'Liner Shipping Competition Policy Report'" submitted by the World Shipping Council, a carrier trade association.

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The OECD Report's authors also proposed a compromise, consensus recommendation on liner antitrust policy based on three principles: (1) freedom to negotiate rates, surcharges and other terms of carriage on an individual and confidential basis, (2) freedom for carriers and shippers to contractually protect the confidentiality of key contract terms of negotiated service contracts, including rates, with such contract confidentiality being given maximum protection, and (3) freedom of carriers to pursue operational and/or capacity agreements with other carriers as long as the agreements do not confer undue market power to the parties involved. The Report's authors noted that they viewed the three principles as consistent with OSRA, and that the principles could, and were meant to coexist with a regulatory regime that continued to extend antitrust immunity to rate discussions and price-setting.<sup>31</sup>

- DG Comp's review of Regulation 4056/86 ("EC review"), including, specifically, the block exemption for liner conferences, that began in March 2003 and resulted in the repeal of the block exemption.

As described in greater detail earlier, DG Comp reviewed Regulation 4056/86 to determine whether liner conferences in the EU trades were delivering the presumed benefits on which the block exemption originally had been established. The review process involved the collection of data and other information from industry and shipper sources, public hearings and three DG Comp-funded consultant studies.<sup>32</sup>

The explanatory memorandum supporting the proposal to end the block exemption argued that liner conferences in the EU trades no longer fulfilled the original conditions for the block exemption. The EC review's findings indicated that DG Comp believed that confidential service contracting and the use of operational agreements among lines provided a less restrictive alternative than conferences for stabilizing rates and ensuring reliable service.<sup>33</sup> DG Comp also alleged that conferences harmed shippers by constraining their contract negotiating power and precluding competition on certain additional charges.

- The October 18, 2006 Antitrust Modernization Commission's *Hearing on Antitrust Immunity Provided Under The Shipping Act of 1984* ("AMC Hearing").

On November 2, 2002, Congress authorized creation of the AMC to examine whether there was a need to modernize US antitrust law, and to identify and study any related issues.<sup>34</sup> Shipping Act antitrust immunity was a part, but relatively minor part, of the AMC's overall mandate. The AMC Hearing included testimony by panelists

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31 "Competition Policy in Liner Shipping, Final Report," Directorate for Science, Technology and Industry, Division of Transport, OECD, April 16, 2002, pages 78-80, paragraphs 204-215.

32 Those consultant studies are: (1) a paper by Erasmus University (the final version submitted on November 12, 2003); (2) *Economic Assistance Study on Liner Shipping* (May 2005 revised final report) by ICF Consulting; and (3) *The Application of Competition Rules to Liner Shipping* (October 26, 2005 final report) by Global Insight, Institute of Shipping Economics and Logistics, and Workgroup for Infrastructure Policy, Berlin University of Technology.

33 "Conference members increasingly offer their services via individual service agreements entered into with individual exporters. In addition conferences do not manage the [amount of] carrying capacity that is available as this is an individual decision taken by each carrier. Under the current market circumstances price stability and reliability of service are brought about by individual service agreements." *Proposal for a Council Regulation*, 12/14/05, COM (2005) 651 final, 2005/0264 (CNS), Explanatory Memorandum, pages 12 and 13.

34 Antitrust Modernization Commission Act of 2002, under Public Law No. 107-273, 107<sup>th</sup> Congress.

representing the FMC,<sup>35</sup> the liner shipping industry, American importers and exporters, ocean transportation intermediaries, and US public port authorities. A DG Comp official also attended and presented testimony concerning DG Comp's review process and the EU's decision to eliminate the liner conference block exemption.

On the topic of statutory immunities from antitrust law, such as found in the Shipping Act of 1984, the AMC final report noted: "Congress is currently considering the repeal of several immunities, including those covering the business of insurance and international shipping conferences. The [Antitrust Modernization] Commission strongly encourages such review. The [Antitrust Modernization] Commission believes that statutory immunity from the antitrust laws should be disfavored."<sup>36</sup>

- An October 18, 2008 Congressional Research Service report entitled *Reauthorization of the Federal Maritime Commission (FMC): Opportunity to Reexamine the Congressionally Mandated Antitrust Exemption for Ocean Liner Carriers?* ("CRS Report")

The CRS Report contained no findings or policy recommendations. It provided background information concerning liner agreements in US trades, the legislative history of US shipping law, information on Asian and European approaches to liner competition, and various stakeholder groups' views on Shipping Act antitrust immunity. In its concluding chapter, the CRS Report author emphasized that: "Congress could decide to follow the EU's lead and repeal antitrust immunity or it could take a 'wait-and-see' approach to observe any positive or negative effects that the repeal may have on the European liner trade."<sup>37</sup> The CRS Report also raised the question as to whether the repeal of antitrust immunity in European trades might result in carriers attempting "to recoup their revenue losses [in EU trades] by raising rates in other trades, such as the US trans-Pacific."<sup>38</sup>

As this brief summary of post-OSRA reviews of liner competition illustrates, OSRA and subsequent DG Comp actions eliminated the utility of most liner conferences. In their place, trade-wide CDAs, for example, the Transpacific Stabilization Agreement ("TSA") and Westbound Transpacific Stabilization Agreement ("WTSA")<sup>39</sup> in the Pacific, became the primary vehicles for carrier cooperation on pricing. However, the shift from conferences to CDAs, even in an environment where rates were largely set in one-to-one, confidential contract negotiations, did not end questions about, or controversy regarding carrier antitrust immunity.

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35 In response to an AMC request to identify the costs and benefits of antitrust immunity and make recommendations on whether the existing immunity should be retained, modified or repealed, then FMC Chairman Steven Blust advised that he and three other commissioners felt "that the existing laws and processes are working very well." (Hearing transcript, page 60.) One FMC Commissioner, Joseph Brennan, wrote the AMC favoring a modification that would "repeal antitrust immunity with respect to rate-setting and rate discussions by ocean common carriers." (See the letter from Commissioner Brennan to Deborah A. Garza, Chair AMC, October 11, 2006.)

36 Antitrust Modernization Commission Report and Recommendations, submitted to Congress and the President on April 2, 2007, "Immunities and Exemptions," pages viii and ix. Repeal of liner shipping antitrust immunity was addressed in H.R. 6167, The Shipping Act of 2010, which sought to eliminate carrier antitrust immunity. It was introduced by Rep. James Oberstar and Rep. Elijah Cummings, but was never acted on by the relevant committee.

37 John Frittelli, CRS Report, page 20.

38 Ibid page 21.

39 It should be noted that trade-wide discussion agreements came into existence well before OSRA reforms eliminated the authority for traditional conference regulation of members' pricing (contracts and tariffs) activities. TSA, for example, was established in 1989. Originally, CDAs facilitate the exchange of information about freight rates, capacity, and trade conditions between conference lines and independent (non-conference) lines. As conferences disappeared, CDAs became the dominant trade-wide carrier organization.

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### **How this Study Goes Beyond Recent Reviews**

While not designed to directly evaluate which, if either, of the two major regulatory approaches (OSRA or EU competition law) might provide the optimal model for liner shipping regulation, the Study does go beyond the predecessor studies mentioned above in at least three respects:

- It provides a detailed, empirical description of what happened in the three major East/West trades since the EU's announced repeal of the liner block exemption;
- It provides a comparative analysis across trade lanes to identify and assess, to the degree possible, any significant impacts of the EU's repeal; and
- It focuses its analysis on empirical data concerning market structure, carrier conduct and economic performance in major East/West trades rather than theoretical discussions of liner conferences.

As a result, the Study has generated evidence, insights and new research questions relevant to the still unsettled issue of how best to regulate international liner competition and cooperation.

## Chapter 3:

# Some Complicating Factors

Reviewing the situation of the three major East/West trades from 2006 through 2010 has had its challenges. Two issues in particular complicated the analysis of the repeal of the liner block exemption: The fact that any impacts from the repeal were likely to be relatively modest (minimal intervention impact) because the market power of carrier agreements was already limited by the demise of traditional conferences following OSRA and actions by DG Comp; and the occurrence, nearly simultaneously with the repeal's implementation, of a massive exogenous shock – the biggest decline in trade volumes in liner history as the result of a substantial global recession. Taken together, they suggest that any effect(s) of the repeal on liner shipping very likely would be masked by the effects of the global recession.

### Expected Impact of the EU Repeal

For several reasons, the immediate impact of the repeal of the EU liner block exemption was deemed likely to be moderate, at least in the two Europe-based trades being considered here. In the North Atlantic, the existing carrier “conference,” TACA, had been substantially weakened under OSRA. The vast majority of the cargo carried by its member lines moved under confidential, individual service contracts. Furthermore, TACA members' combined market share amounted to only about 50 percent of the cargo carried – meaning half the trade volumes moved with independent (non-TACA) lines. Nor did TACA engage in capacity management activities – which, in any event, likely would have been futile given its members' limited market presence. In short, TACA lacked market power. So any “intervention effect” from the repeal of the block exemption likely would be moderate at best.

Similarly, the Far East/North Europe trade's liner “conference,” the FEFC, was operating under the significant constraints that DG Comp put in place in 2002. Although the combined capacity of FEFC's member lines accounted for approximately 74 percent of westbound capacity and 69 percent of eastbound capacity, the FEFC did not collectively manage trade-wide capacity. Nor was the FEFC able to regulate its members' contract rates. Like TACA, FEFC was essentially a *de facto* CDA subject to the limitations associated with such agreements.

The main alleged harm attributed to organizations like TACA and FEFC in DG Comp's repeal proposal was (a) that conference tariff rates set a “benchmark” in advance of individual lines' contract negotiations, and (b) that various proposed charges, such as terminal handling charges (“THCs”), had been adopted by non-conference lines. DG Comp viewed the wide adoption of conferences' proposed charges as precluding competition in that portion of total shipper costs covered by surcharges. Thus, the main immediate positive impact of the repeal for shippers was expected to be a decline in auxiliary charges and surcharges, plus a possible moderate decline in the freight rates.

### Exogenous Shock: The Global Recession

The greatest difficulty in identifying what consequences might be attributable to the repeal of the block exemption was the impact that the global recession had on international trade and, consequently, on trade volumes, vessel utilization levels and revenues earned in liner shipping. As described in the final report of the National Commission on the Causes of

## Chapter 3

the Financial and Economic Crisis in the United States, the US housing and financial crisis that led to the worst financial meltdown since the Great Depression came to a head at approximately the same time that the EU repeal of the block exemption took effect:

The crisis reached seismic proportions in September 2008 with the failure of Lehman Brothers and the impending collapse of the insurance giant American International Group (AIG). Panic fanned by the lack of transparency of the balance sheets of major financial institutions, coupled with the tangle of interconnections among institutions perceived as being “too big to fail,” caused the credit markets to seize up. Trading ground to a halt. The stock market plummeted. The economy plunged into a deep recession.<sup>1</sup>

Approximately 57 percent of US companies reported that they were somewhat or very affected by credit constraints. Without access to credit, and faced with an uncertain economy, businesses reduced costs by laying-off workers and cutting back on capital investments. A related decline in global trade volumes hurt the US economy and the economies of its trading partners. For example, the decline in US exports in the final six months of 2008 alone reportedly reduced Gross Domestic Product (“GDP”) growth by three percentage points.<sup>2</sup>

The recession slowed economic growth on a worldwide scale. Global real GDP growth remained positive, but was halved from 4.2 percent in 2000–2007 to two percent in 2008–2010. Across countries there was an enormous amount of variation in growth. After sluggish growth on the order of one percent in 2008, the EU-27 economy contracted 4.2 percent in 2009. In the US, GDP growth was negative from the 2<sup>nd</sup> quarter of 2008 to the 2<sup>nd</sup> quarter 2009. The US recession hit its nadir in first quarter of 2009 with *minus* 6.8 percent annualized growth. In China, rapid economic growth of 13 percent in first quarter of 2007 was halved to 6.2 percent in first quarter of 2009.

Other indicators of economic performance were also ominous. The Consumer Confidence Index (“CCI”), a leading indicator that measures consumer sentiments based on a monthly survey of households, dropped long before output retracted, and began declining as early as August 2007. Consumer confidence continued to fall steadily until bottoming out in February 2009, at 23 percent of the index level of July 2007. European consumers began to lose confidence at about the same time as their American counterparts. The European Commission’s CCI indicator declined from June 2007 to February 2009.

The world’s three largest economies, the US, European Union, and China, faced different economic conditions as a result of the global recession. A demand shock in the US and Europe meant that China, the world’s leading exporter, would trade less with its major counterparts. International trade plummeted at a rate far faster than the contraction in GDP. As for the liner shipping industry, PIERS trade data for the US shows that aggregate foreign container trade began decreasing on a year-on-year basis starting in second quarter 2008.<sup>3</sup> At its lowest point in first quarter 2009, US container trade was down 20 percent from the previous year.

The trade volume recovery in 2010, however, was robust. US imports from China had dropped 45 percent on a year-on-year basis in February 2009, but had rebounded by 46.2 percent in February 2010. In all three major trade lanes, both directions posted year-on-year growth by January 2010. A strong peak season in 2010 indicated that US trades had resumed their normal patterns, with volumes close to pre-recession levels.

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1 *The Financial Crisis Inquiry Report*, PublicAffairs Books, January 2011, page xvi.

2 *The Financial Crisis Inquiry Report*, “Business: ‘Squirrels Storing Nuts,’” pages 394–397.

3 A detailed review of the impact of the global recession of 2008–09 on the liner industry is provided in Appendix IV, “Liner Recession and Recovery.”

## Some Complicating Factors

The sharp decline in volumes, vessel utilization levels, freight rates and liner company revenues followed by an almost equally sharp rebound in Far East-based trades, means that the Study's research period (2006-2010) includes a period of what might be called "normality" (2006 through mid-2008) and a decidedly non-normal "stress period" (late 2008 through mid-2010). Ideally, one would have preferred to have compared two relatively "normal" periods to evaluate the impact of the exemption's repeal.

Eventually the data collected for this Study may provide the foundation for a longer-term study closer to the "ideal" mentioned above. In the meantime, however, a somewhat less-than-ideal comparison of what occurred in the five years from January 1, 2006 through December 31, 2010 is not without value. For example, the crisis that ran from third quarter 2008 through third quarter 2010 provides an opportunity, in the form of a natural "stress test" experiment, to see if carriers in trade lanes where CDAs are allowed to operate, such as the transpacific, were able to provide a greater degree of rate and service stability than occurred in trade lanes, such as the Far East/North Europe trade, where opportunities for carrier cooperation were more restricted due to the repeal of the block exemption.

## Chapter 4:

# Methods of Analysis

### Combining Multiple Approaches

Given the substantial challenges described above, it became important to adopt multiple approaches to the analysis. These approaches include:

- Descriptive studies of the three major East/West trade lanes with respect to market structure, participant conduct, and economic performance.
- A difference-in-differences analysis of freight rates, vessel utilization, and the like to identify any intervention effects from the repeal of the block exemption.<sup>1</sup>
- A general assessment (taking account of the above research) of conditions in the major East/West trades, and, in particular, the likelihood of any negative impact on shippers in US trades.

To address the Study's core question – *What impact has the repeal of the conference block exemption in Europe had on US liner trades?* – it is necessary to respond to the two underlying questions:

- Did the anticipated changes as a result of the repeal of the EU block exemption in EU trades actually occur?
- If so, did those changes have any follow-on consequences for shippers in US-based trades in which limited antitrust immunity remains in place?

The Study aims to identify and quantify any significant impacts the EU repeal of the block exemption may have on US liner trades. That requires establishing a *causal relationship*, if one exists, between a specific policy intervention (the repeal of the block exemption) and any post-intervention changes (that is, any intervention effects) to market structure, carrier conduct, and, particularly, economic performance in the EU and US trades.

### Structure, Conduct and Performance

The relevant economic factors to be analyzed are generally referred to, in shorthand, as SCP — standing for Structure, Conduct and Performance. In brief, an SCP-based analysis involves examining:

- *Market Structure*: This refers to the relatively stable features of the market in which rival firms and their customers interact. Those features are the ones that most tend to influence rivalry among buyers (shippers) and sellers (carriers) within given markets (liner shipping trades). Typically, those features include cargo volume and route length which may affect seller concentration, cargo characteristics, trade imbalances, barriers

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<sup>1</sup> Difference-in-differences estimation is commonly used to measure the effect or impact of a new policy, law, medical treatment or other type of program intervention. The difference in outcomes before and after the change in policy, law or treatment for the (treatment) group affected by that intervention is compared to the difference in outcomes for a (control) group for whom there is no such intervention. In the context of our study, one can compare changes in outcomes among carriers operating in a liner trade that has had antitrust immunity repealed (the treatment group) to changes in outcomes among carriers operating in a trade where that immunity still remains (the control group).

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to entry and exit, government regulations, growth rate of market demand, and the like.

- *Firm Conduct*: This refers to the strategies or behaviors that firms engage in pursuing a competitive advantage in a given market. That could involve pricing policies, research and development, investments in productive assets, mergers and acquisitions, cooperation with rivals (explicit or tacit), and the like.
- *Economic Performance*: This refers to the economic outcomes achieved by firms and by the industry in terms of efficient resource allocation, observed profitability, and the like.

The traditional SCP model is based on the hypothesis that there is an explicit relationship between market structure (for example, the number and size of buyers and sellers) and firm conduct in that market (for example, a firm’s pricing decisions and investment strategies), and that firm conduct, in turn, largely explains each firm’s economic performance. In the case of this Study, the trades’ original SCP profiles and their post-repeal SCP profiles, and any changes that were observed, were compared across trades to determine what the differences were and how those differences changed following the repeal. The data developed in the SCP comparisons is then used in the difference-in-differences analysis (described below).

Using SCP factors, one available analytical approach could have been simply to select a trade originally dominated by OSRA-related requirements that, post-repeal, became dominated by the requirements of EU competition law (for example, the North Europe/US trade) and make direct before and after comparisons. Such an approach utilizes a single market assessment (“SMA”) of impact. In essence, SMA involves identifying, measuring, and comparing key pre- and post- intervention SCP observations in the subject trade. For example, one might collect observations of various pre-repeal conditions such as rate levels, rate volatility, or liner vessel utilization and similar observations for the post-intervention period, and then identify and quantify the observable changes. However, in this case, the repeal of the block exemption, the policy intervention being assessed could be masked by confounding variables other than the repeal. So, a SMA would only establish the existence and degree of a post-intervention change, *not* a causal relationship to the policy intervention (repeal) being assessed. Consider the following illustrative example:

Subject	Pre-Intervention	Post-Intervention	Change
Hypothetical Trade: Average Revenue per TEU	\$1,000 Average Revenue per TEU	\$960 Average Revenue per TEU	(\$40) [- 4%] Decline in Average Revenue per TEU

In the above example, the decline of \$40 per TEU following the repeal does not represent solid evidence of a causal relationship between the intervention and the decline in rates. It would be unlikely that that the full \$40 decline in average revenue per TEU would be the exclusive result of the repeal of the block exemption (a pure intervention effect), especially given the near simultaneous onset of the global recession’s impact on trade volumes. Consequently, additional information and more robust analytical techniques would be needed to determine what would most plausibly explain the decline in average revenue. A SMA of a single trade that experienced the policy intervention (repeal of the block exemption) is unsatisfactory. It would be unlikely to produce clear and persuasive results.

### Comparative Evaluation: Difference-in-Differences Estimates

A step beyond an analysis of a single trade would be a comparison of key economic factors across the East/West trades. The Study uses *difference-in-differences* estimates (“DD”) to identify any impacts attributable to a discrete policy intervention, and is a more plausible analytic process than SMA. DD estimates involve comparing pre- and post-intervention

## Methods of Analysis

conditions in *certain relationships* (using, for example, SCP factors) between the two subject trades. A DD analysis, as will be explained in greater technical detail later in the Study, compares the relationship between subjects (say carrier operations in the transpacific trade and carrier operations in the Far East/North Europe trade) with respect to a given factor (say rate volatility) before the policy intervention (repeal of the block exemption) and again after the intervention. That is, rather than simply comparing the gross changes in a single trade, a DD approach makes a trade-vs.-trade comparison for given variables (such as rate levels, rate volatility, vessel utilization levels, etc.) in the pre-intervention period, and then makes another trade vs. trade comparison after the intervention. For example:

Subjects	Pre-Intervention	Post-Intervention	Difference in differences
Transpacific trade	\$2,000 AR per TEU	\$1,500 AR per TEU	
Far East/N. Europe trade	\$2,500 AR per TEU	\$3,000 AR per TEU	
Difference	\$500 (25%)	\$1,500 (100%)	\$1,000 or 75% (100% - 25%)

The Study applies a basic DD analysis to discriminate between impacts caused by the repeal of the block exemption and impacts such as those caused by the global recession. To do so, DD analysis compares an EU trade (such as the Far East/Europe trade) with a similar, non-EU trade unaffected by the policy intervention under analysis (such as the Far East/US trade).

### Notice of Inquiry Responses

On November 1, 2010, the FMC issued a detailed Notice of Inquiry (“NOI”) to solicit information and comments from the liner industry and shipping public that could be potentially useful to the Study.<sup>2</sup> The requested information and data were intended to assist the agency to identify and evaluate any discernable trade-specific effects of the repeal. The NOI was divided into six sections:

- General questions on possible impacts of the repeal,
- Specific questions regarding the North Europe/United States trade,
- Specific questions regarding the Far East/United States trade,
- Specific questions about the Far East/Europe trade,
- Questions addressing comparisons among the foregoing trades, and
- A set of additional questions for liner companies.

Fifteen carriers,<sup>3</sup> two shipowners’ groups,<sup>4</sup> and one logistics and transportation consultant,<sup>5</sup> but no individual shippers or shipper trade associations, responded to the NOI.

A summary of responses to the NOI is provided in Appendix I. The four initial questions, however, present interesting general perspectives on the respondents’ experiences under EU competition law. Those questions, and a summary of the responses, are provided below.

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<sup>2</sup> “NOI—An Analysis of the European Union’s Repeal of the Liner Conference Block Exemption,” Federal Maritime Commission, November 1, 2010.

<sup>3</sup> APL Co. PTE Ltd.; Atlantic Container Line AB; CMA CGM, S.A.; COSCO Container Lines North America, Inc. (on behalf of COSCO Container Lines Company); Evergreen Line; Hamburg Süd; Hanjin Shipping Company, Ltd.; Hapag-Lloyd AG; Hyundai Merchant Marine Co., Ltd.; K Line America, Inc. (on behalf of Kawasaki Kisen Kaisha, Ltd.); A.P. Moller Maersk A/S; NYK Line (North America) Inc. (on behalf of Nippon Yusen Kaisha); Orient Overseas Container Line Ltd.; Yang Ming Transport Corp.; and Zim Integrated Shipping Services Ltd.

<sup>4</sup> The Asian Shipowners’ Forum and the Japanese Shipowners’ Association.

<sup>5</sup> Global Logistics & Transport Consulting.

- *Based on your experience since September 2006 (when the EU announced its decision to terminate the block exemption for liner conferences to take effect October 2008), what impacts, if any, have you identified on your company's commercial activities, in any trade lane, that you would attribute to the termination of the EU conference block exemption? Please explain. If you believe there have been such impacts, please indicate when that impact first occurred.*

Most carriers listed (1) higher relative rate volatility, (2) greater surcharge complexity and higher surcharge levels, and (3) reduced levels of service (relative to the US transpacific trade). Several carriers said impacts were minimal or they could not identify any – and one carrier added that, in its view, the repeal had provided no shipper benefits.

- *Based on your experience since October 2008 (when the EU exemption for liner conferences was terminated), has any class of shipper or class of vessel-operating common carrier received a competitive advantage or been put at a competitive disadvantage as a result of the EU decision to terminate the exemption? If so, please explain.*

A substantial majority said it was too difficult to tell or that they had seen no particular advantages or disadvantages being created. For respondents that identified advantages or disadvantages, rate volatility was said to be harder on small carriers, and a more complex pricing environment (as, for example, for surcharges) was also identified as a problem. One carrier opined that there had been increased concentration, mainly due to market share growth of the three largest carriers in EU trades, relative to the transpacific trade.

- *Based on your experience since October 2008 (when the EU exemption for liner conferences was terminated), have differences between the US and EU liner shipping competition regulations created any problems for your company? If so, please explain.*

A substantial majority said either “no” or indicated that, in general, it would be more convenient for carriers if there was one common set of rules. There was, however, no mention of any particular problems. Several carriers used their responses to reinforce their views on rate volatility and non-uniform surcharges as problems.

- *Does your company view cooperation among ocean carriers in operational agreements (e.g., vessel sharing agreements, alliances, consortia, etc.) as generally having a positive, neutral, or negative impact on the availability or cost of liner shipping services? Please explain. Does the EU market share threshold of 30 percent for such operational agreements have any effect with respect to that impact? If so, please explain.*

Uniformly, operational agreements were viewed positively. On the question of a 30 percent market share threshold, one carrier mentioned it as a way to prevent the formation of monopolies. Several others raised questions about the threshold's potential effect on formation of new vessel sharing arrangements, and its possible impacts with respect to service at new ports or in niche markets. However, most lines mentioned that they had no actual problems staying below the 30 percent threshold.

Broadly speaking, responses to the first four NOI questions indicated that some carrier respondents believed that there were areas in which the EU repeal might have had an impact. Those areas included (1) a difference in relative rate volatility, (2) changes in surcharges (both in complexity and amount), and (3) the levels of service provided in different trades. In addition, one carrier indicated that trade-lane differences in industry concentration might have been affected by the repeal. A few carriers also speculated that the alleged differences in rate volatility and surcharges across trades might have disproportionately affected smaller

shippers. In general, however, responding carriers did not see the repeal as having led to any clear competitive advantages or disadvantages for any class of shipper or carrier.

The NOI responses were treated not as factual evidence of claims being asserted, but rather as useful suggestions that relative rate volatility, service levels, market concentration, and the dynamics of surcharges were areas that might warrant analytical attention.

The carrier respondents indicated no specific problems with having to accommodate two different regulatory approaches to liner competition and cooperation. The responses suggest that, in the absence of actual conflicts of law, there may be no pressing need to conform regulatory approaches. In addition, responses to the fourth question indicate that the current exemptions, in the US and Europe, for operational agreements are viewed positively and seen as commercially important.

## Chapter 5:

# Market Analyses of Three Trades

### Introduction

This section presents descriptive studies of the three East/West trades covered in this Study: the North Europe/US trade, the Far East/North Europe Trade, and the Far East/US trade. The first two trades, being EU-based, were directly affected by the repeal of the liner conference block exemption. TACA, which operated in the North Europe/US trade, was terminated, as was the Far Eastern Freight Conference (“FEFC”), which operated in the Far East/North Europe trade. Because the Far East/US trade is outside the scope of the EU’s jurisdiction, the two transpacific carrier agreements, TSA and WTSA, continue to operate.

Each trade is presented separately beginning with a brief background description, followed by a commentary on what happened in the subject trade during the 2006–2010 review period. That commentary draws from the structure–conduct–performance data tables and charts prepared for this analysis. Each table and chart addresses a particular aspect of market structure, carrier conduct or economic performance in the trade being analyzed. An explanatory paragraph introduces each table and chart.

This set of information also was subsequently used as the basis for the difference-in-differences comparisons that make up the analytical heart of the Study (see Chapter 6). The summary comments, charts and data tables are presented here to acquaint the reader with the considerable material that was developed, and to give the reader a general overview of what changed during the five years under consideration.

Because the Study includes difference-in-differences estimates comparing the Far East/North Europe trade and the Far East/US trade, additional background information (as compared to the North Europe/US trade) is provided for those trades. In particular, a detailed description of the structure and operation of TSA and WTSA is presented in a separate sub-section following the Far East/US trade’s general background information. That sub-section also includes a brief description of how Asian nations address liner competition law exemptions.

## North Europe/US

### Background

This section provides a summary background discussion on the market characteristics of the liner shipping industry and the agreement activity of carriers between the US and the EU at the time of the block exemption repeal and thereafter. The repeal directly impacted the US shipping trades with EU nations by making all forms of conference and price fixing agreements between carriers illegal, resulting in their termination. For purposes of this Study, the examination of the repeal focuses on the major trade lane between the US and North Europe and does not address the US/South Europe trade lane in the Mediterranean region.<sup>1</sup> Traditionally, the port range of the North Europe sector of the trade spans the area from Bayonne, France to North Cape, Norway.<sup>2</sup>

In 2010, North Europe was the second largest US liner trade by volume after Northeast Asia, accounting for ten percent of the total volume, and 16 percent of the total value, of US container cargo worldwide.<sup>3</sup> In general, however, the trade of containerized goods between the developed economies of the US and North European nations has matured at a more moderate rate of growth than the accelerated pace in other US liner trades. Over the twenty-year period from 1990 through 2010, container cargo volume in the US/North Europe trade grew by 61 percent.<sup>4</sup> In comparison to other trade regions, however, US container cargo volume with Asia, Central/South America, and the Indian Subcontinent grew substantially more by 250, 280, and 550 percent, respectively.<sup>5</sup> It was determined from an analysis of the responses to the Commission's NOI that on average the liner services of the carriers in the trade accounted for around four percent of their total revenue earnings. Further, profitability in the trade, relative to the Far East trades, had noticeably deteriorated over the period from 2006 through 2010 (see Table TA-26).<sup>6</sup>

Container cargo growth in the trade is also affected by such economic factors as the rates of economic growth and currency exchange. As developed economies, the rates of economic growth in the US and the EU, as measured by the real gross domestic product ("GDP"), have been moderate and closely correlated. Most notably, at the time of the repeal, the economies of the US and the EU simultaneously descended into a recession, which started in the fourth quarter of 2008 and lasted throughout most of 2009. In the second quarter of 2009, compared to the same period in the preceding year, the economies hit a low point as GDP contracted by four percent in the US and five percent in the EU.<sup>7</sup> Toward the end of 2010, the economies began to recover as GDP grew moderately at a quarterly rate of about three percent in the US and two percent in Europe.<sup>8</sup>

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1 The liner services and ports in these two trade lanes are largely separate and non-substitutable, meaning US liner cargo bound for North Europe ports is not transhipped through South Europe ports to any significant degree, and vice versa. Also, the US/North Europe trade is the largest of the two liner shipping trades with a greater number of direct services where a conference agreement was in effect at the time of the block exemption repeal.

2 The market in the North Europe port range includes container shipments originating and destined for the countries of Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Latvia, Liechtenstein, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Slovakia, Sweden, Switzerland, and the United Kingdom.

3 *Port Import Export Reporting Service (PIERS)*, United Business Media Limited; and *USA Trade Online*, US Census Bureau.

4 PIERS.

5 *Ibid.*

6 See comments to questions 24 and 26 of the NOI in Appendix I.

7 *OECD.Stat Extracts (April 18, 2011)*.

8 *Ibid.*

## Market Analyses of Three Trades

Similarly, the rates of exchange between the US dollar and European currencies fluctuated measurably between 2006 and 2010. The value of the euro peaked at a monthly record high of \$1.58 in July 2008, and the British pound peaked at a monthly high of \$2.07 in November 2007.<sup>9</sup> At these levels, the strength of the European currencies against the US dollar increased the purchasing power of European consumers for US exports. By the end of December 2010, the values of the euro and the British pound had fallen to \$1.32 and \$1.56, respectively.<sup>10</sup> The trend of cargo growth in the trade closely mirrored the trends of economic growth and currency exchange between the US and North Europe, which accordingly affected the demand and price of liner shipping service. These correlations and trends will be examined in closer detail in the proceeding section.

Over the years, the market characteristics of liner shipping in the US/North Europe trade have remained fairly consistent. Within North Europe, the top trading foreign nations with the US are Germany, Belgium, the Netherlands, the United Kingdom, and France. In the US, the majority of container cargo in the trade moves through the ports of New York, Charleston, Norfolk, Houston, and Savannah. In North Europe, the ports of Antwerp, Belgium; Bremerhaven, Germany; Rotterdam, the Netherlands; and Le Havre, France handle the largest portion of container traffic in the trade.

Traditionally, consumer goods imported from North Europe moving inbound to the US have composed the headhaul direction of the trade, meaning the direction of the trade with the greatest quantity of cargo that usually generates the highest revenue. The top containerized commodities imported from North Europe include beer, auto parts, furniture, printing paper, beverages, tires, chemicals, and wine & spirits (see Tables TA-14a-e).

In the outbound trade direction, many of the top containerized US exports are materials used in manufacturing and building, such as lumber, wood pulp, kraft paper, synthetic resins and rubber, and chemicals (see Tables TA-14a-e). The major shippers of these US exports have been engaged in exporting their products to North Europe for decades and command a substantial portion of the cargo. In addition, used automobiles shipped in containers have also become a popular US export in the trade and are usually handled by ocean transportation intermediaries, such as non-vessel-operating common carriers (“NVOCCs”) (see Tables TA-14a-e).

Container cargo shipped by NVOCCs, as opposed to beneficial cargo owners (“BCO”) or shippers’ associations, is more prevalent in the inbound direction from North Europe. From 2006 through 2010, the total cargo shipped by NVOCCs was 35 percent in the inbound direction as opposed to 21 percent in the outbound direction.<sup>11</sup> For the same period, the amount of cargo shipped in refrigerated containers was not significant, amounting to only four percent in each trade direction.

In terms of rate agreements between carriers, TACA was the last conference to operate in the trade subject to the competition laws and the block exemption regulations, Regulation 4056/86, of the EU and US shipping statutes. In 1992, the conference first formed as the *Trans-Atlantic Agreement* (“TAA”) with a combined membership that held 80 percent of the market share in the trade. The actions of the carriers under the authority of TAA, and subsequently TACA, resulted in a series of protracted and complex regulatory decisions and

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<sup>9</sup> *Federal Reserve Bulletin*.

<sup>10</sup> *Ibid.*

<sup>11</sup> The figures on the percentage of NVOCC cargo are derived for the trade as a whole based on PIERS data, which may to some extent be understated. From the NOI responses, it appears that the percentage of NVOCC cargo was higher; for example, it was around 55 percent on average for 2010. See public comments to question 25 of the NOI.

## Chapter 5

litigation before the EC and the European Courts that lasted until 2003.<sup>12</sup> The FMC also initiated a series of formal proceedings to investigate the activities of the carriers in TAA/TACA for possible violations of the Shipping Act.

Gradually, the conference modified its authority to comply with the decisions of the regulatory agencies and the requirements of the revised legislation under OSRA. In September 2006, the termination of the conference system in the trade became definite when the EU voted to repeal Regulation 4056/86 with a two-year transition period. At the time, membership in TACA dropped to five carriers with a total market share of around 40 percent.<sup>13</sup> By the end of June 2008, TACA terminated its tariff and discontinued operating as a conference; the agreement was terminated at the end of September 2008.

In September 2009, the EC voted to renew and modify its block exemption regulations for consortia agreements between ocean carriers, Commission Regulation (EC) No. 906/2009. Among the modifications, the EC reduced the market share threshold by which consortia are block exempted from 35 to 30 percent. Forms of consortia, or operational, agreements in the trade include all three of the major alliance arrangements; these are *The New World Alliance Agreement*, *The Grand Alliance Agreement II*, and the *COSCO/KL/YMUK/Hanjin Worldwide Slot Allocation and Sailing Agreement* (“CKYH Group”) (see Table TA-16). In addition, as the recession reduced the demand for liner service in the trade, a number of carriers increased the coordination of their services and vessel space under a series of operational agreements with the alliances; the carriers include Maersk Line, Evergreen Line, Hamburg Süd, and Zim Integrated Shipping Services, Ltd. (see Table TA-16).<sup>14</sup> The next section addresses these developments and more in relation to the market conditions that prevailed during the review period from 2006 through 2010.

### Commentary

This section provides comments on the market conditions and the activities of carriers in the US/North Europe trade for the review period from 2006 through 2010. The review period provides a span of time to assess the trade prior to and after the repeal of the block exemption regulations by the EU. As noted, the repeal directly impacted the trade by terminating the legal immunity for conferences, which forced TACA to disband in 2008.

Over the review period, the geographic distribution of cargo was unaffected. The top five trading nations in North Europe together accounted for over 80 percent of the total container cargo moved in the trade in 2006 and 2010; as noted, these nations are Germany, Belgium, the Netherlands, the United Kingdom, and France. In the US, the majority of container cargo moved through Atlantic ports, around 75 percent in 2006 and 2010, while Gulf and Pacific ports handled around 15 and 10 percent, respectively, for the same periods (see Tables TA-13a and TA-13e).

Market concentration in the trade increased moderately among the participating ocean carriers over the review period. In 2006, the top four carriers with the highest market shares had a concentration ratio (“CR4”) of 54 percent and included in ranking order Hapag-Lloyd, Maersk Line, Mediterranean Shipping Company (“MSC”), and Evergreen Line (see Table TA-7a). In 2010, the CR4 increased to 58 percent and included in ranking order MSC, Hapag-Lloyd, Maersk Line, and APL Co. Pte. Ltd. (“APL”) (see Table TA-7e).

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<sup>12</sup> See Appendix V for a detailed discussion on the regulation of ocean carrier agreements in the transatlantic trade.

<sup>13</sup> The remaining TACA members at the time of the termination of the conference were Atlantic Container Line AB, Maersk Line, Mediterranean Shipping Co., Nippon Yusen Kaisha, and Orient Overseas Container Line Ltd.

<sup>14</sup> The agreements include the *New World Alliance/Maersk Line Slot Exchange Agreement*, the *Grand Alliance/Zim/HSDG Atlantic Space Charter Agreement*, and the *ELJSA/CKYH Vessel Sharing Agreement-Trans Atlantic Express Service*.

## Market Analyses of Three Trades

Market concentration as measured by the Herfindahl-Hirschman Index (“HHI”) increased from 918 in 2006 to 1145 in 2010 (see Chart TA-8).<sup>15</sup> The extent of entry and exit by ocean carriers in the trade was limited over the review period (see Table TA-11).<sup>16</sup>

At the beginning of the review period in 2006, the quantity of imported containers and the freight rates at which they moved were substantially higher in the inbound direction, the traditional headhaul lane, than the outbound direction where US export growth and freight rates were comparatively depressed (see Table TA-1 and Chart TA-2). During this time, the ratio of import containers to export containers reached its highest level of 1.62 in July 2006 (see Table TA-5 and Chart TA-6), and the average contract rate for import containers peaked at \$2,567 per FEU in February 2006, while the average contract rate for US export containers sunk to a low of \$854 per FEU for the entire first quarter of 2007 (see Chart TA-20). In 2006 and 2007, the utilization of vessel capacity in the inbound direction tended to peak seasonally in the months of March through July in the 80 percent range and higher (see Table TA-23 and Chart TA-24).

In 2007 and 2008, a shift in the directional flow of cargo occurred and the quantity of US container exports to North Europe grew and surpassed container imports by a slight margin for a short period of time (see Table TA-1 and Chart TA-2). The ratios of import containers to export containers were 0.91 and 0.98 in January and February of 2008 (see Table TA-5 and Chart TA-6), and in April 2008, the volume of export containers peaked for the review period, having risen 35 percent since April 2006 (see Table TA-1 and Chart TA-2). The shift in cargo growth was precipitated by the sharp decline in the value of the US dollar against the euro and other European currencies, which stimulated the foreign demand for US container exports and suppressed the demand for European container imports.<sup>17</sup>

In 2008, the utilization of vessel capacity in the outbound direction peaked at levels in the high 80 to low 90 percent range in the months from February through August (see Table TA-23 and Chart TA-24). Consequently, the freight rates for US container exports steadily rose. In October 2008, the average contract rate for container exports peaked at \$1,794 per FEU, an increase of 110 percent from the lows of \$854 per FEU in the first quarter of 2007 (see Chart TA-20). During this period, the members of the TACA used the last vestiges of their rate authority to implement general rate increases (“GRIs”) in their outbound tariff prior to the termination of the conference. In the inbound direction, freight rates of container imports incrementally declined in the same period but on average remained above the outbound rate levels for container exports (see Chart TA-20).

The period of robust growth in US container exports was cut short when recessionary conditions in the US and North European economies began to unfold, coinciding with the repeal of Regulation 4056/86 in October 2008. Toward the end of 2008 and into 2009, container cargo volume in both trade directions plummeted due to the contraction in demand, and the increase in excess capacity caused utilization to fall to its lowest level in the review period. In the first half of 2009 compared to the same period in 2008, container cargo volume had fallen by 34 percent in the outbound direction and 24 percent in the inbound direction (see Table TA-1 and Chart TA-2), and the utilization levels were in the 60 percent range in both trade directions (see Table TA-23 and Chart TA-24).

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15 The 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as unconcentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 as highly concentrated.

16 Over the review period, Norasia Container Lines Ltd., Gold Star Line Ltd., and China Shipping Container Lines Co. Ltd. exited from the trade, and Compania Sud Americana de Vapores (CSAV) entered the trade.

17 As noted, the value of the euro peaked at a monthly record high of \$1.58 in July 2008, increasing the purchasing power of European consumers for US exports. *Federal Reserve Bulletin*.

## Chapter 5

The depressed market conditions precipitated sharp declines in freight rates of both container imports and exports. In the inbound direction, the average contract rate of container imports sunk to its lowest level of \$1,694 per FEU in June 2009, marking a decline of 34 percent from the peak of \$2,567 per FEU in February 2006 (see Chart TA-20). In the outbound direction, the rate increases of 2008 in container exports eroded as freight rates regressed back to just above the low levels experienced in 2006 and 2007.

To cope with the depressed market conditions and sustain their operations in the trade, carriers took decisive measures to coordinate their services to a greater extent using their operational authority in agreements. Major carriers in conjunction with the three alliance groups entered into operational agreements to reconfigure and reduce their services to remove excess vessel capacity and maintain sufficient service levels (see Table TA-16). Consequently, by the start of 2010, carriers had removed a sizable portion of excess capacity from the market of around 24 percent in each trade direction, and the amount of capacity supplied in the trade under forms of operational agreements had increased from around 50 percent in 2006 to 70 percent.<sup>18</sup> The number of direct services in the trade was reduced from 22 in 2006 to 14 in 2010 (see Tables TA-17a and TA-17e). Major carriers that used to be more preeminent, such as Maersk Line and Evergreen Line, reduced their presence in the trade substantially by cutting capacity and services. In contrast, MSC and Hapag-Lloyd maintained their capacity and services in the trade.

Throughout 2010, the volume of container cargo in both trade directions grew marginally, as weak market conditions still affected the trade and prevented a full recovery of container volume equal to the pre-recessionary period (see Table TA-1 and Chart TA-2). By the end of 2010 compared to 2006, container imports and exports were more in balance at a ratio of 1.11 (see Table TA-5 and Chart TA-6). With less excess capacity in the market, utilization levels improved, and freight rates steadily increased in both trade directions. By the end of 2010, freight rates of container imports were still below the 2006 levels, but container export rates were comparable to the levels realized in the 2008 period of strong export growth (see Chart TA-20). Shifts in market share among competing carriers in the trade, as measured by the market share instability index (“MSII”), was at its highest level of 19 percent in 2010 (see Table TA-25). This degree of market share change in 2010 indicates that competition among carriers intensified, but it also reflects the change in market share that resulted from the service and capacity reductions implemented by carriers. Most notably, Maersk Line and Evergreen Line lost market share, while MSC gained a sizable share of the market in 2010 (see Table TA-9).

Over the review period, the US/North Europe trade, like most of the liner trades, was affected by external economic factors that transformed the structure of the market and the levels of service and freight rates. With the repeal of Regulation 4056/86 by the EU, carriers could no longer use a conference system to address or influence market conditions. It is difficult to assess to what extent a conference could have controlled or lessened the effects of the recession that occurred in 2009. At the time of the repeal, the influence and authority of TACA had waned, and the total market share of its remaining members had dropped to 40 percent. Carriers increased their cooperation under operational agreements to cope with the depressed market conditions. These measures enabled carriers to continue to remain in the trade and sustain sufficient service levels by sharing vessel space and reducing operating costs by removing under-used capacity. Thus, under distressed market conditions, in the absence of a conference system, it appears that carriers used their operational authority to deploy

## Market Analyses of Three Trades

vessel capacity more efficiently, which increased both utilization levels and freight rates in the trade. It would be difficult to determine whether carriers would have behaved any differently if they had been able to participate in a conference at this time.

The remainder of this section consists of a series of tables and charts that track and describe changes between 2006 and 2010 in various aspects of market structure, carrier conduct and economic performance in the US/North Europe trade.

## Transatlantic Market Structure

Table TA-1 Monthly TEU Cargo Volumes

For each month of the review period from 2006 through 2010, the table provides time series data showing by trade direction the total number of US container exports that moved outbound to North Europe, and the total number of container imports that moved inbound to the US from North Europe. The container imports and exports are measured in TEUs. The trend in the number of the containers moved over the time series shows the extent of cargo growth and seasonality in each trade direction based on the foreign and domestic consumer demand for container exports and imports, which affects the demand and price of the liner shipping services in the trade. Further, the number of containers moved inbound and outbound identifies the headhaul and backhaul directions of the trade, and the extent of any imbalance in the directional flow of container cargo. The source of the container cargo data is the Port Import Export Reporting Service (“PIERS”), United Business Media Limited.

**TA-1 US/North Europe Trade  
Monthly Cargo Volume in TEUs**

	US to N. Europe TEUs	N. Europe to US TEUs
Jan-06	97,856	135,280
Feb-06	97,548	137,046
Mar-06	110,283	155,914
Apr-06	104,484	160,427
May-06	112,846	155,153
Jun-06	100,232	150,751
Jul-06	96,318	156,250
Aug-06	97,688	147,330
Sep-06	97,904	141,249
Oct-06	110,642	151,733
Nov-06	106,178	147,570
Dec-06	99,008	136,810
Jan-07	106,467	123,685
Feb-07	108,636	124,199
Mar-07	136,488	159,648
Apr-07	125,602	145,128
May-07	127,430	154,782
Jun-07	120,372	152,197
Jul-07	116,962	152,505
Aug-07	125,928	149,973
Sep-07	121,981	132,731
Oct-07	128,712	145,800
Nov-07	118,673	139,191
Dec-07	110,566	138,307
Jan-08	123,428	112,240
Feb-08	135,780	133,661
Mar-08	137,363	139,398
Apr-08	140,886	140,734
May-08	138,115	139,915
Jun-08	128,966	133,327
Jul-08	132,241	148,651

**TA-1 US/North Europe Trade**  
**Monthly Cargo Volume in TEUs (continued)**

	US to N. Europe TEUs	N. Europe to US TEUs
Aug-08	130,898	130,894
Sep-08	118,535	132,463
Oct-08	121,873	143,098
Nov-08	105,047	125,063
Dec-08	92,761	118,666
Jan-09	85,112	86,268
Feb-09	90,376	98,769
Mar-09	93,719	110,683
Apr-09	87,697	108,904
May-09	86,403	96,370
Jun-09	87,944	108,303
Jul-09	91,570	120,704
Aug-09	94,713	110,964
Sep-09	96,147	111,897
Oct-09	99,532	117,289
Nov-09	95,687	112,537
Dec-09	94,832	112,736
Jan-10	89,779	96,901
Feb-10	91,318	100,124
Mar-10	114,419	123,355
Apr-10	108,787	124,368
May-10	103,587	124,576
Jun-10	102,343	124,408
Jul-10	100,425	131,563
Aug-10	105,748	129,134
Sep-10	103,063	116,013
Oct-10	109,533	128,647
Nov-10	104,484	128,143
Dec-10	102,651	113,699

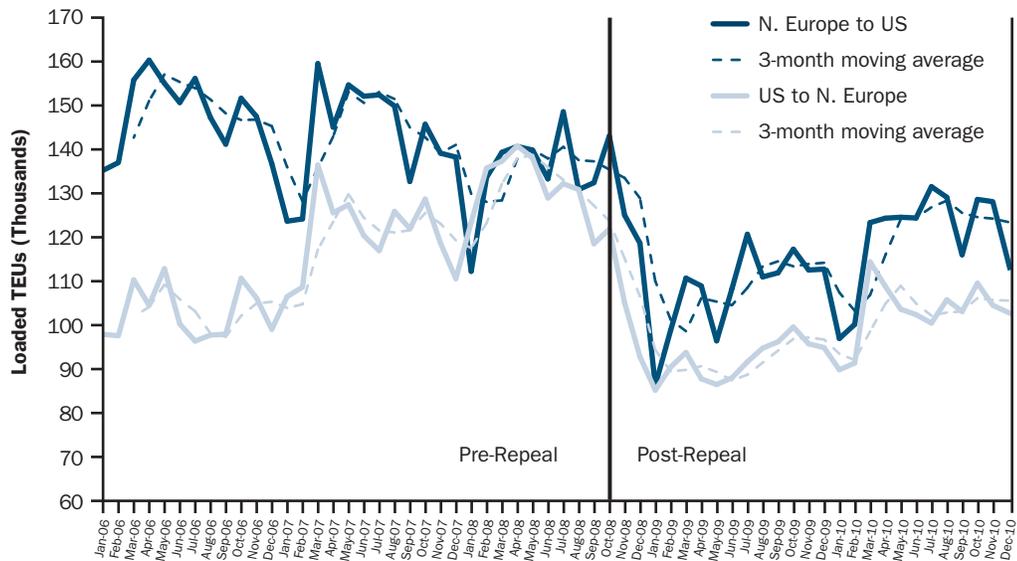
Source: Federal Maritime Commission, PIERS Interactive

### Chart TA-2 Monthly and Three-Month Moving Average TEU Cargo Volumes

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the actual import and export container cargo loads in each direction of the US/North Europe trade. The chart also provides a three-month moving average of the import and export cargo loads to smooth out fluctuations in the data and delineate the overall trend lines more clearly. The horizontal axis of the chart gives the series of time in months over the review period, and the vertical axis measures container cargo loads in thousands of TEUs. The trend lines of the data show the extent of growth, seasonality, and change that occurred over the review period in the consumer demand for container imports and exports in the trade. In turn, the extent of container cargo growth, or a serious reduction in container cargo volume due to a contraction in demand, affects the price of liner shipping service in the trade. Further, the trend lines of container imports and exports identify the headhaul and the backhaul directions of the trade, and any imbalance and change over time in the directional flow of cargo. PIERs is the source of the container cargo data.

#### TA-2 US/North Europe Trade Loaded TEUs by Month

Source: Federal Maritime Commission, PIERs Interactive



**Table TA-3 Monthly Metric Ton Volumes for Containerized Cargo**

For each month of the review period from 2006 through 2010, the table provides time series data showing by trade direction the total weight of the container exports that moved outbound to North Europe, and the total weight of the container imports that moved inbound to the US from North Europe. The weight of the containers is measured in metric tons. The trend in the metric tons of containers moved over the time series is an indication of the extent of cargo growth and seasonality in each trade direction based on the foreign and domestic demand for container exports and imports. The trend in the data also shows the extent of any weight imbalance in the directional flow of container cargo in the trade. The weight of the cargo moving in a trade lane can affect the utilization of vessel capacity and impose draft limitations on containerships. PERS is the source of the container cargo data.

**TA-3 US/North Europe Trade  
Monthly Cargo Volume in Metric Tons**

	US to N. Europe Metric Tons	N. Europe to US Metric Tons
Jan-06	767,780	1,175,751
Feb-06	761,173	1,201,666
Mar-06	845,002	1,376,249
Apr-06	817,694	1,422,882
May-06	858,365	1,367,230
Jun-06	767,649	1,308,465
Jul-06	732,474	1,359,503
Aug-06	731,422	1,273,267
Sep-06	746,355	1,238,211
Oct-06	853,535	1,330,655
Nov-06	821,821	1,279,395
Dec-06	782,965	1,193,206
Jan-07	847,287	1,085,287
Feb-07	859,710	1,065,051
Mar-07	1,065,665	1,390,351
Apr-07	986,040	1,276,049
May-07	979,586	1,359,982
Jun-07	937,242	1,319,859
Jul-07	882,178	1,292,837
Aug-07	936,393	1,279,825
Sep-07	957,491	1,139,229
Oct-07	997,867	1,237,268
Nov-07	881,804	1,205,640
Dec-07	798,857	1,188,094
Jan-08	929,022	970,207
Feb-08	1,028,630	1,171,021
Mar-08	1,014,107	1,210,779
Apr-08	1,019,678	1,212,108
May-08	1,011,100	1,211,155
Jun-08	931,046	1,149,533
Jul-08	951,705	1,260,464
Aug-08	978,779	1,118,777
Sep-08	849,797	1,147,525
Oct-08	912,475	1,277,409

**TA-3 US/North Europe Trade**  
**Monthly Cargo Volume in Metric Tons (continued)**

	US to N. Europe Metric Tons	N. Europe to US Metric Tons
Nov-08	810,893	1,109,787
Dec-08	706,686	1,044,046
Jan-09	669,465	761,237
Feb-09	688,188	862,194
Mar-09	715,607	968,595
Apr-09	689,674	965,413
May-09	690,472	856,630
Jun-09	694,083	949,939
Jul-09	723,114	1,045,385
Aug-09	755,074	968,194
Sep-09	769,125	993,715
Oct-09	813,419	1,043,080
Nov-09	767,619	1,004,435
Dec-09	748,902	1,002,414
Jan-10	756,616	880,658
Feb-10	740,484	890,815
Mar-10	926,210	1,119,994
Apr-10	886,205	1,139,564
May-10	845,153	1,136,564
Jun-10	844,266	1,130,359
Jul-10	821,501	1,169,100
Aug-10	855,268	1,131,252
Sep-10	836,080	1,031,807
Oct-10	887,989	1,141,458
Nov-10	839,921	1,143,269
Dec-10	804,754	1,008,497

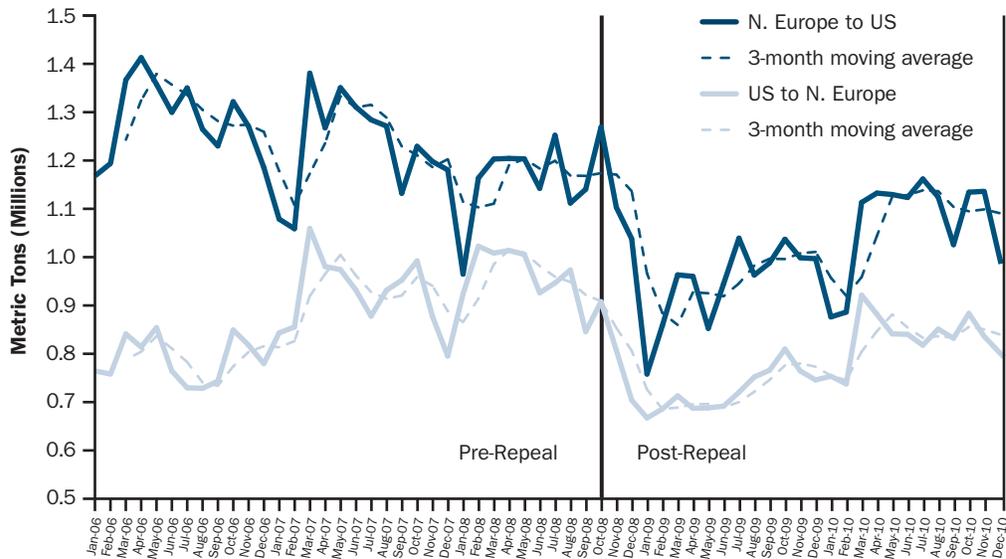
Source: Federal Maritime Commission, PIERS Interactive

**Chart TA-4 Monthly and Three-Month Moving Average  
Metric Ton Volumes for Containerized Cargo**

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the actual metric tons of import and export container cargo that moved in each direction of the US/North Europe trade. The chart also provides a three-month moving average of the metric tons of import and export container cargo to smooth out fluctuations in the data and delineate the overall trend lines more clearly. The horizontal axis of the chart gives the series of time in months over the review period, and the vertical axis measures container cargo in millions of metric tons. The trend lines of the data show the extent of growth, seasonality, and change that occurred over the review period in the amount of metric tons that moved in each trade direction. Further, the trend lines show the extent of any weight imbalance and change over time in the directional flow of the cargo in the trade. The change over time in the trend lines reflects the change in the consumer demand for container imports and exports. PIERs is the source of the container cargo data.

**TA-4 US/North Europe Trade  
Liner Cargo Volume in Metric Tons**

Source: Federal Maritime Commission, PIERs Interactive



**Table TA-5 Ratio of Inbound to Outbound Cargo**

For each month of the review period from 2006 through 2010, the table provides time series data showing the ratio in the weight and number of container imports divided by the weight and number of container exports moving in the US/North Europe trade. The weight of the container cargo is measured in metric tons, and the number of containers is measured in TEUs. The ratio of container imports to container exports provides a measure of the extent of any imbalance in the directional flow of container cargo in the trade. The higher the ratio is above 1.0 the higher the extent of an imbalance in the weight or number of container imports in excess of container exports. A ratio of less than 1.0 indicates a period of time when container exports exceeded container imports. Further, the ratio shows the extent to which the US demand for container imports exceeded the foreign demand for US container exports. PIERs is the source of the container cargo data.

**TA-5 Imbalance in the US/North Europe Trade  
Ratio of Inbound to Outbound Cargo**

	Metric Tons	TEUs
Jan-06	1.53	1.38
Feb-06	1.58	1.40
Mar-06	1.63	1.41
Apr-06	1.74	1.54
May-06	1.59	1.37
Jun-06	1.70	1.50
Jul-06	1.86	1.62
Aug-06	1.74	1.51
Sep-06	1.66	1.44
Oct-06	1.56	1.37
Nov-06	1.56	1.39
Dec-06	1.52	1.38
Jan-07	1.28	1.16
Feb-07	1.24	1.14
Mar-07	1.30	1.17
Apr-07	1.29	1.16
May-07	1.39	1.21
Jun-07	1.41	1.26
Jul-07	1.47	1.30
Aug-07	1.37	1.19
Sep-07	1.19	1.09
Oct-07	1.24	1.13
Nov-07	1.37	1.17
Dec-07	1.49	1.25
Jan-08	1.04	0.91
Feb-08	1.14	0.98
Mar-08	1.19	1.01
Apr-08	1.19	1.00
May-08	1.20	1.01
Jun-08	1.23	1.03
Jul-08	1.32	1.12
Aug-08	1.14	1.00
Sep-08	1.35	1.12
Oct-08	1.40	1.17

**TA-5 Imbalance in the US/North Europe Trade  
Ratio of Inbound to Outbound Cargo (continued)**

	Metric Tons	TEUs
Nov-08	1.37	1.19
Dec-08	1.48	1.28
Jan-09	1.14	1.01
Feb-09	1.25	1.09
Mar-09	1.35	1.18
Apr-09	1.40	1.24
May-09	1.24	1.12
Jun-09	1.37	1.23
Jul-09	1.45	1.32
Aug-09	1.28	1.17
Sep-09	1.29	1.16
Oct-09	1.28	1.18
Nov-09	1.31	1.18
Dec-09	1.34	1.19
Jan-10	1.16	1.08
Feb-10	1.20	1.10
Mar-10	1.21	1.08
Apr-10	1.29	1.14
May-10	1.34	1.20
Jun-10	1.34	1.22
Jul-10	1.42	1.31
Aug-10	1.32	1.22
Sep-10	1.23	1.13
Oct-10	1.29	1.17
Nov-10	1.36	1.23
Dec-10	1.25	1.11

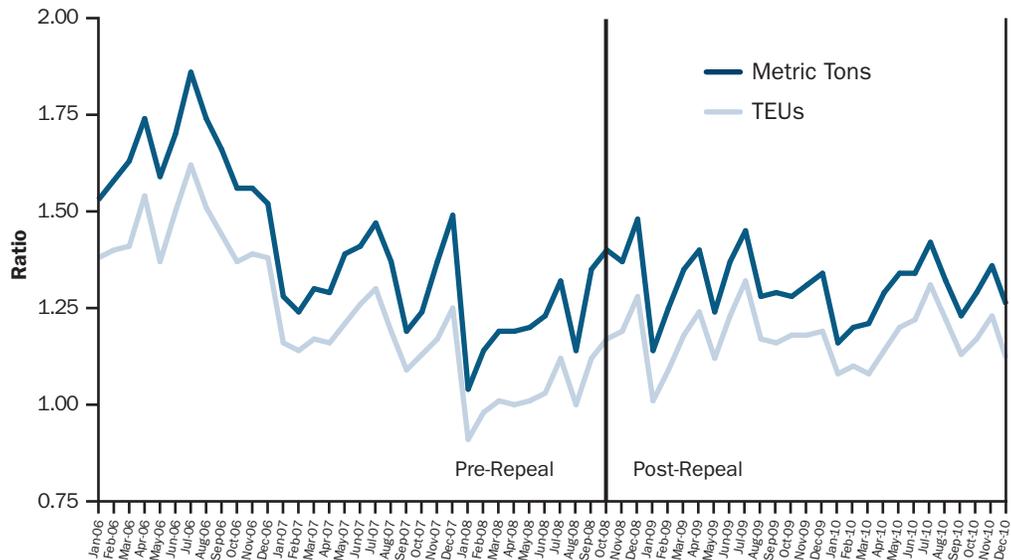
Source: Federal Maritime Commission, PIER Interactive

### Chart TA-6 Ratio of Inbound to Outbound Cargo

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the ratio in weight and number of the container imports to container exports that moved in the US/North Europe trade. The weight of the containers is measured in metric tons, and the number of the containers is measured in TEUs. The horizontal axis of the chart gives the series of time in months over the review period, and the vertical axis measures the level of the ratio of container imports to container exports. The trend lines of the ratio show the extent of an imbalance in the weight or number of container imports in excess of container exports in the trade over the review period. The degree to which the trend lines exceed 1.0 shows the degree of an imbalance in container imports above container exports. A trend line that falls below one indicates a period of time when the weight or number of container exports exceeded container imports. The trend lines over the time series show how any imbalance in directional flow of container cargo changed over the review period. They can also be interpreted as showing the change over time in the US demand for foreign container imports compared to the foreign demand for US container exports. PIERs is the source of the container cargo data.

#### TA-6 Imbalance in the US/North Europe Trade Ratio of US Inbound to Outbound Cargo

Source: Federal Maritime Commission, PIERs Interactive



### Tables TA-7a-e Annual Concentration Ratios (CR4 and HHI)

The following tables provide measures of the annual levels of market concentration among the shipping lines that participated in the US/North Europe trade for the review period from 2006 through 2010. The shipping lines that operated vessels in the trade for each year of the review period are shown in ranking order from largest to smallest based on the amount of their total annual container cargo carriage. The amount of total containers moved by each shipping line is combined to include imports and exports and is measured in TEUs. The percentage of market share is derived for each shipping line from the container data. From the market share figures, measures of market concentration are derived to show the concentration ratio of the top four shipping lines with the highest market shares (“CR4”) and the Herfindahl-Hirschman Index (“HHI”). The CR4 is simply derived as the sum of the percent of the market shares of the top four lines. The figures in the Market Share and Cumulative Percent columns in the following tables have been rounded to the nearest whole number and may not appear to sum accurately.

The HHI for each year is expressed in bold at the bottom of the HHI column in each table and is derived as the sum of the squared values of the market share of each shipping line. As a benchmark for assessing concentration based on HHI, the 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as unconcentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 as highly concentrated. It would be expected that a greater degree of competition among market participants is present in a less concentrated market. PIERS is the source of the container cargo data.

**TA-7a US/North Europe  
Total Liner Cargo [Imports and Exports]  
CR4 & HHI - 2006**

Rank	Shipping Line	2006 TEUs	Market Share	Cumulative Percent	HHI
1	Hapag-Lloyd	534,235	18%	18%	321.53
2	Maersk	429,807	14%	32%	208.12
3	Mediterranean Shipping Company	371,710	12%	45%	155.66
4	Evergreen Line	260,008	9%	54%	76.16
5	American President Lines	189,114	6%	60%	40.29
6	OOCL	136,988	5%	65%	21.14
7	Atlantic Container Line	118,802	4%	68%	15.90
8	Independent Container Line	106,418	4%	72%	12.76
9	NYK Line	106,173	4%	76%	12.70
10	CMA CGM	92,765	3%	79%	9.69
11	NORASIA Line	70,224	2%	81%	5.56
12	K Line	69,112	2%	83%	5.38
13	Mitsui OSK Line	68,321	2%	86%	5.26
14	China Shipping Container Line	68,119	2%	88%	5.23
15	Hanjin Shipping	66,111	2%	90%	4.92
16	Atlantic Cargo Shipping	64,865	2%	92%	4.74
17	COSCO	60,889	2%	94%	4.18
18	Yang Ming Line	50,743	2%	96%	2.90
19	Hyundai Merchant Marine	47,106	2%	98%	2.50
20	Zim Container Line	46,127	2%	99%	2.40
21	Hamburg Sud	20,988	1%	100%	0.50
22	Marfret	715	0%	100%	0.00
<b>2006 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>2,979,341</b>	<b>100%</b>	<b>-</b>	<b>918</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-7b US/North Europe  
Total Liner Cargo [Imports and Exports]  
CR4 & HHI - 2007**

Rank	Shipping Line	2007 TEUs	Market Share	Cumulative Percent	HHI
1	Hapag-Lloyd	580,138	19%	19%	344.12
2	Maersk	422,119	13%	32%	182.19
3	Mediterranean Shipping Company	401,293	13%	45%	164.65
4	Evergreen Line	276,869	9%	54%	78.38
5	American President Lines	178,736	6%	59%	32.66
6	OOCL	135,194	4%	64%	18.69
7	Atlantic Container Line	131,529	4%	68%	17.69
8	China Shipping Container Lines	119,739	4%	72%	14.66
9	CMA CGM	119,092	4%	76%	14.50
10	Independent Container Line	106,292	3%	79%	11.55
11	NYK Line	105,452	3%	82%	11.37
12	Zim Container Line	79,717	3%	85%	6.50
13	Mitsui OSK Line	76,042	2%	87%	5.91
14	K Line	66,492	2%	89%	4.52
15	COSCO	58,788	2%	91%	3.53
16	Hanjin Shipping	58,248	2%	93%	3.47
17	Hamburg Sud	57,033	2%	95%	3.33
18	Atlantic Cargo Shipping	55,312	2%	97%	3.13
19	Yang Ming Line	51,514	2%	98%	2.71
20	Hyundai Merchant Marine	47,428	2%	100%	2.30
21	Marfret	311	0%	100%	0.00
<b>2007 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>3,127,335</b>	<b>100%</b>	<b>-</b>	<b>926</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-7c US/North Europe  
Total Liner Cargo [Imports and Exports]  
CR4 & HHI - 2008**

Rank	Shipping Line	2008 TEUs	Market Share	Cumulative Percent	HHI
1	Hapag-Lloyd	564,069	18%	18%	334.06
2	Maersk	440,457	14%	33%	203.69
3	Mediterranean Shipping Company	399,690	13%	46%	167.73
4	Evergreen Line	250,412	8%	54%	65.84
5	American President Lines	188,873	6%	60%	37.45
6	OOCL	176,737	6%	65%	32.80
7	Atlantic Container Line	150,703	5%	70%	23.85
8	CMA CGM	124,715	4%	74%	16.33
9	NYK Line	121,262	4%	78%	15.44
10	Independent Container Line	109,468	4%	82%	12.58
11	Hamburg Sud	86,984	3%	85%	7.94
12	Mitsui OSK Line	78,544	3%	87%	6.48
13	Zim Container Line	61,777	2%	89%	4.01
14	China Shipping Container Lines	59,306	2%	91%	3.69
15	K Line	51,052	2%	93%	2.74
16	Hanjin Shipping	49,611	2%	94%	2.58
17	Hyundai Merchant Marine	46,751	2%	96%	2.29
18	COSCO	44,594	1%	97%	2.09
19	Yang Ming Line	41,883	1%	99%	1.84
20	Atlantic Cargo Shipping	38,836	1%	100%	1.58
21	Marfret	465	0%	100%	0.00
<b>2008 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>3,086,189</b>	<b>100%</b>	<b>-</b>	<b>945</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-7d US/North Europe  
Total Liner Cargo [Imports and Exports]  
CR4 & HHI - 2009**

Rank	Shipping Line	2009 TEUs	Market Share	Cumulative Percent	HHI
1	Hapag-Lloyd	477,824	20%	20%	402.34
2	Mediterranean Shipping Company	338,388	14%	34%	201.78
3	Maersk	325,182	14%	48%	186.34
4	American President Lines	170,402	7%	55%	51.17
5	OOCL	164,445	7%	62%	47.65
6	Evergreen Line	149,170	6%	68%	39.21
7	Atlantic Container Line	124,813	5%	73%	27.45
8	NYK Line	104,040	4%	78%	19.07
9	Independent Container Line	85,314	4%	81%	12.83
10	CMA CGM	78,526	3%	85%	10.87
11	Mitsui OSK Line	65,610	3%	87%	7.59
12	Zim Container Line	59,717	3%	90%	6.28
13	Hamburg Sud	50,831	2%	92%	4.55
14	Hyundai Merchant Marine	37,679	2%	94%	2.50
15	Hanjin Shipping	35,099	1%	95%	2.17
16	K Line	31,009	1%	96%	1.69
17	China Shipping Container Lines	26,105	1%	98%	1.20
18	Yang Ming Line	26,061	1%	99%	1.20
19	COSCO	20,956	1%	100%	0.77
20	Atlantic Cargo Shipping	10,802	0%	100%	0.21
21	Marfret	184	0%	100%	0.00
<b>2009 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>2,382,157</b>	<b>100%</b>	<b>-</b>	<b>1027</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-7e US/North Europe  
Total Liner Cargo [Imports and Exports]  
CR4 & HHI - 2010**

Rank	Shipping Line	2010 TEUs	Market Share	Cumulative Percent	HHI
1	Mediterranean Shipping Company	545,532	21%	21%	423.96
2	Hapag-Lloyd	531,285	20%	41%	402.10
3	Maersk	277,290	10%	51%	109.53
4	American President Lines	170,378	6%	58%	41.35
5	OOCL	166,081	6%	64%	39.29
6	Atlantic Container Line	142,982	5%	69%	29.12
7	Independent Container Line	117,368	4%	74%	19.62
8	NYK Line	116,227	4%	78%	19.24
9	Evergreen Line	102,000	4%	82%	14.82
10	Hamburg Sud	94,813	4%	85%	12.81
11	CMA CGM	92,698	3%	89%	12.24
12	Mitsui OSK Line	75,021	3%	92%	8.02
13	Zim Container Line	69,648	3%	94%	6.91
14	Hyundai Merchant Marine	40,873	2%	96%	2.38
15	K Line	26,747	1%	97%	1.02
16	Hanjin Shipping	25,322	1%	98%	0.91
17	Yang Ming Line	25,248	1%	99%	0.91
18	COSCO	15,765	1%	99%	0.35
19	CSAV	11,497	0%	100%	0.19
20	Atlantic Cargo Shipping	1,990	0%	100%	0.01
21	Marfret	706	0%	100%	0.00
<b>2010 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>2,649,470</b>	<b>100%</b>	<b>-</b>	<b>1145</b>

Source: Federal Maritime Commission, PIERS Interactive

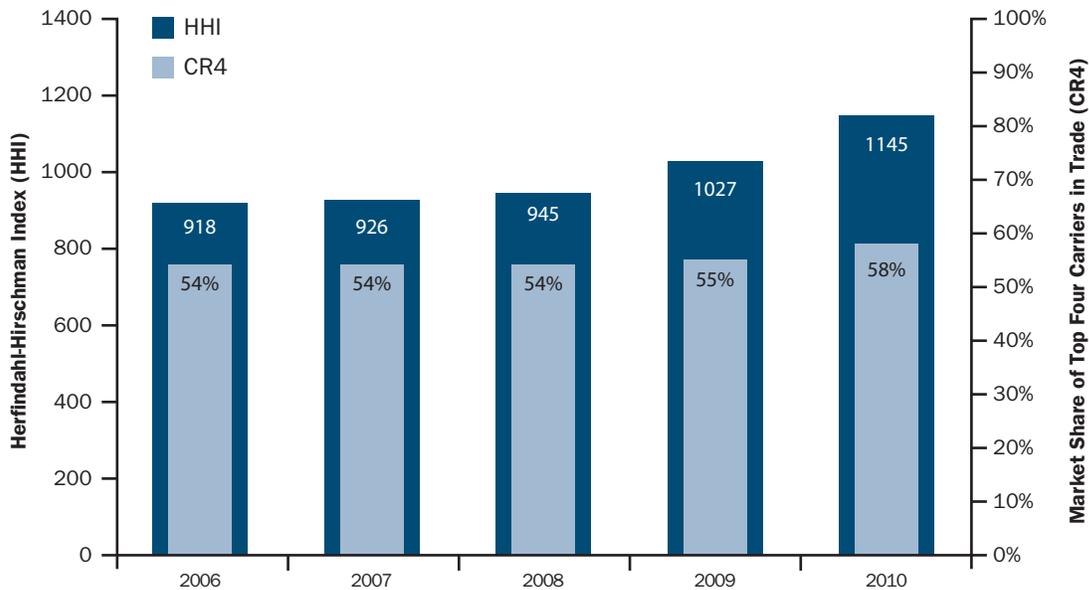
### Chart TA-8 Concentration Ratios (CR4 and HHI)

The chart provides a summary of the changes in market concentration among the participating shipping lines in the US/North Europe trade over the review period from 2006 through 2010. Measures of market concentration in the trade for each year are provided showing the concentration ratio of the top four shipping lines with the highest market shares (“CR4”) and the Herfindahl-Hirschman Index (“HHI”). The CR4 is derived as the sum of the percent of the market shares of the top four shipping lines, and the HHI is derived as the sum of the squared values of the market share of each participating shipping line in the trade. The market share of each shipping line is based on its total annual container cargo carriage in the trade measured in TEUs.

As a benchmark for assessing concentration based on HHI, the 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as unconcentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 as highly concentrated. PIERS is the source of the container cargo data.

#### TA-8 US/North Europe Trade Measures of Market Concentration CR4 & HHI

Source: Federal Maritime Commission, PIERS Interactive



**Table TA-9 Changes in the Market Shares of Participants**

The table provides a summary of the changes in the market share percentages of the participating shipping lines in the US/North Europe trade for each year of the review period from 2006 through 2010. The annual market share percentages of each shipping line are based on its total annual container cargo carriage in the trade measured in TEUs. The shifts in market share between the shipping lines provide an indication of how well each line competed in the marketplace from one year to the next and over the course of the review period. Spaces where no percentages appear in the table [identified by dashes] signal the exit or entry of a shipping line in the trade. The bottom row of the table gives the size of the market in millions of TEUs as measured by the sum of the annual amount of total import and export containers moved in the trade by each of the identified shipping lines. Only those shipping lines that deployed vessels in the trade in a given year were included as market participants. PIERs is the source of the container cargo data.

**TA-9 US/North Europe  
Changes in the Market Shares of Participants**

Shipping Line	2006 MS	2007 MS	2008 MS	2009 MS	2010 MS
Hapag-Lloyd	18%	19%	18%	20%	20%
Maersk	14%	13%	14%	14%	10%
Mediterranean Shipping Company	12%	13%	13%	14%	21%
Evergreen Line	9%	9%	8%	6%	4%
American President Lines	6%	6%	6%	7%	6%
Orient Overseas Container Line	5%	4%	6%	7%	6%
Atlantic Container Line	4%	4%	5%	5%	5%
Independent Container Line	4%	3%	4%	4%	4%
NYK Line	4%	3%	4%	4%	4%
CMA CGM	3%	4%	4%	3%	3%
K Line	2%	2%	2%	1%	1%
Mitsui OSK Line	2%	2%	3%	3%	3%
China Shipping Container Lines	2%	4%	2%	1%	–
Hanjin	2%	2%	2%	1%	1%
Atlantic Cargo Shipping	2%	2%	1%	0%	0%
COSCO	2%	2%	1%	1%	1%
Yang Ming Line	2%	2%	1%	1%	1%
Hyundai Merchant Marine	2%	2%	2%	2%	2%
Zim Container Line	2%	3%	2%	3%	3%
Hamburg Sud	1%	2%	3%	2%	4%
Marfret	0%	0%	0%	0%	0%
Norasia Line (2006) – CSAV (2010)	2%	–	–	–	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Market Size (Millions of TEUs)</b>	<b>2.98</b>	<b>3.13</b>	<b>3.09</b>	<b>2.38</b>	<b>2.65</b>

Source: Federal Maritime Commission, PIERs Interactive

**Table TA-10 Changes in Cargo Lifts and Market Shares of the Major Alliances and Vessel Sharing Arrangements**

For each year of the review period from 2006 through 2010, the table gives the total number and market share percentage of annual containers moved as a group by members of each of the alliance agreements and the selected vessel sharing agreements operating in the US/ North Europe trade. The total number of annual containers moved by each agreement is the sum of the total number of annual containers moved by each member of the agreement and is combined to include imports and exports measured in TEUs. The annual market share percentage is derived by dividing the total number of containers of each agreement by the total number of import and export containers that moved in the trade; the quotient is multiplied by 100. The table also gives the sum, and the corresponding market share percentage, of the annual containers moved in the trade by all of the alliance agreements (as one group) and by all of the alliance and selected vessel sharing agreements (as one group). The selected vessel sharing agreements shown in the table are those where an alliance, as a group, formed a service, or services, under an agreement in partnership with non-alliance carriers operating in the trade. Over the review period, the table shows any annual change that occurred in the total number, and corresponding market share percent, of containers moved by the various agreements and groups of agreements. The source of data is PIERS.

**TA-10 US/North Europe  
Changes in Cargo Lifts (TEUs) and Market Shares of the Major Alliances and VSAs**

Alliances	2006	2007	2008	2009	2010
New World Alliance Agreement	304,541	302,206	314,168	228,102	286,272
The Grand Alliance Agreement II	777,396	820,784	862,069	746,309	813,593
COSCO/KL/YMUK/Hanjin Worldwide Slot Allocation and Sailing Agreement	246,855	235,041	187,140	113,125	93,082
Alliances including Partners	2006	2007	2008	2009	2010
New World Alliance/Maersk Line Slot Exchange Agreement	734,349	724,324	754,625	553,284	563,562
The Grand Alliance/Zim Atlantic Vessel Sharing Agreement	-	-	923,846	-	-
The Grand Alliance/Zim/HSDG Atlantic Space Charter Agreement	-	-	-	856,857	978,054
ELJSA/CKYH Vessel Sharing Agreement - Trans Atlantic Express Service	-	-	-	262,295	195,083
<b>Liftings by Alliances</b>	<b>1,328,792</b>	<b>1,358,030</b>	<b>1,363,377</b>	<b>1,087,535</b>	<b>1,192,947</b>
<b>Liftings by Alliances including Partners</b>	<b>1,758,600</b>	<b>1,780,149</b>	<b>1,865,611</b>	<b>1,672,436</b>	<b>1,736,699</b>
<b>Total Trade Liftings</b>	<b>2,979,341</b>	<b>3,127,335</b>	<b>3,086,189</b>	<b>2,382,157</b>	<b>2,649,470</b>

**Shares of Capacity**

Alliances	2006	2007	2008	2009	2010
New World Alliance Agreement	10.2%	9.7%	10.2%	9.6%	10.8%
The Grand Alliance Agreement II	26.1%	26.2%	27.9%	31.3%	30.7%
COSCO/KL/YMUK/Hanjin Worldwide Slot Allocation and Sailing Agreement	8.3%	7.5%	6.1%	4.7%	3.5%
Alliances including Partners	2006	2007	2008	2009	2010
New World Alliance/Maersk Line Slot Exchange Agreement	24.6%	23.2%	24.5%	23.2%	21.3%
The Grand Alliance/Zim Atlantic Vessel Sharing Agreement	-	-	29.9%	-	-
The Grand Alliance/Zim/HSDG Atlantic Space Charter Agreement	-	-	-	36.0%	36.9%
ELJSA/CKYH Vessel Sharing Agreement - Trans Atlantic Express Service	-	-	-	11.0%	7.4%
<b>Market Share of Alliances</b>	<b>44.6%</b>	<b>43.4%</b>	<b>44.2%</b>	<b>45.7%</b>	<b>45.0%</b>
<b>Market Share of Alliances including Partners</b>	<b>59.0%</b>	<b>56.9%</b>	<b>60.5%</b>	<b>70.2%</b>	<b>65.5%</b>

Source: Federal Maritime Commission, PIERS Interactive

**Table TA-11 Carrier Entry and Exit**

The table shows the level of entry and exit of shipping lines participating in the US/North Europe trade for each quarter of the review period from 2006 through 2010. Only those shipping lines that deployed vessels in liner services in the trade were counted as market participants. For purposes of this study, market entry was counted as the initiation of a new liner service in which a shipping line deployed some or all of its own vessels and was not deploying vessels in any other liner services in the trade at the time when the new service was initiated. Market exit was counted as a shipping line terminating its services in the trade and removing its vessels. The level of market entry and exit provides an indication of whether barriers to entry in a market exist, which affects competition between the market participants. The exit or entry of shipping lines in a trade is also a function of the demand for liner shipping services. A contraction in demand for an extended period may cause lines to exit a trade without attracting new entry. Established shipping lines are able to enter and exit trades more readily without incurring any great amount of sunk cost as opposed to the start up of a new shipping line in a trade where the capital investment can be substantial. The source of data is Drewry Maritime Research.

**TA-11 US/North Europe Trade  
Entries and Exits**

Entry/Exit based on carriers listed as operators in the transatlantic trade as identified by Drewry

N. Europe to US	Entry into Trade	Exit from Trade	US to N. Europe	Entry into Trade	Exit from Trade
1Q06			1Q06		
2Q06			2Q06		
3Q06			3Q06		
4Q06		Norasia, Gold Star 164,669 TEUs	4Q06		
1Q07			1Q07		
2Q07			2Q07		
3Q07			3Q07		
4Q07			4Q07		
1Q08			1Q08		
2Q08			2Q08		
3Q08			3Q08		
4Q08			4Q08		
1Q09			1Q09		
2Q09			2Q09		
3Q09			3Q09		
4Q09		CSCL 104,247 TEUs	4Q09		CSCL 92,664 TEUs
1Q10			1Q10		
2Q10			2Q10		
3Q10			3Q10		
4Q10	CSAV 147,256 TEUs		4Q10	CSAV 131,626 TEUs	

Derived from Drewry Container Forecaster Quarterly Reports, Drewry Maritime Research

**Table TA-12 Minimum Efficient Scale (MES) and Ratio of Market Size to MES**

The table on the left estimates the minimum efficient scale (“MES”) of weekly liner service in the US/North Europe trade for each year of the review period from 2006 through 2010. The MES for each year is measured as the smallest level of service among comparable shipping lines that can sustain a competitive weekly service loop in the trade. For each year, the table identifies the shipping lines, frequency, type, number of vessels, the average TEU vessel capacity of each MES, and any changes in MES over time.

For each year of the review period from 2006 through 2010, the table on the right also gives the ratio of the size of the market to the MES of service in each direction of the US/North Europe trade. The ratio is derived by dividing the annual capacity of the market by the annual capacity of the MES in each direction of the trade. The MES for each year is measured as the smallest level of service among comparable shipping lines that can sustain a competitive weekly service loop in the trade. The market size is measured as the sum of the annual capacity of all of the liner services offered in the trade. The table shows the change in the ratio in each trade direction over the review period. It would be expected that a high ratio of market size to MES indicates that competition among market participants is greater and barriers to market entry are lower. The source of data is Drewry Maritime Research.

**TA-12 US/North Europe Trade**

Trend in Minimum Efficient Scale (MES)			Ratio of Market Size to MES	
			N. Europe to US	US to N. Europe
2006	CMA CGM w/CSCL and Hatsu (Evergreen Line)	weekly loop service using 5 vessels of 2,646 TEU vessel capacity on average	22	21
2007	CMA CGM w/CSCL and Evergreen	weekly loop service using 5 vessels of 2,730 TEU vessel capacity on average	20	20
2008	CMA CGM w/CSCL and Evergreen	weekly loop service using 5 vessels of 2,820 TEU vessel capacity on average	19	19
2009	CKYH Alliance	weekly loop service using 4 vessels of 2,725 TEU vessel capacity on average	18	18
2010	CKYH Alliance w/ Evergreen	weekly loop service using 4 vessels of 2,726 TEU vessel capacity on average	16	16

Source: Drewry Maritime Research

### **Tables TA-13a-e Container Volume and Market Share between US Coastal Ranges and Foreign Nation**

For each year of the review period from 2006 through 2010, the tables give the total number and market share percentages of annual containers that moved between the US Atlantic, Gulf, and Pacific coasts and each foreign nation included in the geographic scope of the liner shipping trade between the US and North Europe. The regions of the Great Lakes, US Virgin Islands, and Puerto Rico are included in the US Atlantic coast, and Alaska and Hawaii are included in the US Pacific coast. The total number of containers for each year is combined to include imports and exports measured in TEUs. Each market share percentage of container cargo is derived as a function of the total number of import and export containers that moved in the trade for each year, e.g., 11.9 percent of the total number of containers in the trade for 2006 moved between the foreign nation of Belgium and the US Atlantic coast. The tables show the geographic distribution and extent of demand in container cargo between the US and each North European nation through each US coastal range. Over the review period, the tables show any change that occurred in the distribution and demand of container cargo in the trade. PIERS is the source of the container cargo data.

**TA-13a US/North Europe Trade  
Container Volume and Market Share  
by North European Country and US Port Range**

2006 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Austria	26,170	4,764	2,477	33,411
Belgium (Luxembourg)	356,632	119,773	27,919	504,324
Czech Rep. (Slovakia)	31,591	6,658	4,148	42,397
Denmark	38,181	9,983	7,730	55,894
Estonia	7,938	1,394	410	9,742
Finland	57,760	7,592	4,193	69,545
France	191,260	35,325	34,441	261,026
Germany	627,221	91,603	66,926	785,750
Hungary	7,635	1,201	723	9,559
Ireland	40,109	5,424	5,676	51,209
Latvia	14,043	4,024	1,692	19,759
Lithuania	25,624	2,450	2,438	30,512
Netherlands	354,992	69,002	45,076	469,070
Norway	21,495	7,671	4,493	33,659
Poland	51,376	6,714	7,741	65,831
Sweden	83,795	11,320	12,286	107,401
Switzerland	14,453	3,069	1,731	19,253
United Kingdom	326,431	69,246	42,481	438,158
<b>Total 2006</b>	<b>2,276,706</b>	<b>457,213</b>	<b>272,581</b>	<b>3,006,500</b>

2006 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Austria	0.9%	0.2%	0.1%	1.1%
Belgium (Luxembourg)	11.9%	4.0%	0.9%	16.8%
Czech Rep. (Slovakia)	1.1%	0.2%	0.1%	1.4%
Denmark	1.3%	0.3%	0.3%	1.9%
Estonia	0.3%	0.0%	0.0%	0.3%
Finland	1.9%	0.3%	0.1%	2.3%
France	6.4%	1.2%	1.1%	8.7%
Germany	20.9%	3.0%	2.2%	26.1%
Hungary	0.3%	0.0%	0.0%	0.3%
Ireland	1.3%	0.2%	0.2%	1.7%
Latvia	0.5%	0.1%	0.1%	0.7%
Lithuania	0.9%	0.1%	0.1%	1.0%
Netherlands	11.8%	2.3%	1.5%	15.6%
Norway	0.7%	0.3%	0.1%	1.1%
Poland	1.7%	0.2%	0.3%	2.2%
Sweden	2.8%	0.4%	0.4%	3.6%
Switzerland	0.5%	0.1%	0.1%	0.6%
United Kingdom	10.9%	2.3%	1.4%	14.6%
<b>Total 2006</b>	<b>75.7%</b>	<b>15.2%</b>	<b>9.1%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-13b US/North Europe Trade  
Container Volume and Market Share  
by North European Country and US Port Range**

2007 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Austria	35,943	6,788	6,084	48,815
Belgium (Luxembourg)	396,879	142,948	31,743	571,570
Czech Rep. (Slovakia)	30,008	7,123	5,438	42,569
Denmark	31,847	9,217	8,345	49,409
Estonia	5,929	917	677	7,523
Finland	72,904	5,885	5,813	84,602
France	190,693	36,665	34,879	262,237
Germany	627,649	97,824	76,498	801,971
Hungary	7,914	1,367	891	10,172
Ireland	36,499	4,872	4,411	45,782
Latvia	19,213	3,379	1,880	24,472
Lithuania	38,205	2,622	3,793	44,620
Netherlands	368,266	65,229	51,190	484,685
Norway	19,865	6,439	4,568	30,872
Poland	60,886	5,336	9,020	75,242
Sweden	82,837	14,776	13,114	110,727
Switzerland	18,056	3,030	2,145	23,231
United Kingdom	332,148	65,809	49,507	447,464
<b>Total 2007</b>	<b>2,375,741</b>	<b>480,226</b>	<b>309,996</b>	<b>3,165,963</b>

2007 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Austria	1.1%	0.2%	0.2%	1.5%
Belgium (Luxembourg)	12.5%	4.5%	1.0%	18.1%
Czech Rep. (Slovakia)	0.9%	0.2%	0.2%	1.3%
Denmark	1.0%	0.3%	0.3%	1.6%
Estonia	0.2%	0.0%	0.0%	0.2%
Finland	2.3%	0.2%	0.2%	2.7%
France	6.0%	1.2%	1.1%	8.3%
Germany	19.8%	3.1%	2.4%	25.3%
Hungary	0.2%	0.0%	0.0%	0.3%
Ireland	1.2%	0.2%	0.1%	1.4%
Latvia	0.6%	0.1%	0.1%	0.8%
Lithuania	1.2%	0.1%	0.1%	1.4%
Netherlands	11.6%	2.1%	1.6%	15.3%
Norway	0.6%	0.2%	0.1%	1.0%
Poland	1.9%	0.2%	0.3%	2.4%
Sweden	2.6%	0.5%	0.4%	3.5%
Switzerland	0.6%	0.1%	0.1%	0.7%
United Kingdom	10.5%	2.1%	1.6%	14.1%
<b>Total 2007</b>	<b>75.0%</b>	<b>15.2%</b>	<b>9.8%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERIS Interactive

**TA-13c US/North Europe Trade  
Container Volume and Market Share  
by North European Country and US Port Range**

2008 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Austria	37,050	6,597	6,030	49,677
Belgium (Luxembourg)	389,808	126,704	29,794	546,306
Czech Rep. (Slovakia)	24,095	6,401	5,400	35,896
Denmark	29,727	10,693	6,845	47,265
Estonia	6,256	796	557	7,609
Finland	88,909	7,960	5,184	102,053
France	178,670	33,655	27,666	239,991
Germany	615,443	97,269	70,216	782,928
Hungary	6,401	1,313	843	8,557
Ireland	38,537	5,084	4,025	47,646
Latvia	15,751	3,730	1,978	21,459
Lithuania	44,693	4,610	3,850	53,153
Netherlands	357,571	68,538	48,891	475,000
Norway	22,803	7,112	4,269	34,184
Poland	68,202	4,850	11,063	84,115
Sweden	84,009	10,379	11,045	105,433
Switzerland	18,198	3,668	2,876	24,742
United Kingdom	329,914	63,828	44,250	437,992
<b>Total 2008</b>	<b>2,356,037</b>	<b>463,187</b>	<b>284,782</b>	<b>3,104,006</b>

2008 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Austria	1.2%	0.2%	0.2%	1.6%
Belgium (Luxembourg)	12.6%	4.1%	1.0%	17.6%
Czech Rep. (Slovakia)	0.8%	0.2%	0.2%	1.2%
Denmark	1.0%	0.3%	0.2%	1.5%
Estonia	0.2%	0.0%	0.0%	0.2%
Finland	2.9%	0.3%	0.2%	3.3%
France	5.8%	1.1%	0.9%	7.7%
Germany	19.8%	3.1%	2.3%	25.2%
Hungary	0.2%	0.0%	0.0%	0.3%
Ireland	1.2%	0.2%	0.1%	1.5%
Latvia	0.5%	0.1%	0.1%	0.7%
Lithuania	1.4%	0.1%	0.1%	1.7%
Netherlands	11.5%	2.2%	1.6%	15.3%
Norway	0.7%	0.2%	0.1%	1.1%
Poland	2.2%	0.2%	0.4%	2.7%
Sweden	2.7%	0.3%	0.4%	3.4%
Switzerland	0.6%	0.1%	0.1%	0.8%
United Kingdom	10.6%	2.1%	1.4%	14.1%
<b>Total 2008</b>	<b>75.9%</b>	<b>14.9%</b>	<b>9.2%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-13d US/North Europe Trade  
Container Volume and Market Share  
by North European Country and US Port Range**

2009 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Austria	24,623	4,653	4,235	33,511
Belgium (Luxembourg)	284,682	105,669	27,762	418,113
Czech Rep. (Slovakia)	19,196	6,068	3,079	28,343
Denmark	23,403	8,642	6,018	38,063
Estonia	3,529	372	449	4,350
Finland	27,319	3,647	2,533	33,499
France	155,474	27,638	25,521	208,633
Germany	479,355	82,297	62,129	623,781
Hungary	4,955	1,865	844	7,664
Ireland	32,361	4,049	3,289	39,699
Latvia	13,793	1,577	1,633	17,003
Lithuania	24,443	2,918	2,467	29,828
Netherlands	275,630	60,374	42,714	378,718
Norway	16,975	5,242	3,267	25,484
Poland	50,673	5,151	9,480	65,304
Sweden	58,133	8,694	9,071	75,898
Switzerland	18,482	3,902	3,031	25,415
United Kingdom	254,725	54,131	36,992	345,848
<b>Total 2009</b>	<b>1,767,751</b>	<b>386,889</b>	<b>244,514</b>	<b>2,399,154</b>

2009 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Austria	1.0%	0.2%	0.2%	1.4%
Belgium (Luxembourg)	11.9%	4.4%	1.2%	17.4%
Czech Rep. (Slovakia)	0.8%	0.3%	0.1%	1.2%
Denmark	1.0%	0.4%	0.3%	1.6%
Estonia	0.1%	0.0%	0.0%	0.2%
Finland	1.1%	0.2%	0.1%	1.4%
France	6.5%	1.2%	1.1%	8.7%
Germany	20.0%	3.4%	2.6%	26.0%
Hungary	0.2%	0.1%	0.0%	0.3%
Ireland	1.3%	0.2%	0.1%	1.7%
Latvia	0.6%	0.1%	0.1%	0.7%
Lithuania	1.0%	0.1%	0.1%	1.2%
Netherlands	11.5%	2.5%	1.8%	15.8%
Norway	0.7%	0.2%	0.1%	1.1%
Poland	2.1%	0.2%	0.4%	2.7%
Sweden	2.4%	0.4%	0.4%	3.2%
Switzerland	0.8%	0.2%	0.1%	1.1%
United Kingdom	10.6%	2.3%	1.5%	14.4%
<b>Total 2009</b>	<b>73.7%</b>	<b>16.1%</b>	<b>10.2%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-13e US/North Europe Trade  
Container Volume and Market Share  
by North European Country and US Port Range**

2010 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Austria	18,890	2,717	2,180	23,787
Belgium (Luxembourg)	357,476	126,694	33,098	517,268
Czech Rep. (Slovakia)	21,250	5,996	2,877	30,123
Denmark	24,636	7,125	5,912	37,673
Estonia	4,329	407	440	5,176
Finland	30,265	3,882	2,927	37,074
France	168,700	29,159	28,385	226,244
Germany	549,738	91,112	73,321	714,171
Hungary	6,019	2,489	1,037	9,545
Ireland	32,253	4,526	3,972	40,751
Latvia	10,646	1,724	1,483	13,853
Lithuania	27,139	4,782	2,929	34,850
Netherlands	301,304	62,265	49,113	412,682
Norway	18,477	4,275	3,570	26,322
Poland	49,629	6,252	10,207	66,088
Sweden	65,650	9,444	10,669	85,763
Switzerland	9,877	1,035	1,057	11,969
United Kingdom	277,511	61,025	45,194	383,730
<b>Total 2010</b>	<b>1,973,789</b>	<b>424,909</b>	<b>278,371</b>	<b>2,677,069</b>

2010 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Austria	0.7%	0.1%	0.1%	0.9%
Belgium (Luxembourg)	13.4%	4.7%	1.2%	19.3%
Czech Rep. (Slovakia)	0.8%	0.2%	0.1%	1.1%
Denmark	0.9%	0.3%	0.2%	1.4%
Estonia	0.2%	0.0%	0.0%	0.2%
Finland	1.1%	0.1%	0.1%	1.4%
France	6.3%	1.1%	1.1%	8.5%
Germany	20.5%	3.4%	2.7%	26.7%
Hungary	0.2%	0.1%	0.0%	0.4%
Ireland	1.2%	0.2%	0.1%	1.5%
Latvia	0.4%	0.1%	0.1%	0.5%
Lithuania	1.0%	0.2%	0.1%	1.3%
Netherlands	11.3%	2.3%	1.8%	15.4%
Norway	0.7%	0.2%	0.1%	1.0%
Poland	1.9%	0.2%	0.4%	2.5%
Sweden	2.5%	0.4%	0.4%	3.2%
Switzerland	0.4%	0.0%	0.0%	0.4%
United Kingdom	10.4%	2.3%	1.7%	14.3%
<b>Total 2010</b>	<b>73.7%</b>	<b>15.9%</b>	<b>10.4%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERS Interactive

### Tables TA-14a-e Top Moving Commodities by Year: Container Exports and Imports between the US and North Europe

On an annual basis for each year of the review period from 2006 through 2010, the tables list in ranking order the top 20 US export container commodities moved outbound to North Europe, and the top 20 import container commodities moved inbound to the US from North Europe. The top commodities are ranked from largest to smallest based on the number of annual containers moved in TEUs in each trade direction. The tables also give the percent of the annual number of each top commodity as a function of the total number of containers moved in each corresponding direction of the trade. The tables show the types and extent of commodities that accounted for the majority of container cargo in each trade direction based on foreign and domestic consumer demand. Over the review period, the tables show any change in the mix, ranking, and number of the top container commodities that moved in the trade as affected by changes in consumer demand and other market factors. PIERS is the source of the container cargo data.

#### TA-14a US/North Europe Trade Top Moving Container Export and Import Commodities by Year

2006 US to North Europe				2006 North Europe to US		
Rank	Commodity	2006 TEUs	PCT	Commodity	2006 TEUs	PCT
1	Automobiles	92,953	8%	Beer & Ale	177,837	10%
2	Wood Pulp	74,430	6%	Auto Parts	102,284	6%
3	Paper & Paperboard, Incl Waste	64,943	5%	Paper & Paperboard, Incl Waste	77,508	4%
4	General Cargo, Misc	47,980	4%	Furniture	74,538	4%
5	Auto Parts	46,145	4%	General Cargo, Misc	65,425	4%
6	Synthetic Resins, NSPF	35,907	3%	Non Alcoholic Beverages	49,506	3%
7	Logs & Lumber	31,524	3%	Household Goods	41,607	2%
8	Household Goods	24,310	2%	Auto & Truck Tire & Tubes	35,388	2%
9	Plastic Prods, Misc	22,735	2%	Glassware	32,655	2%
10	Medical Equip & Supplies	21,847	2%	Machnry Misc, Casette Players	30,465	2%
11	Rubber, Synthetic	20,670	2%	Still Wines	27,980	2%
12	Machnry Misc, Casette Players	20,304	2%	Woodenware, Misc.	25,449	1%
13	Edible Nuts	19,586	2%	Plastic Prods, Misc	23,330	1%
14	Lawn & Garden Equip	18,270	1%	Engines, Motors, & Parts	21,215	1%
15	Unclassifiable Chemicals	18,057	1%	Machinery Parts, Misc	20,983	1%
16	Still Wines	17,799	1%	Synth Resins & Plastics	20,426	1%
17	Synth Resins & Plastics	16,868	1%	Candy, Jam, Confections	19,796	1%
18	Auto & Truck Tire & Tubes	15,001	1%	Construction & Bldg Equip	19,262	1%
19	Empty Containers, Drums Etc.	14,356	1%	Logs & Lumber	18,509	1%
20	Tobacco	13,309	1%	Trucks, Lifts, & Parts	17,429	1%
All Other		593,993	48%	All Other	873,920	49%
<b>Total 2006</b>		<b>1,230,986</b>	<b>100%</b>	<b>Total 2006</b>	<b>1,775,513</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-14b US/North Europe Trade**  
**Top Moving Container Export and Import Commodities by Year**

2007 US to North Europe				2007 North Europe to US		
Rank	Commodity	2007 TEUs	PCT	Commodity	2007 TEUs	PCT
1	Automobiles	157,327	11%	Beer & Ale	183,550	11%
2	Wood Pulp	76,855	5%	Auto Parts	95,696	6%
3	Paper & Paperboard, Incl Waste	75,082	5%	Non Alcoholic Beverages	71,584	4%
4	General Cargo, Misc	64,415	4%	Furniture	68,135	4%
5	Synthetic Resins, NSPF	50,023	3%	Paper & Paperboard, Incl Waste	65,483	4%
6	Auto Parts	47,825	3%	General Cargo, Misc	58,840	3%
7	Logs & Lumber	30,790	2%	Household Goods	43,493	3%
8	Household Goods	30,238	2%	Auto & Truck Tire & Tubes	31,817	2%
9	Unclassifiable Chemicals	26,123	2%	Machnry Misc, Casette Players	31,263	2%
10	Rubber, Synthetic	25,910	2%	Glassware	29,959	2%
11	Medical Equip & Supplies	25,038	2%	Still Wines	24,899	1%
12	Plastic Prods, Misc	24,542	2%	Plastic Prods, Misc	23,877	1%
13	Machnry Misc, Casette Players	22,592	2%	Woodenware, Misc.	22,068	1%
14	Still Wines	21,179	1%	Machinery Parts, Misc	20,697	1%
15	Edible Nuts	19,733	1%	Vodka	20,515	1%
16	Lawn & Garden Equip	18,663	1%	Candy, Jam, Confections	19,735	1%
17	Auto & Truck Tire & Tubes	18,575	1%	Medical Equip & Supplies	19,327	1%
18	Synth Resins & Plastics	16,822	1%	Construction & Bldg Equip	18,912	1%
19	Grocery Prods, Misc.	14,739	1%	Engines, Motors, & Parts	18,137	1%
20	Construction & Bldg Equip	13,334	1%	Spirits, Misc.	18,023	1%
All Other		668,012	46%	All Other	832,137	48%
<b>Total 2007</b>		<b>1,447,817</b>	<b>100%</b>	<b>Total 2007</b>	<b>1,718,146</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-14c US/North Europe Trade  
Top Moving Container Export and Import Commodities by Year**

2008 US to North Europe				2008 North Europe to US		
Rank	Commodity	2008 TEUs	PCT	Commodity	2008 TEUs	PCT
1	Automobiles	195,515	13%	Beer & Ale	166,597	10%
2	Paper & Paperboard, Incl Waste	75,226	5%	Auto Parts	90,833	6%
3	Wood Pulp	74,292	5%	Non Alcoholic Beverages	71,683	4%
4	General Cargo, Misc	70,217	5%	Furniture	68,702	4%
5	Auto Parts	52,354	3%	Paper & Paperboard, Incl Waste	58,598	4%
6	Synthetic Resins, NSPF	45,906	3%	General Cargo, Misc	51,328	3%
7	Household Goods	32,735	2%	Household Goods	37,464	2%
8	Unclassifiable Chemicals	32,640	2%	Machnry Misc, Casette Players	30,146	2%
9	Medical Equip & Supplies	27,475	2%	Auto & Truck Tire & Tubes	25,316	2%
10	Logs & Lumber	26,285	2%	Glassware	24,146	2%
11	Plastic Prods, Misc	23,065	2%	Plastic Prods, Misc	23,296	1%
12	Machnry Misc, Casette Players	22,374	1%	Still Wines	21,684	1%
13	Rubber, Synthetic	20,973	1%	Construction & Bldg Equip	21,078	1%
14	Still Wines	19,627	1%	Vodka	20,488	1%
15	Grocery Prods, Misc.	19,626	1%	Medical Equip & Supplies	19,295	1%
16	Auto & Truck Tire & Tubes	19,411	1%	Machinery Parts, Misc	19,157	1%
17	Edible Nuts	19,377	1%	Spirits, Misc.	18,224	1%
18	Tobacco	16,232	1%	Candy, Jam, Confections	17,494	1%
19	Lawn & Garden Equip	16,099	1%	Synth Resins & Plastics	16,467	1%
20	Drilling Mud & Soil Cmp	14,646	1%	Woodenware, Misc.	14,515	1%
All Other		681,817	45%	All Other	781,600	49%
<b>Total 2008</b>		<b>1,505,894</b>	<b>100%</b>	<b>Total 2008</b>	<b>1,598,110</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-14d US/North Europe Trade**  
**Top Moving Container Export and Import Commodities by Year**

2009 US to North Europe				2009 North Europe to US		
Rank	Commodity	2009 TEUs	PCT	Commodity	2009 TEUs	PCT
1	Paper & Paperboard, Incl Waste	70,499	6%	Beer & Ale	148,342	11%
2	Automobiles	67,964	6%	Auto Parts	63,418	5%
3	Wood Pulp	62,994	6%	Non Alcoholic Beverages	57,798	4%
4	General Cargo, Misc	62,680	6%	Furniture	57,746	4%
5	Synthetic Resins, NSPF	35,941	3%	Paper & Paperboard, Incl Waste	50,835	4%
6	Auto Parts	35,397	3%	General Cargo, Misc	36,763	3%
7	Household Goods	30,871	3%	Household Goods	35,869	3%
8	Medical Equip & Supplies	27,846	3%	Vodka	21,049	2%
9	Unclassifiable Chemicals	25,069	2%	Still Wines	20,148	2%
10	Edible Nuts	22,127	2%	Glassware	19,278	1%
11	Logs & Lumber	21,301	2%	Auto & Truck Tire & Tubes	18,708	1%
12	Rubber, Synthetic	18,950	2%	Machnry Misc, Casette Players	18,364	1%
13	Grocery Prods, Misc.	17,332	2%	Medical Equip & Supplies	18,195	1%
14	Still Wines	16,869	2%	Plastic Prods, Misc	17,491	1%
15	Machnry Misc, Casette Players	16,751	2%	Spirits, Misc.	16,608	1%
16	Plastic Prods, Misc	15,691	1%	Candy, Jam, Confections	14,832	1%
17	Auto & Truck Tire & Tubes	11,093	1%	Machinery Parts, Misc	14,820	1%
18	Lawn & Garden Equip	10,556	1%	Synth Resins & Plastics	14,258	1%
19	Tobacco	10,129	1%	Woodenware, Misc.	13,712	1%
20	Titanium Dioxide	9,710	1%	Whiskey & Rum	12,488	1%
All Other		513,961	47%	All Other	624,702	48%
<b>Total 2009</b>		<b>1,103,732</b>	<b>100%</b>	<b>Total 2009</b>	<b>1,295,423</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TA-14e US/North Europe Trade**  
**Top Moving Container Export and Import Commodities by Year**

2010 US to North Europe				2010 North Europe to US		
Rank	Commodity	2010 TEUs	PCT	Commodity	2010 TEUs	PCT
1	Paper&Paperboard, Incl Waste	78,244	6%	Beer & Ale	150,123	10%
2	Wood Pulp	62,225	5%	Auto Parts	80,876	6%
3	Automobiles	61,695	5%	Paper & Paperboard, Incl Waste	64,946	5%
4	General Cargo, Misc	56,827	5%	Furniture	58,203	4%
5	Auto Parts	40,687	3%	Non Alcoholic Beverages	55,169	4%
6	Synthetic Resins, NSPF	36,627	3%	Household Goods	35,442	2%
7	Container Cargo, Mdse	32,528	3%	General Cargo, Misc	25,754	2%
8	Household Goods	31,235	3%	Container Cargo, Mdse	24,425	2%
9	Medical Equip & Supplies	28,712	2%	Still Wines	23,832	2%
10	Unclassifiable Chemicals	26,109	2%	Auto & Truck Tire & Tubes	22,252	2%
11	Edible Nuts	22,190	2%	Glassware	20,930	1%
12	Logs & Lumber	22,062	2%	Vodka	20,202	1%
13	Rubber, Synthetic	22,039	2%	Spirits, Misc.	19,158	1%
14	Plastic Prods, Misc	21,801	2%	Medical Equip & Supplies	18,663	1%
15	Grocery Prods, Misc.	20,158	2%	Synth Resins & Plastics	17,800	1%
16	Lawn & Garden Equip	18,631	2%	Machnry Misc, Casette Players	16,844	1%
17	Still Wines	16,616	1%	Candy, Jam, Confections	16,067	1%
18	Empty Containers, Drums Etc.	14,864	1%	Machinery Parts, Misc	15,465	1%
19	Machnry Misc, Casette Players	14,359	1%	Plastic Prods, Misc	15,378	1%
20	Synth Resins & Plastics	13,047	1%	Woodenware, Misc.	14,078	1%
All Other		595,483	48%	All Other	725,322	50%
<b>Total 2010</b>		<b>1,236,137</b>	<b>100%</b>	<b>Total 2010</b>	<b>1,440,929</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERS Interactive

**Table TA-15 Annual Value of Liner Cargo and Average Value per Kilogram (Kg)**

For each year of the review period from 2006 through 2010, the table on the left gives the total value of container exports moved outbound to North Europe, and the total value of container imports moved inbound to the US from North Europe. The value of container cargo is expressed in US dollars. The table also gives the percent of annual growth or decline in the value of container exports and imports from one year to the next over the review period. The table shows the direction of the trade with the highest value of container cargo and any imbalance and change over time in the directional value and growth of container exports and imports.

For each year of the review period from 2006 through 2010, the table on the right gives the value per kilogram (Kg) of container exports that moved outbound to North Europe, and the value per Kg of container imports that moved inbound to the US from North Europe. The figures for each year are derived from the total US dollar value of container exports and imports divided by their total weight in kilograms. The table also gives the percent of annual growth or decline in the value per Kg of container exports and imports from one year to the next over the review period. On a per Kg basis, the table shows the direction of the trade with the highest unit value of container cargo and any change over time. USA Trade Online (US Census Bureau) is the source of the data.

**TA-15 Container Cargo Value by Year  
Trade Between the US and North Europe**

Year	Annual Value of Liner Cargo				Average Value of Liner Cargo per Kg			
	US to N. Europe	Percent Change	N. Europe to US	Percent Change	US to N. Europe	Percent Change	N. Europe to US	Percent Change
2006	\$38,637,979,535	18%	\$75,771,547,805	6%	\$4.13	10%	\$4.62	9%
2007	\$43,274,337,420	12%	\$82,202,506,919	8%	\$4.09	-1%	\$5.19	12%
2008	\$50,129,242,987	16%	\$89,168,524,653	8%	\$4.35	6%	\$5.60	8%
2009	\$36,252,867,297	-28%	\$70,415,975,744	-21%	\$4.39	1%	\$5.50	-2%
2010	\$41,533,561,828	15%	\$79,376,740,068	13%	\$4.21	-4%	\$5.12	-7%

Source: USA Trade Online

## Transatlantic Carrier Conduct

### Table TA-16 Active Agreements in the Trade and their Authorities

The table shows each agreement between shipping lines in the US/North Europe trade that was in effect and on file with the Federal Maritime Commission (“FMC”) in each calendar quarter of the review period from 2006 through 2010. For each agreement, the table gives the FMC number, name, membership, authority, and period of time when the agreement was in effect. The table shows any change in agreement activity among shipping lines in the trade over the review period. The source of data is the FMC.

## Chapter 5

### TA-16 Carrier Agreements Active in the US/North Europe Trade for 2006 through 2010

• The period of time the agreement was in effect and on file with the FMC

Number	Name	Members	Authority	2006				2007				2008				2009				2010			
				1Q	2Q	3Q	4Q																
Conference Agreement																							
10168	New Caribbean Service Rate Agreement	CMA, CSAV, HSud, HL	Rate (binding)	•	•	•																	
10714	Trans-Atlantic American Flag Liner Oper.	APL, Maersk, HL, Amer. Ro/Ro	Rate (binding), Joint SC, Info Ex, Ad hoc Vessel Sharing [removed conf. rate authority for EU on 8/19/2008]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
11375	Trans-Atlantic Conference Agreement	ACL, Maersk, MSC, NYK, OOCL	Rate (binding), Conference SC, Info Ex, Ad hoc Vessel Sharing, Equip. Exchange	•	•	•	•	•	•	•	•	•	•										
Joint Service Agreement																							
11280	Star West Joint Service Agreement	Albion, Overseas	Joint service on rates, sc, Vessels, equipment, sailing schedule, port calls	•																			
11854	Greensea Inc. Joint Service Agreement	Green Chartering, Seatrade	Joint service on rates, sc, Vessels, equipment, sailing schedule, port calls	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
11982	Evergreen Line Joint Service Agreement	Evergreen, Hatsu, Italia	Joint service on rates, sc, Vessels, equipment, sailing schedule, port calls					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Non-Rate Discussion Agreement																							
12048	Container Trade Statistics Agreement	Multiple	Information Exchange															•	•	•	•	•	
12108	World Liner Data Agreement	Multiple	Information Exchange																			•	
Alliance Agreement																							
11602	The Grand Alliance Agreement II	HL, NYK, OOCL	Vessel sharing, capacity, services, port calls, equipment, info. exch.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	





**TA-16 Carrier Agreements Active in the US/North Europe Trade for 2006 through 2010 (continued)**

• The period of time the agreement was in effect and on file with the FMC

Number	Name	Members	Authority	2006				2007				2008				2009				2010			
				1Q	2Q	3Q	4Q																
12068	Grand Alliance/Zim/HSDG Atlantic Space Charter Agreement	HL, NYK, OOCL, HSud, Zim	Vessel sharing, capacity, service, port calls														•	•	•	•	•	•	•
12075	MSC/CMA CGM North Europe-US Atlantic & Gulf Vessel Sharing Agreement	MSC, CMA	Vessel sharing, service															•	•	•	•	•	•
12076	ELJSA/CKYH Vessel Sharing Agreement - Trans Atlantic Express Service	Evergreen, Cosco, KL, YM	Vessel sharing, service															•	•	•	•	•	•
12103	CMA CGM/CSAV Victory Bridge Vessel Sharing Agreement	CMA, CSAV	Vessel sharing, service																		•	•	•
12115	HSDG-CCNI USWC-Europe Vessel Sharing Agreement	HSud, CCNI	Vessel sharing, service																				•
Vessel Sharing Agreement																							
11155	WWL/NYK Atlantic Space Charter and Cooperative Working Agreement	NYK, Wallenius	Vessel sharing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
11523	WWL/Hoegh Autoliners Space Charter Agreement	Hoegh, Wallenius	Vessel sharing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
11687	CCNI/CMA CGM Space Charter Agreement	CCNI, CMA	Vessel sharing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
11723	New World Alliance Facilitation Agreement	APL, Hyundai, MOL	Vessel sharing, capacity	•	•																		
11798	Atlantic Space Charter Agreement	Cosco, CP, HL, KL, NYK, OOCL, PO, YM	Vessel sharing	•																			
11821	MSC/CMA CGM Space Charter Agreement	CMA, MSC	Vessel sharing, capacity	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
11863	CMA CGM/P&O-Hapag-Lloyd Space Charter Agreement	CMA, HL, PO	Vessel sharing	•																			

## Chapter 5

### TA-16 Carrier Agreements Active in the US/North Europe Trade for 2006 through 2010 (continued)

• The period of time the agreement was in effect and on file with the FMC

Number	Name	Members	Authority	2006				2007				2008				2009				2010			
				1Q	2Q	3Q	4Q																
11882	Zim/Coscon Slot Charter Agreement	Cosco, Zim	Vessel sharing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
11912	Dole-HSud Space Charter and Sailing Agreement	Dole, HSud	Vessel sharing, equipment	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
11927	ITS/Hatsu Marine MUS Slot Charter Agreement	Italia, Hatsu	Vessel sharing, equipment	•	•	•	•	•	•														
11928	Maersk Line/HLAG Slot Charter Agreement	HL, Maersk	Vessel sharing [removed N. Europe from scope on 5/18/07]	•	•	•	•	•	•														
11937	MSC/CKY Space Charter Agreement	Cosco, KL, MSC, YM	Vessel sharing	•	•	•	•	•	•	•	•	•											
11994	Maersk Line/HSDG Space Charter Agreement	Maersk, HSud	Vessel sharing					•															
12005	CSCL/CMA CGM Slot Charter and Cross Slot Charter and Swap Agreement Victory Bridge	China, CMA	Vessel sharing							•	•	•	•	•	•	•	•						
12024	K-Line/NYK Atlantic Space Charter	KL, NYK	Vessel sharing									•	•	•	•	•							
12037	Maersk Line CMA CGM Transatlantic Space Charter Agreement	CMA, Maersk	Vessel sharing										•	•	•	•	•	•	•	•	•	•	•
12039	ELJSA/CSCL NUE Slot Charter Agreement	China, Evergreen	Vessel sharing										•	•	•	•	•	•	•	•	•	•	•
12058	Hoegh Autoliner/K-Line Space Charter Agreement	KL, Hoegh	Vessel sharing													•	•	•	•	•	•	•	•
12065	YMUK/CSCL Cross Slot Charter Agreement	YM, China Shipping	Vessel sharing													•	•	•	•	•	•	•	•
12106	HLAG/HSDG Trans-Atlantic Space Charter Agreement	HL, HSud	Vessel sharing																			•	•
12107	HLAG/HMM Trans-Atlantic Space Charter Agreement	HL, Hyundai	Vessel sharing																				•

Source: Federal Maritime Commission, Bureau of Trade Analysis, Agreements Library

## Tables TA-17a-e Liner Services in the Transatlantic Trade

The tables list the liner services offered by shipping lines operating in the US/North Europe trade for each year of the review period from 2006 through 2010. For each liner service in each year, the tables identify the service name, type, shipping lines, frequency, the number of service vessels, the average TEU vessel capacity, the annual TEU operational capacity, and the percent of the market capacity provided by the service. The percent of the market for each service is derived as a function of the total annual amount of operational capacity deployed in the market. The tables show the annual level of liner services and capacity offered by the shipping lines serving the trade and any changes that occurred over the review period. The source of data is Drewry Maritime Research.

**TA-17a Liner Services between the US and North Europe  
As of October 1, 2006**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Ship Size (TEU Capacity)	Annualized Operational Capacity (TEU)	Percent of Market Capacity
PAX	Pendulum: US/Asia/N. Europe	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,712	245,701	7%
ATX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	4	2,923	152,401	5%
GAX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	3,043	158,650	5%
GMX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	3,005	156,689	5%
TA2	Loop	Maersk Line	7	5	4,082	212,868	6%
TA3	Loop	Maersk Line	7	3	2,544	132,634	4%
TA6	Pendulum: US/Australia/N. Europe	Maersk Line	7	11	4,115	214,549	6%
APX	Pendulum: US/Asia/N. Europe	NWA: APL, Hyundai, MOL	7	12	4,432	231,101	7%
N. Atlantic	Loop	MSC	7	4	3,487	181,809	5%
S. Atlantic/Gulf	Loop	MSC	7	6	6,315	329,273	10%
N. Atlantic	Loop	ACL	7	5	1,850	96,464	3%
S. Atlantic/Gulf	Loop	Atlantcargo	10	5	1,000	36,500	1%
Atlantic	Pendulum: US/Australia/N. Europe	CMA CGM, Hapag-Lloyd, Marfret	14	6	2,195	57,235	2%
Liberty Bridge	Loop	CMA CGM, China Shipping	7	4	2,688	140,173	4%
Victory Bridge	Loop	CMA CGM, China Shipping, Evergreen	7	5	2,646	137,949	4%
NEC/NEX	Loop	Evergreen, Zim	7	4	2,283	119,055	4%
TAS1	Loop	Cosco, Hanjin, K Line, Yang Ming	7	4	3,051	159,088	5%
NUE	Pendulum: US/Asia/N. Europe	Evergreen	7	12	4,214	219,730	7%
Trident	Pendulum: US/Australia/N. Europe	Hamburg Sud	14	6	2,108	54,959	2%
N. Atlantic	Loop	ICL	7	4	1,472	76,741	2%
MPS (Pacific)	Loop	Hapag-Lloyd	11	6	2,168	71,938	2%
Atlantic/Pacific	Round-the-World	Norasia, Gold Star	7	13	3,159	164,699	5%
<b>Total</b>						<b>3,350,206</b>	<b>100%</b>

Source: Drewry Container Forecaster, Drewry Maritime Research

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### TA-17b Liner Services between the US and North Europe As of October 1, 2007

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Ship Size (TEU Capacity)	Annualized Operational Capacity (TEU)	Percent of Market Capacity
PAX	Pendulum: US/Asia/N. Europe	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,753	247,823	8%
ATX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	4	2,924	152,466	5%
GAX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	3,237	168,786	5%
GMX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	2,966	154,630	5%
TA2	Loop	Maersk Line	7	5	4,062	211,825	7%
TA3/TP7	Pendulum: US/Asia/N. Europe	Maersk Line	7	12	4,905	255,761	8%
APX	Pendulum: US/Asia/N. Europe	NWA: APL, Hyundai, MOL	7	12	4,578	238,693	8%
N. Atlantic	Loop	MSC	7	4	3,622	188,861	6%
S. Atlantic/Gulf	Loop	MSC	7	6	6,465	337,086	11%
N. Atlantic	Loop	ACL	7	5	1,850	96,464	3%
S. Atlantic/Gulf	Loop	Atlanticargo	10	5	1,000	36,500	1%
Atlantic	Pendulum: US/Australia/N. Europe	CMA CGM, Marfret	14	6	2,289	59,677	2%
Liberty Bridge	Loop	CMA CGM, China Shipping	7	4	2,761	143,979	5%
Victory Bridge	Loop	CMA CGM, China Shipping, Evergreen	7	5	2,730	142,371	5%
NEC/NEX	Loop	Evergreen, Zim	7	4	2,198	114,584	4%
Atlantic	Loop	Cosco, Hanjin, K Line, Yang Ming	7	4	3,043	158,671	5%
NUE	Pendulum: US/Asia/N. Europe	Evergreen	7	12	4,214	219,730	7%
Trident	Pendulum: US/Australia/N. Europe	Hamburg Sud	7	10	2,478	107,653	3%
N. Atlantic	Loop	ICL	7	4	1,519	79,205	3%
<b>Total</b>						<b>3,114,765</b>	<b>100%</b>

Source: Drewry Container Forecaster, Drewry Maritime Research

**TA-17c Liner Services between the US and North Europe  
As of October 1, 2008**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Ship Size (TEU Capacity)	Annualized Operational Capacity (TEU)	Percent of Market Capacity
PAX	Pendulum: US/Asia/N. Europe	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,734	246,836	8%
GAX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	3,237	168,786	6%
GMX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	2,966	154,630	5%
ATX	Loop	GA [Hapag-Lloyd, NYK, OOCL], Zim	7	4	4,214	219,743	7%
TA2	Loop	Maersk Line	7	5	3,965	206,736	7%
TA3/TP7	Pendulum: US/Asia/N. Europe	Maersk Line	7	12	4,934	257,251	9%
APX	Pendulum: US/Asia/N. Europe	NWA: APL, Hyundai, MOL	7	12	4,657	242,851	8%
N. Atlantic	Loop	MSC	7	4	4,928	256,960	9%
S. Atlantic/Gulf	Loop	MSC	7	6	5,150	268,544	9%
N. Atlantic	Loop	ACL	7	5	1,850	96,464	3%
S. Atlantic/Gulf	Loop	Atlanticargo	10	5	1,000	36,500	1%
PAD/NASP	Pendulum: US/Australia/N. Europe	CMA CGM, Marfret	14	6	2,288	59,660	2%
Victory Bridge	Loop	CMA CGM, China Shipping, Evergreen	7	5	2,820	147,053	5%
TAS1/NTA	Loop	Cosco, Hanjin, K Line, Yang Ming	7	4	3,043	158,671	5%
NUE	Pendulum: US/Asia/N. Europe	Evergreen	7	12	4,218	219,965	7%
Trident	Pendulum: US/Australia/N. Europe	Hamburg Sud	7	12	2,825	147,299	5%
N. Atlantic	Loop	ICL	7	4	1,441	75,138	3%
<b>Total</b>						<b>2,963,087</b>	<b>100%</b>

Source: Drewry Container Forecaster, Drewry Maritime Research

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### TA-17d Liner Services between the US and North Europe As of October 1, 2009

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Ship Size (TEU Capacity)	Annualized Operational Capacity (TEU)	Percent of Market Capacity
PAX	Pendulum: US/Asia/N. Europe	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,693	244,694	10%
GAX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	3,237	168,786	7%
GMX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	3,138	163,650	7%
ATX	Loop	GA [Hapag-Lloyd, NYK, OOCL], Zim	7	4	4,249	221,542	9%
TA2	Loop	Maersk Line	7	5	4,062	211,804	8%
TA3/TP7	Pendulum: US/Asia/N. Europe	Maersk Line	7	12	4,963	258,781	10%
APX	Pendulum: US/Asia/N. Europe	NWA: APL, Hyundai, MOL	7	12	4,700	245,050	10%
N. Atlantic	Loop	MSC	7	5	4,019	209,573	8%
S. Atlantic/Gulf	Loop	MSC	7	7	5,217	272,014	11%
N. Atlantic	Loop	ACL	7	5	1,850	96,464	4%
S. Atlantic/Gulf	Loop	Atlantcargo	15	4	1,000	24,333	1%
PAD/NASP	Pendulum: US/Australia/N. Europe	CMA CGM, Marfret	14	6	2,314	60,338	2%
Victory Bridge	Loop	CMA CGM, China Shipping, Evergreen	7	4	2,777	115,830	5%
TAS1/NTA	Loop	CKYH [Cosco, K Line, Yang Ming, Hanjin]	7	2	2,802	73,065	3%
TAE	Loop	CKYH group, Evergreen	7	2	2,783	72,557	3%
N. Atlantic	Loop	ICL	7	4	1,441	75,138	3%
<b>Total</b>						<b>2,513,619</b>	<b>100%</b>

Source: Drewry Container Forecaster, Drewry Maritime Research

**TA-17e Liner Services between the US and North Europe  
As of October 1, 2010**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Ship Size (TEU Capacity)	Annualized Operational Capacity (TEU)	Percent of Market Capacity
PAX	Pendulum: US/Asia/N. Europe	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,693	244,694	10%
GAX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	3,237	168,786	7%
GMX	Loop	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	2,966	154,630	6%
ATX	Loop	Grand Alliance, Zim, Hamburg Sud	7	4	4,613	240,522	10%
AES	Loop	Hapag-Lloyd	7	3	2,757	143,740	6%
TA2	Loop	Maersk Line	7	5	4,062	211,804	9%
APX	Pendulum: US/Asia/N. Europe	NWA: APL, Hyundai, MOL	7	13	4,761	248,256	10%
N. Atlantic	Loop	MSC	7	5	4,818	251,235	10%
Victory Bridge	Loop	MSC, CMA CGM	7	8	6,503	339,078	14%
N. Atlantic	Loop	ACL	7	5	1,850	96,464	4%
S. Atlantic/Gulf	Loop	Atlantcargo	15	4	1,000	24,333	1%
PAD/NASP	Pendulum: US/Australia/N. Europe	CMA CGM, Marfret	14	6	2,344	61,120	3%
TAE	Loop	CKYH group, Evergreen	7	4	2,726	142,128	6%
N. Atlantic	Loop	ICL	7	4	1,850	96,477	4%
<b>Total</b>						<b>2,423,267</b>	<b>100%</b>

Source: Drewry Container Forecaster, Drewry Maritime Research

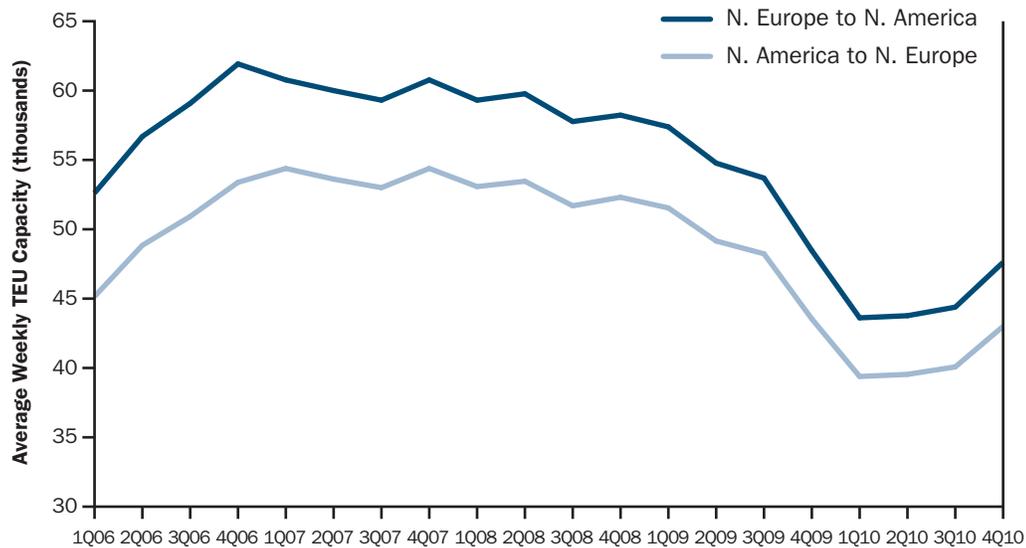
## Chapter 5

### Charts TA-18a-c Changes in Capacity in the Transatlantic Trade

The charts provide trend lines showing the levels of average weekly vessel capacity supplied in each trade direction per quarter for the review period from 2006 through 2010. Chart TA-18a shows the trend line of average weekly capacity in each trade direction over the entire review period; the horizontal axis gives the series of time in quarters from 2006 through 2010, and the vertical axis measures the average weekly amount of vessel capacity supplied for each quarter in TEUs. Charts TA-18b-c compare the levels of average weekly capacity supplied for each year per calendar quarter; the horizontal axis gives the series of time as the four quarters of a single year, and the vertical axis measures the average weekly amount of vessel capacity supplied for each quarter in TEUs. Chart TA-18b compares the levels of capacity in the inbound trade direction, and Chart TA-18c compares the levels of capacity in the outbound trade direction. The source of the data is Drewry Maritime Research.

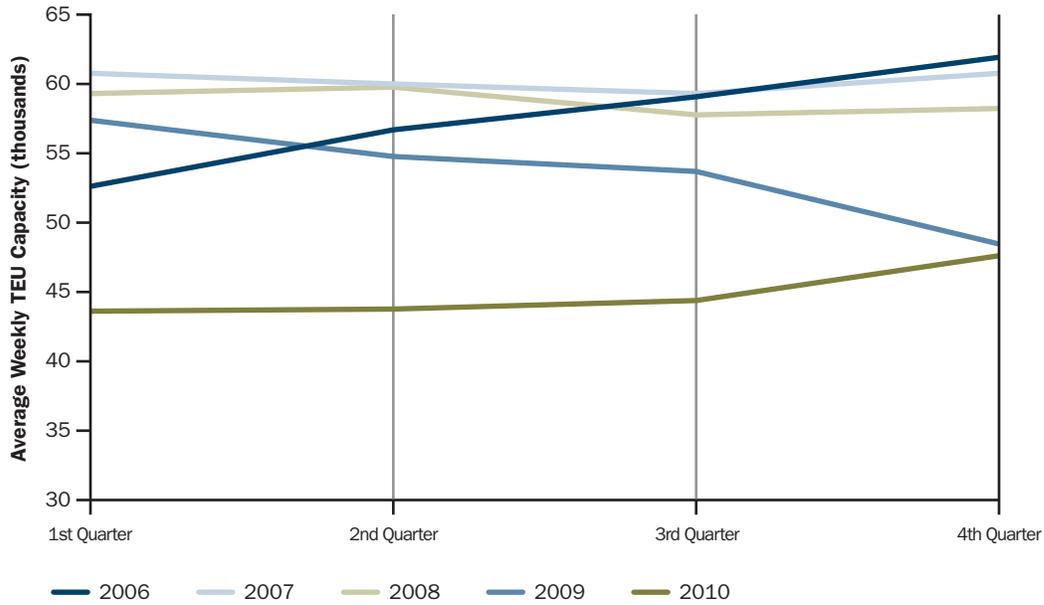
#### TA-18a North America/North Europe Trade Average Weekly Capacity (TEUs)

Source: Container Forecaster, Drewry Maritime Research



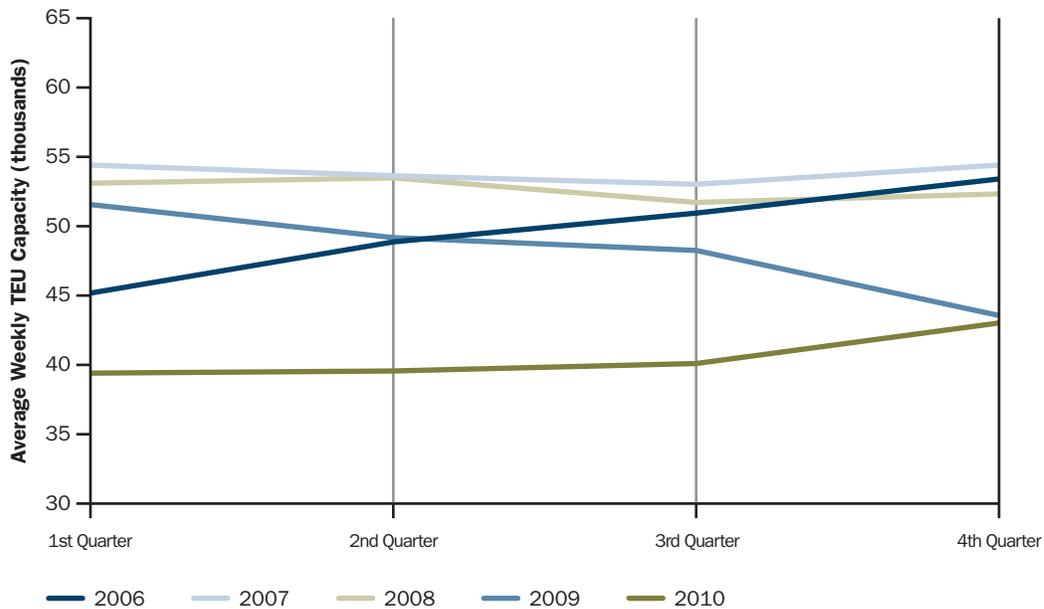
**TA-18b Westbound Capacity from North Europe to North America**

Source: Container Forecaster, Drewry Maritime Research



**TA-18c Eastbound Capacity from North America to North Europe**

Source: Container Forecaster, Drewry Maritime Research



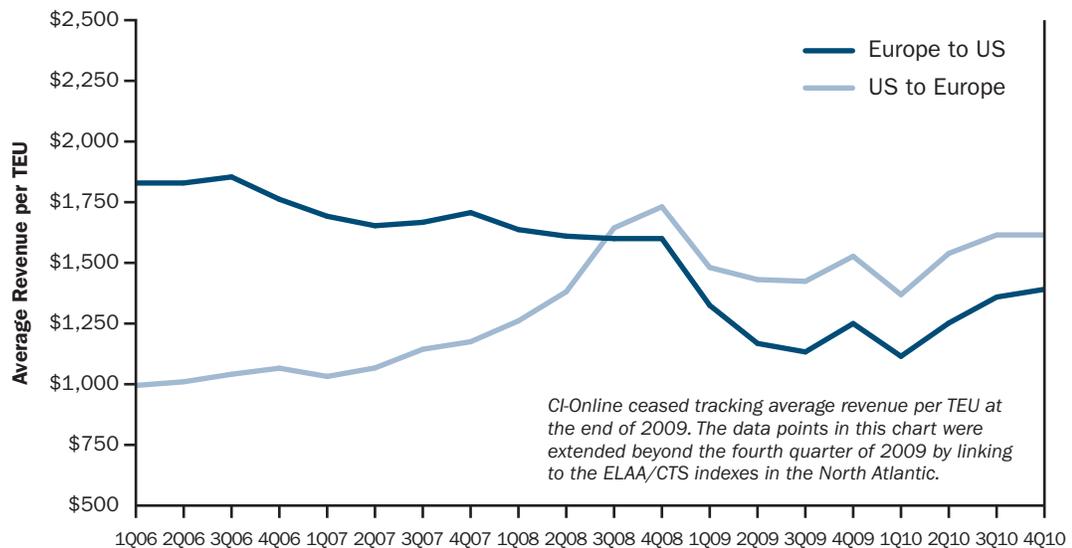
## Transatlantic Economic Performance

Chart TA-19 Quarterly Average Revenue per TEU, Inbound and Outbound

The chart provides trend lines of time series data showing the levels of average revenue per TEU earned by shipping lines in the inbound and outbound directions of the US/North Europe trade for each quarter of the review period from 2006 through 2010. The horizontal axis of the chart gives the time series in calendar quarters over the review period, and the vertical axis measures the average revenue per TEU in US dollars. The average revenue figures are derived from published information and are inclusive of ocean freight, accessorial charges, and any charges for inland haulage. The trend lines throughout the review period show the quarterly change in the average revenue earnings of the shipping lines in each trade direction. The level of earnings and the change over time are a function of the corresponding supply and demand conditions in the trade as affected by market and regulatory factors. The sources of data are Containerisation International, Informa Plc; and Container Trade Statistics, Ltd.

**TA-19 Transatlantic Average Revenue per TEU (all-in)**

Source: Containerisation International/CTS



**Chart TA-20 Average Service Contract Rates,  
Transatlantic (Inclusive of Fuel Charges)**

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the levels of average service contract rates in each direction of the US/North Europe trade. The average contract rate levels are derived from 225 rate observations taken from 211 selected service contracts between major carriers and shippers based on a basket of the top container commodities that moved in each trade direction. In this chart, the contract rates are inclusive of ocean freight, currency adjustment factors (“CAF”), bunker adjustment factors (“BAF”) and all other fuel charges, origin/destination terminal handling charges (“THC”), and some charges for inland haulage. The service contract rates are aggregated and weighted by the total percentage of cargo volume for the entire review period for each of the commodities included in this analysis. The horizontal axis gives the series of time in months over the review period, and the vertical axis measures the average contract rate levels in US dollars per FEU. The trend lines over the review period show the change in the average service contract rates for the selected commodities in each trade direction. The average contract rates and the change over time are a function of the corresponding supply and demand conditions as affected by market and regulatory factors. The source of data is the Federal Maritime Commission.

**TA-20 US/North Europe Trade**  
**Weighted Average Service Contract Ocean Freight Rates\***  
 Source: Federal Maritime Commission, SERVCON



Marshall-Edgeworth Weighting Method  
 \* Inclusive of ocean freight, surcharges and some inland haulage.

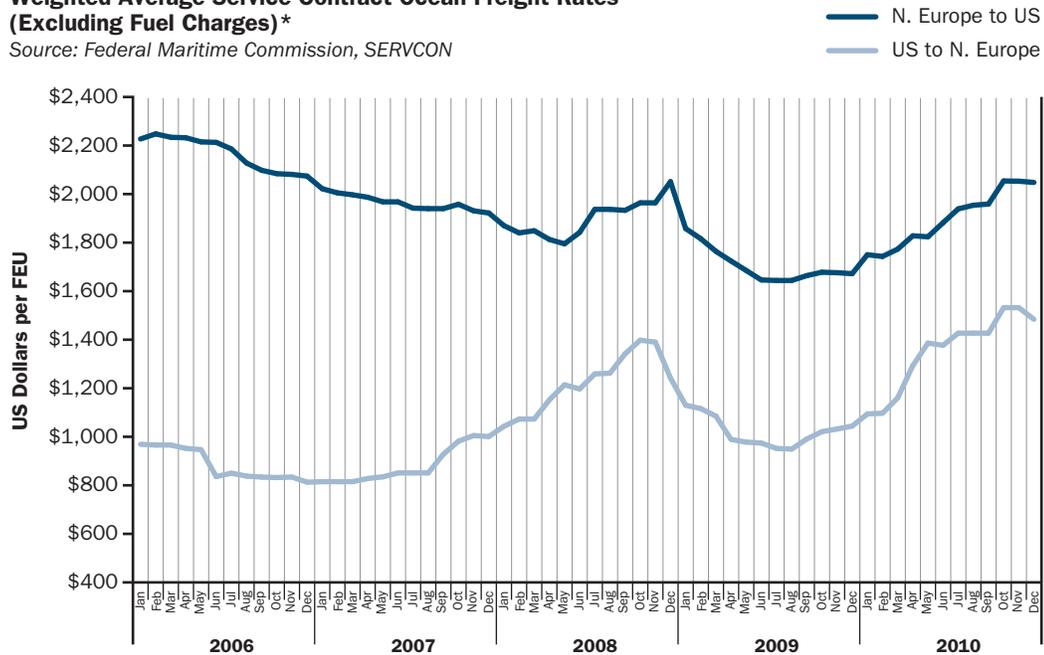
## Chapter 5

### Chart TA-21 Average “Core” Service Contract Rates, Transatlantic (i.e., Exclusive of Fuel Charges that were Assessed as a Separate Charge)

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the average levels of “core” service contract rates in each direction the US/North Europe trade. The average core rates are derived from 225 rate observations taken from 211 selected service contracts between major carriers and shippers based on a basket of the top container commodities that moved in each direction of the trade. In this chart, the core rates include ocean freight, CAF, THC, and some inland haulage charges, but exclude any separately assessed BAF or other fuel charges. Thus, the average rate levels in this chart reflect more of the change in base rates absence the influence of fuel costs. The core rates are aggregated and weighted by the total percentage of cargo volume for the entire review period for each of the commodities included in this analysis. The horizontal axis gives the series of time in months over the review period, and the vertical axis measures the average core rate levels in US dollars per FEU. The trend lines over the review period show the change in the average core, or base, rates in the service contracts of the selected commodities in each trade direction. The source of data is the Federal Maritime Commission.

#### TA-21 US/North Europe Trade Weighted Average Service Contract Ocean Freight Rates (Excluding Fuel Charges)\*

Source: Federal Maritime Commission, SERVCON



Marshall-Edgeworth Weighting Method

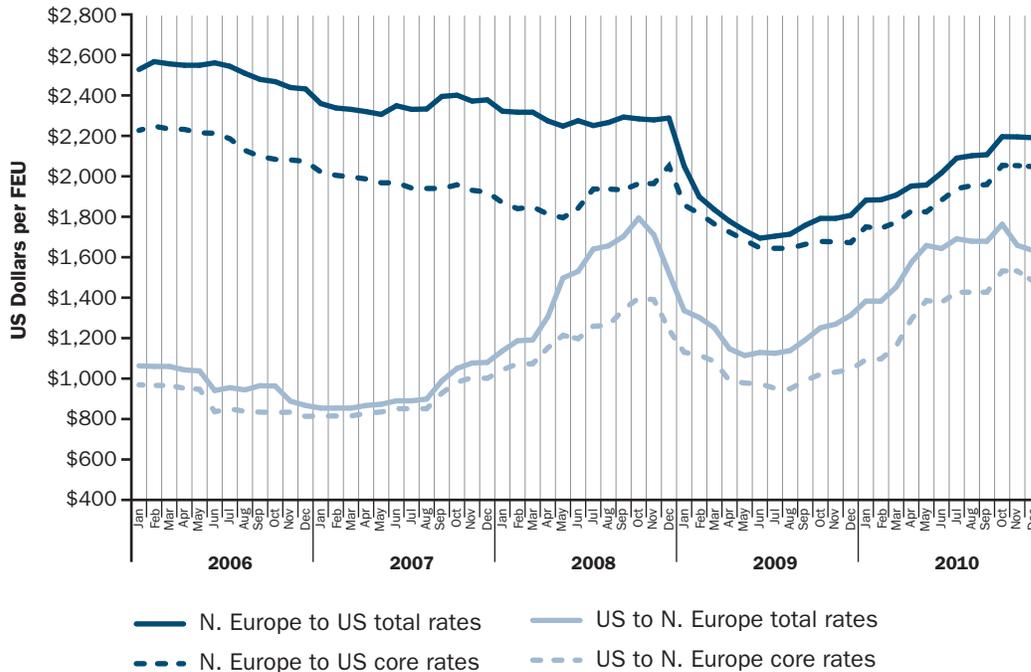
\* The figures represent core ocean freight rates excluding any fuel charges that were assessed as separate charges.

**Chart TA-22 Average Service Contract Rates and Average Core Rates Together, Transatlantic (Showing the Assessment of Fuel Charges)**

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the levels of the average rates, inclusive of fuel charges, and the average core rates, exclusive of fuel charges, in selected service contracts for each direction of the US/North Europe trade. The rates are derived from 225 rate observations taken from 211 selected service contracts between major carriers and shippers based on a basket of the top container commodities that moved in each direction of the trade. Aside from the inclusion or exclusion of fuel charges, the rates include ocean freight, CAF, THC, and some inland haulage charges. Thus, the difference between the trend lines for the average rates and the average core rates shows the extent and assessment of fuel cost for the selected service contracts by trade lane and the change over time. Both sets of rates are aggregated and weighted by the percentage of cargo volume for the entire review period for each of the commodities included in this analysis. The horizontal axis gives the series of time in months over the review period, and the vertical axis measures the average rate levels in US dollars per FEU. The source of the data is the Federal Maritime Commission.

**TA-22 US/North Europe Trade  
Weighted Average Service Contract Ocean Freight Rates  
(Showing Assessment of Fuel Charges)**

Source: Federal Maritime Commission, SERVCON



Marshall-Edgeworth Weighting Method  
Total rates include ocean freight, surcharges and some inland haulage.  
Core rates exclude any fuel charges that were assessed as separate charges.

**Table TA-23 Transatlantic Average Monthly Vessel Utilization, Inbound and Outbound**

For each month of the review period from 2006 through 2010, the table gives the percentage levels of the utilization of vessel capacity for each direction of the US/North Europe trade. The percentage levels are derived by dividing the amount of container cargo moved in each trade direction by the amount of container vessel capacity supplied in each trade direction and multiplying the quotient by 100. The container cargo and vessel capacity are measured in TEUs. The trend in the percentage levels of utilization shows how the supply of, and demand for, vessel space are aligned in each trade lane and the change in utilization over the review period as affected by market conditions and other factors. A higher percentage of utilization indicates that supply and demand are more closely aligned, whereas a lower utilization percentage shows a period of greater excess vessel capacity in the market. The degree to which supply and demand are aligned impacts on the level of freight rates. It would be expected that the trend in rate levels correlates to the trend in utilization levels. Further, the utilization of vessel space provides a general indication of service quality by showing whether shipping lines are deploying vessel space efficiently in relation to demand in the marketplace. The sources of data are PIERS; Containerisation International, Informa Plc; and Drewry Maritime Research.

**TA-23 US/North Europe Capacity Utilization**

	US to N. Europe	N. Europe to US
Jan-06	72%	78%
Feb-06	72%	79%
Mar-06	84%	93%
Apr-06	66%	81%
May-06	81%	89%
Jun-06	72%	87%
Jul-06	69%	86%
Aug-06	66%	76%
Sep-06	65%	72%
Oct-06	71%	76%
Nov-06	67%	73%
Dec-06	63%	68%
Jan-07	67%	66%
Feb-07	66%	65%
Mar-07	81%	81%
Apr-07	81%	80%
May-07	82%	85%
Jun-07	68%	74%
Jul-07	73%	80%
Aug-07	79%	79%
Sep-07	76%	70%
Oct-07	82%	77%
Nov-07	74%	73%
Dec-07	69%	72%
Jan-08	78%	61%
Feb-08	87%	74%
Mar-08	87%	76%
Apr-08	90%	77%
May-08	88%	77%

**TA-23 US/North Europe Capacity Utilization  
(continued)**

	US to N. Europe	N. Europe to US
Jun-08	82%	73%
Jul-08	88%	84%
Aug-08	88%	74%
Sep-08	75%	71%
Oct-08	72%	73%
Nov-08	72%	74%
Dec-08	62%	69%
Jan-09	60%	51%
Feb-09	62%	56%
Mar-09	64%	64%
Apr-09	65%	68%
May-09	61%	58%
Jun-09	63%	66%
Jul-09	61%	67%
Aug-09	65%	63%
Sep-09	88%	85%
Oct-09	80%	78%
Nov-09	80%	77%
Dec-09	79%	78%
Jan-10	78%	72%
Feb-10	81%	76%
Mar-10	103%	95%
Apr-10	92%	94%
May-10	87%	95%
Jun-10	88%	96%
Jul-10	86%	97%
Aug-10	92%	96%
Sep-10	89%	86%
Oct-10	79%	81%
Nov-10	83%	88%
Dec-10	82%	79%

Sources: Federal Maritime Commission, PIERS Interactive; Containerisation International, and Drewry Maritime Research

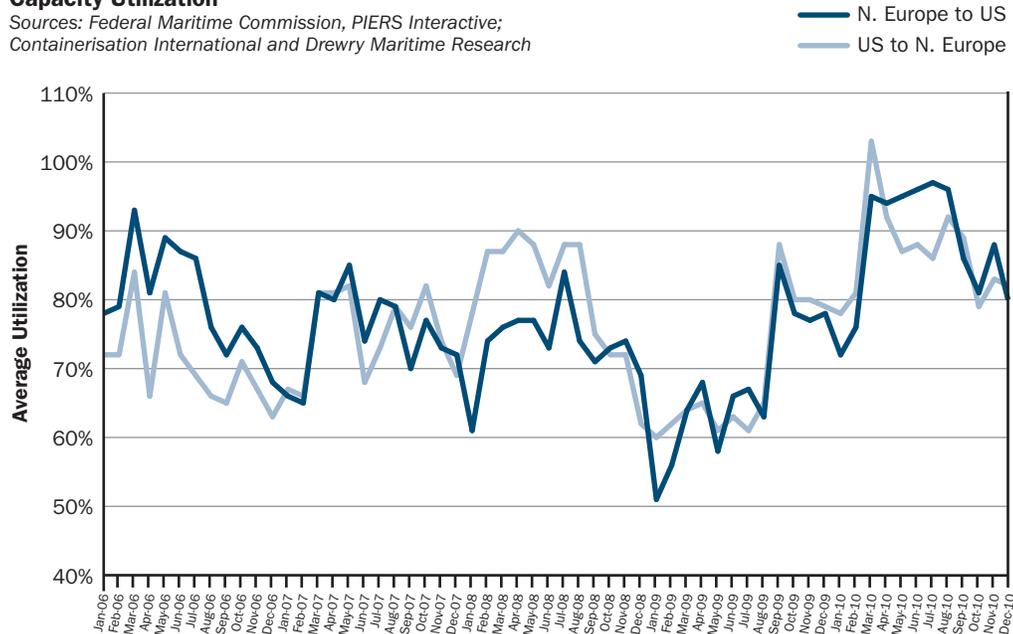
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### Chart TA-24 Transatlantic Average Monthly Vessel Utilization, Inbound and Outbound

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the percentage levels of the utilization of vessel capacity for each direction of the US/North Europe trade. The horizontal axis gives the series of time in months over the review period, and the vertical axis measures the level of vessel capacity utilization as a percentage. The percentage levels are derived by dividing the amount of container cargo moved in each trade direction by the amount of container vessel capacity supplied in each trade direction and multiplying the quotient by 100. The container cargo and vessel capacity are measured in TEUs. The trend line over the time series shows the change in vessel capacity utilization as affected by the change in the market conditions of supply and demand in each trade lane. A higher percentage level of utilization indicates that supply and demand are more closely aligned, whereas a lower percentage level of utilization shows a period of greater excess vessel capacity in the market. A utilization level that exceeds 100 percent indicates a period of time when the demand for vessel space exceeded the supply of vessel space. The degree to which supply and demand are aligned impacts on the level of freight rates. It would be expected that the trend in rate levels correlates to the trend in utilization levels. Further, the utilization of vessel space provides a general indication of service quality by showing whether shipping lines are deploying vessel space efficiently in relation to demand in the marketplace. The sources of data are PIERIS; Containerisation International, Informa Plc; and Drewry Maritime Research.

#### TA-24 US/North Europe Capacity Utilization

Sources: Federal Maritime Commission, PIERIS Interactive;  
Containerisation International and Drewry Maritime Research



**Table TA-25 Market Share Instability Index**

The table gives, in the form of a market share instability index (“MSII”), the total change in market share of the participating shipping lines in the US/North Europe trade from one time period to the next for the review period from 2006 through 2010. The MSII for the entire trade is the sum of the absolute values of the change in the percentages of market share of the individual shipping lines that occurred from one period to the next. The percentage of market share for each shipping line is derived from its total container carriage in the trade for the given period. The amount of total container carriage for each shipping line is combined to include imports and exports measured in TEUs. A high value of MSII indicates that a high portion of the market shifted among the shipping lines in the trade for a given time. The source of data is PIERS.

**TA-25 US/North Europe  
Market Share Instability Index**

Shipping Line	2006 TEUs	2007 TEUs	2008 TEUs	2009 TEUs	2010 TEUs
Hapag-Lloyd	2.4%	0.6%	0.3%	1.8%	0.0%
Maersk	2.7%	0.9%	0.8%	0.6%	3.2%
Mediterranean Shipping Company	3.4%	0.4%	0.1%	1.3%	6.4%
Evergreen Line	0.7%	0.1%	0.7%	1.9%	2.4%
American President Lines	0.2%	0.6%	0.4%	1.0%	0.7%
Orient Overseas Container Line	0.4%	0.3%	1.4%	1.2%	0.6%
Atlantic Container Line	0.3%	0.2%	0.7%	0.4%	0.2%
NYK Line	0.4%	0.2%	0.6%	0.4%	0.0%
Independent Container Line	0.4%	0.2%	0.1%	0.0%	0.8%
Mitsui OSK Line	0.5%	0.1%	0.1%	0.2%	0.1%
Atlantic Cargo Shipping	0.4%	0.4%	0.5%	0.8%	0.3%
K Line	0.2%	0.2%	0.5%	0.4%	0.3%
China Ocean Shipping	0.5%	0.2%	0.4%	0.6%	0.3%
Hanjin	0.2%	0.4%	0.3%	0.1%	0.5%
Norasia Line	0.0%	2.3%	0.0%	0.0%	0.0%
Yang Ming Line	0.1%	0.1%	0.3%	0.3%	0.1%
Hyundai Merchant Marine	0.0%	0.1%	0.0%	0.1%	0.0%
CMA CGM	1.8%	0.7%	0.2%	0.7%	0.2%
Zim Container Line	0.2%	1.0%	0.5%	0.5%	0.1%
China Shipping Container Lines	1.9%	1.5%	1.9%	0.8%	1.1%
CSAV	0.1%	0.0%	0.0%	0.0%	0.4%
Hamburg Sud	0.7%	1.1%	1.0%	0.7%	1.4%
Marfret	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total Market Share Instability Index</b>	<b>17.4%</b>	<b>11.6%</b>	<b>10.9%</b>	<b>13.7%</b>	<b>19.3%</b>

Source: Federal Maritime Commission, PIERS Interactive

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**Table TA-26 Profitability**

The table gives a summary of the responses to question 26 of the Commission's Notice of Inquiry (NOI) issued November 1, 2010, *An Analysis of the European Union Repeal of the Liner Conference Block Exemption*. Question 26 of the NOI requested that shipping lines compare the profitability of their operations in three trade lanes for the review period, and for each year, identify the most and least profitable of the three trade lanes. The specific trade lanes are: (1) from the Far East to the US, (2) from the Far East to Europe, and (3) from North Europe to the US. The table shows that in 2006, a majority of respondents identified the North Europe/US lane as the most profitable and the Far East/US lane as the least profitable, on a relative basis. By 2010, of the three trade lanes, the Far East/Europe lane was identified by a majority of respondents as the most profitable and the North Europe/US as the least profitable. The decline in profitability in the trade lane from North Europe to the US over the review period corresponds to the decline in the level of freight rates in the trade lane from 2006 to 2010.

**TA-26 Analysis of Q26 Responses to the NOI**

	North Europe/US	Far East/Europe	Far East/US
2006	Most Profitable	·	Least Profitable
2007	·	Most Profitable	Least Profitable
2008	Least Profitable	Most Profitable	·
2009	Most Profitable	Least Profitable	·
2010	Least Profitable	Most Profitable	·

## Far East/Europe

### Background

This section provides a summary discussion of the market characteristics of the liner shipping industry and the agreement activity of carriers operating between the EU and the Far East at the time of the repeal and thereafter. As in the transatlantic, the repeal directly impacted the shipping trades between the EU and the Far East by eliminating all forms of conference and price fixing agreements between ocean carriers. Similar to the transatlantic trade, the geographic market of liner services is divided into two separate and non-substitutable trade lanes between North Europe and South Europe in the Mediterranean region. This study focuses on the major trade lane between North Europe and the Far East.

In 2010, as the largest liner shipping trade in the EU, the Far East/North Europe trade accounted for 63 percent of the total container imports that moved inbound (westbound) to the EU, and 35 percent of the total container exports that moved outbound (eastbound) from the EU. In terms of vessel capacity, the trade is the second largest in the world with about half the amount of the vessel capacity that is deployed in the intra-Asia market and slightly more than the amount deployed in the transpacific market. It was determined from an analysis of the NOI responses that on average the liner services of the carriers in the trade accounted for around 24 percent of their total revenue earnings. In addition, by 2010, the trade lane from the Far East to Europe was identified as the most profitable relative to the two other trade lanes examined.

Within the Far East, China is by far the largest trading nation of container cargo with the EU, followed by Singapore, Hong Kong, Malaysia, Japan, and South Korea. By region, nearly 75 percent of the total container cargo in the trade moves through Northeast Asia while the remaining 25 percent moves through Southeast Asia. The top Far East ports in the trade include, Shanghai (China), Singapore, Hong Kong, Shenzhen (China), and Pusan (South Korea). In North Europe, the largest portion of container cargo in the trade is handled through Rotterdam (the Netherlands), Antwerp (Belgium), Hamburg (Germany), and Bremerhaven (Germany).

As noted, container cargo moving westbound from the Far East to North Europe constitutes the headhaul trade lane in quantity and revenue. Usually, the volume of container cargo moving westbound tends to peak in the third and early fourth quarter of each year as retailers in Europe prepare for the holiday season. In response, carriers serving the trade deploy additional vessel capacity from June through October to accommodate the surge in demand. Major container commodities moving westbound to North Europe include electronics, furniture, toys, apparel, and footwear. In the eastbound direction to the Far East, major commodities from North Europe include wood pulp, plastics, wastepaper, scrap metal, beverages, and chemicals. It appears from the NOI responses that the average amount of container cargo in the trade shipped by NVOCCs was around 55 percent of the total in 2010, while BCOs accounted for the remaining 45 percent.

Carriers serving the westbound trade lane have integrated the practice of slow-steaming their vessels into most of their service loops in response to the rise in fuel prices. Prior to 2007, the majority of service loops in the trade lane ran at durations of eight weeks. Currently, the typical duration of a service loop has increased to ten weeks.

In contrast to the US/Far East trade, significantly more container cargo moves under short-term freight rate agreements (three months or less) and spot rates. Based on an analysis of the NOI responses, it appears that on average 54 percent of container cargo in the Far East/Europe trade moved under short-term rate agreements. This pricing structure may lead

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to greater rate volatility where the pricing of ocean freight fluctuates on a more immediate and extreme basis in response to short term market conditions.

Until the repeal, carriers were able to issue collective announcements on rate increases and surcharges under the Far Eastern Freight Conference (“FEFC”). Formed in 1879, the FEFC was one of the oldest conference agreements in operation when the block exemption was repealed in October 2008. At that time, the membership in FEFC included 17 carriers with a combined market share of 72 percent of the total vessel capacity deployed in the trade.<sup>1</sup>

Similar to TACA, the FEFC became embroiled in legal disputes and litigation with the EC and the European Courts. While powerful in the past, the authority of the members in FEFC to regulate pricing in the trade had diminished considerably in the latter years of the conference. As with TACA, the EC imposed restrictions on the authority of the FEFC members to discuss confidential rate agreements, or to police and enforce adherence to conference rates. As such, the announcements of rates increases and surcharges served as recommended directives for carriers to follow. Rate announcements by the FEFC were established and issued under sub-agreements. In the westbound direction, the Asia Westbound Rate Agreement issued rate announcements at quarterly intervals covering the geographic scope from the Far East, excluding Japan,<sup>2</sup> to North Europe. In the eastbound direction, the Eastbound Management Agreement issued rate announcements sporadically for specific commodities or freight-all-kinds (FAK). The conference continued to operate until October 17, 2008, the day before the repeal took effect.

As in the US, all of the three major alliance groups operate in the Far East/North Europe trade. In addition, numerous carriers coordinate their services or charter space with the alliances in the trade; these include CMA CGM, Yang Ming, APL, Hyundai, MOL, Zim, and Evergreen Line. In 2010, the amount of vessel capacity deployed under these agreements accounted for 73.4 percent of the total capacity in the trade (see Table AE-10).

### Commentary

This section provides comments on the market conditions and the activities of carriers in the Far East/North Europe trade for the review period from 2006 through 2010, which provides a span of time to assess the trade prior to and after the repeal of the block exemption by the EU. As noted, the repeal directly impacted the trade by terminating the FEFC.

In general, as globalization has advanced, the trade in containerized commodities between the Far East and North Europe has grown relatively strongly, with a particularly rapid acceleration throughout 2006 and most of 2007 (see Charts AE-2 and AE-4). After peaking in late 2007, the rapid growth in imports to North Europe from the Far East subsided and went into a steep decline. This decline bottomed out in first quarter 2009 and a recovery began at the end of 2009, gaining momentum until third quarter 2010. Throughout the pre-repeal period, exports from North Europe to the Far East expanded slowly. They suffered a short but relatively shallow decline in late 2008, followed by a quick recovery. After peaking in mid-2009, container exports to the Far East went into decline.

By mid-2009, as exports from North Europe were peaking, import cargo had fallen off to such an extent that container exports in tonnage terms from North Europe to the Far East exceeded container imports. This situation lasted through early 2010 (see Chart AE-4).<sup>3</sup>

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1 The members of FEFC were ANL Container Lines Pty Ltd., APL Co. Pte Ltd., CMA CGM, CSAV Norasia, Egyptian Intl. Shipping Co., Hapag-Lloyd, Hyundai Merchant Marine, K Line, Maersk Line, MISC Berhad, MOL, MSC, NYK, OOCL, Safmarine, Yang Ming, and Zim.

2 In the westbound trade lane from Japan to Europe, a separate conference operated, known as the Japan Europe Freight Conference, which issued rate announcements for contract periods of six and twelve month intervals.

3 A similar situation prevailed in the Far East/US trade during this same time.

The imbalance ratio in this trade varies from about 1.7 to 2.3 depending on the time of year. During the peak season in the trade, for example, over two TEUs are imported from the Far East for every one TEU exported (see Table AE-5).

In terms of the geographic distribution of cargo in the trade, the container trade with China grew from a share of 34 percent in 2006 to 42 percent in 2010 (see Tables AE-13a and AE-13e). However, container cargo shares declined among other Far East nations, including Singapore, from 16 percent in 2006 to 12 percent in 2010; Hong Kong, from nine percent in 2006 to eight percent in 2010; and Japan, from six percent in 2006 to four percent in 2010 (see Tables AE-13a and AE-13e).

The top moving commodities in each direction of the trade have remained comparatively stable over the period (see Table AE-14). The top 20 export commodities from North Europe account for over 80 percent of all movements by weight; the respective figure for the top 20 import commodities is about 75 percent. Except for the recession-impacted year of 2009, the total annual value of liner export cargo from North Europe to the Far East and the average unit value of that cargo were increasing strongly, as was the total annual value of liner imports to North Europe from the Far East (see Table AE-15). The average unit value of liner imports, however, showed no clear trend.

The extent of entry and exit by carriers in the trade was sporadic and modest (see Table AE-11). A few small carriers entered the trade and exited soon thereafter during the course of the recession. Likewise, other carriers exited the trade during the recessionary period only to re-enter in 2010. MISC, however, permanently exited the trade due to the recession.

With a contraction in services (see Tables AE-17a-e), and an increase in cooperative operational arrangements (see Table AE-16), market concentration in the trade increased over the review period only modestly. In 2006, the top four carriers with the highest shares of capacity in this trade had a concentration ratio (“CR4”) of 41 percent and included in ranking order Maersk Line, COSCO, MSC, and Hanjin (see Table AE-7a). In 2010, the CR4 increased to 48 percent and included in ranking order Maersk Line, CMA CGM, MSC, and COSCO (see Table AE-7e). Market concentration as measured by the Herfindahl-Hirschman Index (“HHI”) increased from 808 in 2006 to 924 in 2010 (see Chart AE-8).<sup>4</sup> Maersk Line remained the largest carrier in the trade throughout the entire period, providing over 20 percent of the annual capacity deployed (see Table AE-9). MSC and CMA CGM obtained noteworthy gains in their share of trade capacity over the study period.

Trade capacity expanded unrelentingly in the Far East/North Europe trade all the way through to third quarter 2008 but, even so, was barely able to keep pace with demand until the latter began to soften in late 2007. Consequently, capacity utilization, which had been high and rising throughout 2006 and most of 2007, began to fall through all of 2008 and reached its lowest point in first quarter 2009 (see Table AE-20 or Chart AE-21). In response to this deteriorating situation, carriers withdrew capacity (see Chart AE-18). As third quarter 2009 began, average weekly capacity was almost 20 percent lower than it had been just one year earlier. Capacity stayed more or less flat for over a year but began being reintroduced in the last half of 2010 at a fairly brisk pace.

Average revenue per TEU broadly paralleled the vicissitudes of capacity utilization in the headhaul direction of the trade although the amplitude of the swings in average revenue far exceeded that of average capacity utilization (see Chart AE-19). With average capacity utilization in the high-90s, average revenue in the headhaul direction of the Far East/North

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<sup>4</sup> The 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as unconcentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 as highly concentrated.

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Europe trade peaked at over \$2,000 per TEU entering the fourth quarter 2007. From the end of that year through mid-2009, average revenue fell sharply as carriers struggled to remove capacity at a pace in keeping with rapidly declining demand and as competition for the cargo that remained intensified. Average revenue decreased for roughly 18 months, bottoming out in mid-2009 at well under \$1,000 per TEU. At that point, average revenue turned sharply upward for the next eight months and, by first quarter 2010, had matched levels last seen in fourth quarter 2007.<sup>5</sup> At such comparatively high levels of average revenue, capacity quickly began coming back into the trade during the second half of 2010. Average revenue declined during this time in response to growing excess capacity in the trade.

In the backhaul trade from North Europe to the Far East, average revenue per TEU was fairly stable throughout 2006 and most of 2007 but then began to increase until the end of 2008, mostly in response to the rising price of bunker fuel. A strong recovery in backhaul rates occurred at the same time as rate recovery in the headhaul direction (from mid-2009 through mid-2010) prompted by a strong showing in exports from Europe and rising average capacity utilization rates that were helped along by capacity having been kept more or less at the same level during this time.

The remainder of this section consists of a series of tables and charts that track and describe changes between 2006 and 2010 in various aspects of market structure, carrier conduct, and economic performance in the Far East/Europe trade.

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<sup>5</sup> It is worth noting that the 2010 revenue recovery by carriers in the Far East/North Europe trade occurred more quickly than the recovery in the Far East/US trade – within eight months rather than 12 months.

## Asia/Europe Market Structure

Table AE-1 Quarterly TEU Cargo Volume

For each quarter of the review period from 2006 through 2010, the table provides time series data showing by trade direction the total number of North Europe container exports that moved outbound to Asia, and the total number of container imports that moved inbound to North Europe from Asia. The container imports and exports are measured in TEUs. The trend in the number of the containers moved over the time series shows the extent of cargo growth and seasonality in each trade direction based on the foreign and domestic consumer demand for container exports and imports, which affects the demand and price of the liner shipping services in the trade. Further, the number of containers moved inbound and outbound identifies the headhaul and backhaul directions of the trade, and the extent of any imbalance in the directional flow of container cargo. The source of the container cargo data is Eurostat.

**AE-1 Asia/North Europe Trade  
Quarterly Cargo Volume in TEUs**

	Asia to N. Europe	N. Europe to Asia
1Q06	1,735,926	1,006,754
2Q06	1,888,148	1,072,515
3Q06	2,079,751	1,082,695
4Q06	2,084,530	1,130,143
1Q07	2,092,836	1,124,785
2Q07	2,266,103	1,141,143
3Q07	2,539,214	1,105,768
4Q07	2,339,661	1,095,373
1Q08	2,253,278	1,118,141
2Q08	2,278,307	1,204,898
3Q08	2,427,506	1,133,858
4Q08	2,142,707	965,283
1Q09	1,883,755	951,005
2Q09	1,900,068	1,193,918
3Q09	2,005,146	1,227,101
4Q09	1,982,071	1,193,420
1Q10	2,122,067	1,112,341
2Q10	2,232,098	1,133,848
3Q10	2,517,504	1,029,319
4Q10	2,310,642	1,055,249

Source: Eurostat

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Chart AE-2 Quarterly TEU Cargo Volume

For each quarter of the review period from 2006 through 2010, the chart shows trends in the actual import and export container cargo loads in each direction of the Asia/North Europe trade. The horizontal axis of the chart gives the series of time in quarters over the review period, and the vertical axis measures container cargo loads in thousands of TEUs. The trend lines show the extent of growth, seasonality, and change that occurred over the review period in the consumer demand for container imports and exports in the trade. In turn, the extent of container cargo growth, or a serious reduction in container cargo volume due to a contraction in demand, directly affects the price of liner shipping service in the trade. Further, the trend lines of container imports and exports identify the headhaul and the backhaul directions of the trade, and any imbalance and change over time in the directional flow of cargo. The source of the container cargo data is Eurostat.

### AE-2 Asia/North Europe Trade Loaded TEUs by Quarter

Source: Eurostat



**Table AE-3 Quarterly Metric Tons of Container Cargo**

For each quarter of the review period from 2006 through 2010, the table provides the total weight of the container exports that moved outbound from North Europe to Asia, and the total weight of the container imports that moved inbound to North Europe from Asia, measured in metric tons. The trend in the metric tons of container cargo moved over the time series is an indication of the extent of cargo growth and seasonality in each trade direction based on the foreign and domestic demand for container exports and imports. The trend in the data also shows the extent of any weight imbalance in the directional flow of container cargo in the trade. The weight of the cargo moving in a trade lane can affect the utilization of vessel capacity and impose draft limitations on containerships. The source of the container cargo volume data is Eurostat.

**AE-3 Asia/North Europe Trade  
Quarterly Cargo Volume  
Containerized Metric Tons**

	Asia to N. Europe	N. Europe to Asia
1Q06	12,497,000	11,752,000
2Q06	14,027,000	12,380,000
3Q06	14,898,000	12,181,000
4Q06	15,257,000	13,047,000
1Q07	16,007,000	13,083,000
2Q07	16,995,000	13,180,000
3Q07	18,251,000	12,579,000
4Q07	16,746,000	12,609,000
1Q08	16,509,000	12,979,000
2Q08	17,420,000	13,810,000
3Q08	17,639,000	13,120,000
4Q08	15,613,000	10,767,000
1Q09	13,047,000	10,910,000
2Q09	13,272,000	14,503,000
3Q09	13,111,000	14,583,000
4Q09	13,534,000	13,922,000
1Q10	13,898,000	12,849,000
2Q10	15,145,000	12,941,000
3Q10	16,853,000	11,871,000
4Q10	15,621,000	11,984,000

Source: Eurostat

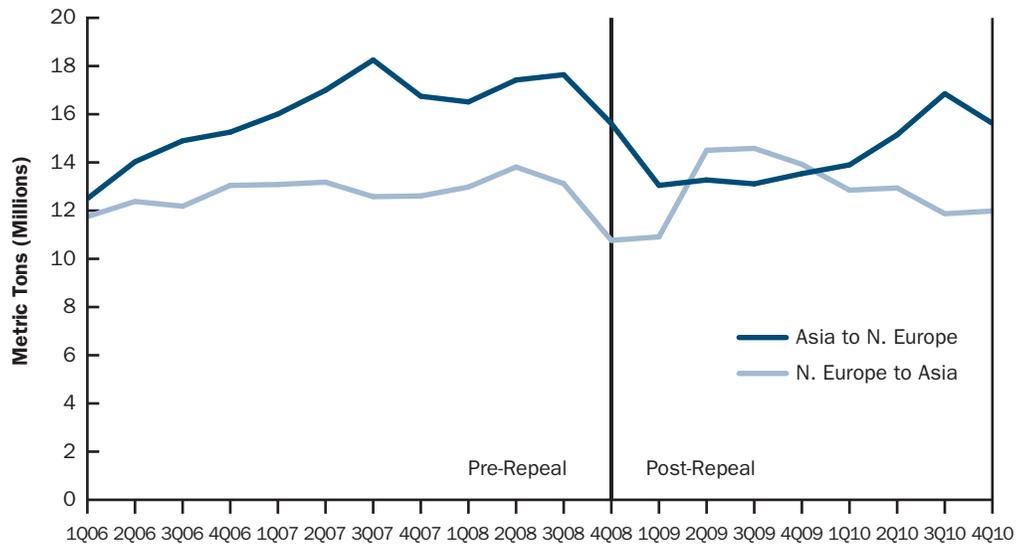
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### Chart AE-4 Quarterly Metric Tons of Container Cargo

For each quarter of the review period from 2006 through 2010, the chart shows trends in the actual metric tons of import and export container cargo that moved in each direction of the Asia-North Europe trade. The horizontal axis of the chart gives the series of time by quarter over the review period, and the vertical axis measures container cargo in metric tons. The trend lines of the data show the extent of growth, seasonality, and change that occurred over the review period in the amount of metric tons that moved in each trade direction. Further, the trend lines show the extent of any weight imbalance and change over time in the directional flow of the cargo in the trade. The change over time in the trend lines reflects the change in the consumer demand for container imports and exports. The source of the container cargo data is Eurostat.

#### AE-4 Asia/North Europe Trade Quarterly Containerized Cargo in Metric Tons

Source: Eurostat



**Table AE-5 Quarterly Inbound to Outbound Cargo Ratio**

For each quarter of the review period from 2006 through 2010, the table provides time series data showing the ratio in the weight and number of container imports divided by the weight and number of container exports that moved in the Asia/North Europe trade. The weight of the container cargo is measured in metric tons, and the number of containers is measured in TEUs. The ratio of container imports to container exports provides a measure of the extent of any imbalance in the directional flow of container cargo in the trade. The higher the ratio the higher the extent of an imbalance in the weight or number of container imports in excess of container exports. A ratio of less than 1.0 indicates a period of time when container exports from North Europe exceeded container imports from Asia. Further, the ratio shows the extent to which North Europe's demand for container imports from Asia exceeded Asia's demand for North Europe's container exports. The source of the container cargo data is Eurostat.

**AE-5 Trade Imbalance between the Asia and North Europe  
Ratio of Inbound to Outbound Cargo**

	Metric Tons	TEUs
1Q06	1.06	1.72
2Q06	1.13	1.76
3Q06	1.22	1.92
4Q06	1.17	1.84
1Q07	1.22	1.86
2Q07	1.29	1.99
3Q07	1.45	2.30
4Q07	1.33	2.14
1Q08	1.27	2.02
2Q08	1.26	1.89
3Q08	1.34	2.14
4Q08	1.45	2.22
1Q09	1.20	1.98
2Q09	0.92	1.59
3Q09	0.90	1.63
4Q09	0.97	1.66
1Q10	1.08	1.91
2Q10	1.17	1.97
3Q10	1.42	2.45
4Q10	1.30	2.19

Source: Eurostat

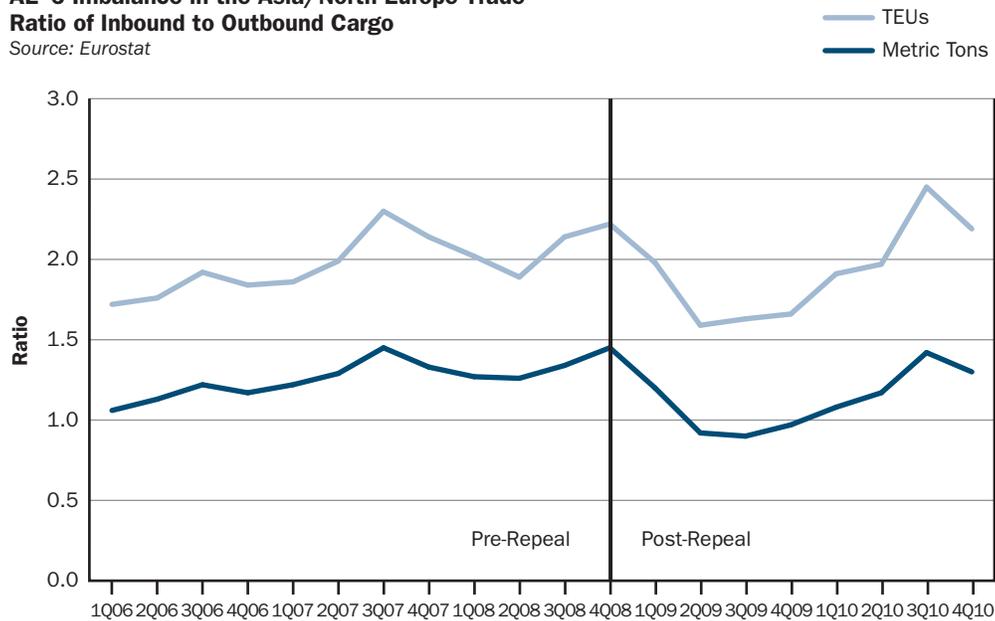
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### Chart AE-6 Quarterly Inbound to Outbound Cargo Ratio

For each quarter of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the ratio of container imports to container exports (in both TEUs and metric tons) that moved in the Asia/North Europe trade. The weight of the containers is measured in metric tons, and the number of the containers is measured in TEUs. The horizontal axis of the chart gives the series of time in quarters over the review period, and the vertical axis measures the level of the ratio of container imports to container exports. The trend lines of the ratio show the extent of an imbalance in the weight or number of container imports in excess of container exports in the trade over the review period. The degree to which the trend lines exceed 1.0 shows the degree of an imbalance in container imports above container exports. A trend line that falls below 1.0 indicates a period of time when the weight or number of container exports from North Europe exceeded container imports. The trend lines over the time series show how any imbalance in directional flow of container cargo changed over the review period. They can also be interpreted as showing the change over time in the North Europe demand for container imports from Asia compared to Asia's demand for North Europe container exports. The source of the container cargo data is Eurostat.

#### AE-6 Imbalance in the Asia/North Europe Trade Ratio of Inbound to Outbound Cargo

Source: Eurostat



## Tables AE-7a-e Concentration Ratios (CR4 and HHI) in the Asia/North Europe Trade

The tables provide measures of the annual levels of market concentration among the shipping lines that participated in the Asia/North Europe trade in the westbound (headhaul) direction for the review period from 2006 through 2010. The shipping lines that operated vessels in the trade for each year are shown in ranking order based on their annual capacity deployed in the trade. The capacity share is derived for each shipping line from the total container capacity data. From the capacity share data, two measures of market concentration are derived: the concentration ratio of the top four shipping lines with the highest capacity shares (“CR4”) and the Herfindahl-Hirschman Index (“HHI”). The CR4 is simply derived from the sum of the percent of the capacity shares of the top four lines. The figures in the Market Share and Cumulative Percent columns in the following tables have been rounded to the nearest whole number and may not appear to sum accurately.

The HHI for each year is shown in bold at the bottom of the HHI column and is derived from the sum of the squared values of the capacity shares for each shipping line. As a benchmark for assessing concentration based on HHI, the 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as unconcentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 has highly concentrated. The sources of the capacity data are Drewry Maritime Research and AXS-Alphaliner.

### AE-7a Share of Capacity Operated (TEUs)\* Asia to North Europe (Westbound) CR4 & HHI - 2006

Rank	Shipping Line	2006 TEUs	Capacity Share	Cumulative Percent	HHI
1	Maersk	1,707,153	20%	20%	392.74
2	COSCO	655,484	8%	27%	57.90
3	Mediterranean Shipping Company	654,104	8%	35%	57.66
4	Hanjin Shipping	551,820	6%	41%	41.03
5	Evergreen	535,640	6%	48%	38.66
6	CMA CGM	512,073	6%	54%	35.34
7	China Shipping Container Lines	500,796	6%	59%	33.80
8	NYK Line	438,863	5%	64%	25.95
9	Hapag-Lloyd	389,855	5%	69%	20.48
10	OOCL	386,960	4%	74%	20.18
11	Hyundai Merchant Marine	372,496	4%	78%	18.70
12	Mitsui OSK Line	350,516	4%	82%	16.56
13	American President Lines	328,642	4%	86%	14.55
14	K Line	316,408	4%	89%	13.49
15	Yang Ming Line	241,309	3%	92%	7.85
16	CSAV	226,689	3%	95%	6.92
17	PONL	173,731	2%	97%	4.07
18	Pacific International Line	63,778	1%	98%	0.55
19	Wan Hai Lines, Ltd	63,778	1%	98%	0.55
20	Malaysian Int'l Shipping Co.	62,282	1%	99%	0.52
21	Zim Container Line	36,892	0%	99%	0.18
22	United Arab Shipping Company	27,088	0%	100%	0.10
23	Chipolbrok	13,432	0%	100%	0.02
24	Marfret	3,284	0%	100%	0.00
25	CP Ships	1,273	0%	100%	0.00
<b>2006 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>8,614,342</b>	<b>100%</b>	<b>-</b>	<b>808</b>

\* Drewry Container Forecaster Quarterly Reports provide capacity data by service string. For services with multiple carriers, AXS-Alphaliner, which provides vessel data by string, was used to determine the TEU capacity attributed to each individual carrier.

Sources: Drewry Container Forecaster Quarterly Reports and AXS-Alphaliner

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### AE-7b Share of Capacity Operated (TEUs)\* Asia to North Europe (Westbound) CR4 & HHI - 2007

Rank	Shipping Line	2007 TEUs	Capacity Share	Cumulative Percent	HHI
1	Maersk	2,054,628	21%	21%	444.60
2	CMA CGM	800,791	8%	29%	67.54
3	Mediterranean Shipping Company	783,560	8%	37%	64.66
4	COSCO	685,433	7%	44%	49.48
5	Evergreen Line	636,139	7%	51%	42.62
6	China Shipping Container Lines	602,018	6%	57%	38.17
7	Hanjin Shipping	515,309	5%	62%	27.97
8	OOCL	482,891	5%	67%	24.56
9	NYK Line	443,043	5%	72%	20.67
10	K Line	436,213	4%	76%	20.04
11	Hapag-Lloyd	402,659	4%	80%	17.08
12	Hyundai Merchant Marine	388,514	4%	84%	15.90
13	Mitsui OSK Line	376,817	4%	88%	14.95
14	American President Lines	342,774	4%	92%	12.37
15	CSAV	291,815	3%	95%	8.97
16	Yang Ming Line	197,783	2%	97%	4.12
17	Pacific International Line	99,240	1%	98%	1.04
18	Wan Hai	99,240	1%	99%	1.04
19	Malaysian Int'l Shipping Co.	59,265	1%	100%	0.37
20	United Arab Shipping Company	27,894	0%	100%	0.08
21	Chipolbrok	13,432	0%	100%	0.02
22	Islamic Republic of Iran Shpg Lines	2,814	0%	100%	0.00
23	Marfret	1,552	0%	100%	0.00
24	Deutsche-Afrika Linien	441	0%	100%	0.00
<b>2007 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>9,744,262</b>	<b>100%</b>	<b>-</b>	<b>876</b>

\* Drewry Container Forecaster Quarterly Reports provide capacity data by service string. For services with multiple carriers, AXS-Alphaliner, which provides vessel data by string, was used to determine the TEU capacity attributed to each individual carrier.

Sources: Drewry Container Forecaster Quarterly Reports and AXS-Alphaliner

**AE-7c Share of Capacity Operated (TEUs)\*  
Asia to North Europe (Westbound)  
CR4 & HHI - 2008**

Rank	Shipping Line	2008 TEUs	Capacity Share	Cumulative Percent	HHI
1	Maersk	2,315,515	21%	21%	439.95
2	CMA CGM	914,656	8%	29%	68.65
3	Mediterranean Shipping Company	826,699	7%	37%	56.08
4	COSCO	745,833	7%	44%	45.64
5	Evergreen Line	688,662	6%	50%	38.92
6	China Shipping Container Lines	646,433	6%	56%	34.29
7	Hanjin Shipping	629,015	6%	61%	32.47
8	OOCL	538,019	5%	66%	23.75
9	NYK Line	492,617	4%	71%	19.91
10	Hapag-Lloyd	459,848	4%	75%	17.35
11	Hyundai Merchant Marine	430,587	4%	79%	15.21
12	Mitsui OSK Line	428,715	4%	83%	15.08
13	K Line	421,343	4%	86%	14.57
14	American President Lines	370,379	3%	90%	11.26
15	Yang Ming Line	356,624	3%	93%	10.44
16	CSAV	283,436	3%	96%	6.59
17	Zim Container Line	133,649	1%	97%	1.47
18	Pacific International Line	99,686	1%	98%	0.82
19	Wan Hai	99,686	1%	99%	0.82
20	United Arab Shipping Company	75,345	1%	99%	0.47
21	Malaysian Int'l Shipping Co.	66,294	1%	100%	0.36
22	Chipolbrok	12,132	0%	100%	0.01
23	Islamic Republic of Iran Shpg Lines	3,201	0%	100%	0.00
24	Deutsche-Afrika Linien	1,021	0%	100%	0.00
<b>2008 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>11,039,391</b>	<b>100%</b>	<b>-</b>	<b>854</b>

\* Drewry Container Forecaster Quarterly Reports provide capacity data by service string. For services with multiple carriers, AXS-Alphaliner, which provides vessel data by string, was used to determine the TEU capacity attributed to each individual carrier.

Sources: Drewry Container Forecaster Quarterly Reports and AXS-Alphaliner

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### AE-7d Share of Capacity Operated (TEUs)\* Asia to North Europe (Westbound) CR4 & HHI - 2009

Rank	Shipping Line	2009 TEUs	Capacity Share	Cumulative Percent	HHI
1	Maersk	1,965,509	21%	21%	443.54
2	CMA CGM	948,783	10%	31%	103.35
3	Mediterranean Shipping Company	854,355	9%	40%	83.80
4	COSCO	620,803	7%	47%	44.25
5	China Shipping Container Lines	572,876	6%	53%	37.68
6	Hanjin Shipping	570,398	6%	59%	37.35
7	Evergreen Line	535,674	6%	65%	32.94
8	OOCL	470,631	5%	70%	25.43
9	NYK Line	432,335	5%	75%	21.46
10	Hapag-Lloyd	403,160	4%	79%	18.66
11	Hyundai Merchant Marine	380,429	4%	83%	16.62
12	Yang Ming Line	356,551	4%	87%	14.60
13	K Line	352,218	4%	91%	14.24
14	Mitsui OSK Line	327,886	4%	94%	12.34
15	American President Lines	307,424	3%	97%	10.85
16	United Arab Shipping Company	77,560	1%	98%	0.69
17	CSAV	62,305	1%	99%	0.45
18	Malaysian Int'l Shipping Co.	58,220	1%	100%	0.39
19	Pacific International Line	11,333	0%	100%	0.01
20	Wan Hai	11,333	0%	100%	0.01
21	Chipolbrok	10,832	0%	100%	0.01
22	Deutsche-Afrika Linien	129	0%	100%	0.00
<b>2009 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>9,332,747</b>	<b>100%</b>	<b>-</b>	<b>919</b>

\* Drewry Container Forecaster Quarterly Reports provide capacity data by service string. For services with multiple carriers, AXS-Alphaliner, which provides vessel data by string, was used to determine the TEU capacity attributed to each individual carrier.

Sources: Drewry Container Forecaster Quarterly Reports and AXS-Alphaliner

**AE-7e Share of Capacity Operated (TEUs)\*  
Asia to North Europe (Westbound)  
CR4 & HHI - 2010**

Rank	Shipping Line	2010 TEUs	Capacity Share	Cumulative Percent	HHI
1	Maersk	2,036,529	21%	21%	446.01
2	CMA CGM	1,087,342	11%	32%	127.14
3	Mediterranean Shipping Company	929,469	10%	42%	92.90
4	COSCO	564,227	6%	48%	34.24
5	Evergreen Line	551,192	6%	54%	32.67
6	Hanjin Shipping	521,721	5%	59%	29.27
7	OOCL	509,525	5%	64%	27.92
8	NYK Line	456,750	5%	69%	22.43
9	China Shipping Container Lines	430,746	4%	73%	19.95
10	Hapag-Lloyd	420,318	4%	78%	19.00
11	Hyundai Merchant Marine	379,666	4%	82%	15.50
12	Mitsui OSK Line	357,263	4%	85%	13.73
13	Yang Ming Line	340,819	4%	89%	12.49
14	American President Lines	334,968	3%	93%	12.07
15	K Line	328,496	3%	96%	11.60
16	United Arab Shipping Company	247,920	3%	98%	6.61
17	Pacific International Line	58,547	1%	99%	0.37
18	Wan Hai	58,547	1%	100%	0.37
19	Zim Container Line	16,294	0%	100%	0.03
20	Chipolbrok	10,773	0%	100%	0.01
<b>2010 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>9,643,120</b>	<b>100%</b>	<b>-</b>	<b>924</b>

\* Drewry Container Forecaster Quarterly Reports provide capacity data by service string. For services with multiple carriers, AXS-Alphaliner, which provides vessel data by string, was used to determine the TEU capacity attributed to each individual carrier.

Sources: Drewry Container Forecaster Quarterly Reports and AXS-Alphaliner

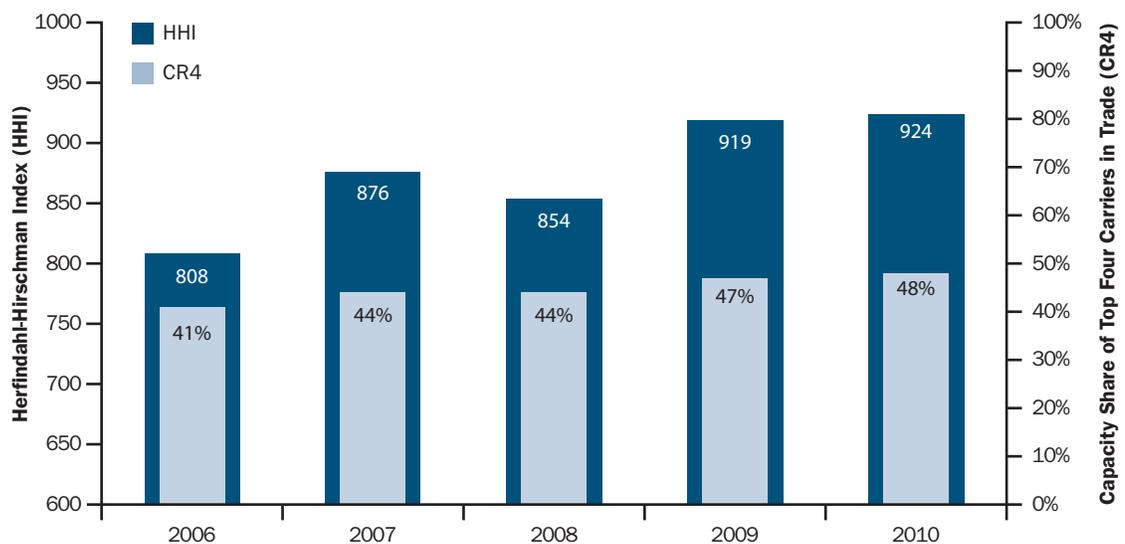
## Chapter 5

### Chart AE-8 Concentration Ratios (CR4 and HHI)

The chart provides a summary of the changes in market concentration among the shipping lines that participated in the Asia/North Europe trade in the westbound (headhaul) direction for the review period from 2006 through 2010. The percent of capacity share is derived for each shipping line from the container capacity data. From the capacity share data, two measures of market concentration are derived: the concentration ratio of the top four shipping lines with the highest capacity shares (“CR4”) and the Herfindahl-Hirschman Index (“HHI”). The CR4 is indicated by the light columns and right hand scale and is simply derived as the sum of the percent of the market capacity shares of the top four lines. The HHI for each year is shown by the dark columns and the left hand scale and is derived as the sum of the squared values of the market capacity shares for each shipping line.

As a benchmark for accessing concentration based on HHI, the 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as unconcentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 as highly concentrated. The source of the container data is Drewry Maritime Research.

**AE-8 Asia/North Europe Trade**  
**Measures of Market Concentration CR4 & HHI**  
*Source: Drewry Container Forecaster Quarterly Reports*



**Table AE-9 Changes in the Shares of Participants**

The table provides a summary of the changes in the capacity share percentages of the participating shipping lines in the Asia/North Europe Westbound trade for each year of the review period from 2006 through 2010. The annual capacity share percentages of each shipping line are based on its total annual container capacity in the trade measured in TEUs. The shifts in capacity share between the shipping lines (as an indication of market presence) provide an indication of how well each line competed in the marketplace from one year to the next and over the course of the review period. Spaces where no percentages appear in the table [identified by dashes] signal the exit or entry of a shipping line in the trade. The bottom row of the table gives the size of the market in millions of TEUs as measured by the sum of the annual westbound capacity in the trade by each of the identified shipping lines. Only those shipping lines that deployed vessels in the trade in a given year were included as market participants. The sources of the capacity data are Drewry Maritime Research and AXS-Alphaliner.

**AE-9 Asia/North Europe Westbound Trade\*  
Changes in the Share of Capacity of Participants**

Shipping Lines	2006	2007	2008	2009	2010
Maersk	22%	21%	21%	21%	21%
COSCO	8%	7%	7%	7%	6%
Mediterranean Shipping Company	8%	8%	7%	9%	10%
Hanjin Shipping	6%	5%	6%	6%	5%
Evergreen Line	6%	7%	6%	6%	6%
CMA CGM	6%	8%	8%	10%	11%
China Shipping Container Line	6%	6%	6%	6%	4%
NYK Line	5%	5%	4%	5%	5%
Hapag-Lloyd	5%	4%	4%	4%	4%
OOCL	4%	5%	5%	5%	5%
Hyundai Merchant Marine	4%	4%	4%	4%	4%
Mitsui OSK Line	4%	4%	4%	4%	4%
American President Lines	4%	4%	3%	3%	3%
K Line	4%	4%	4%	4%	3%
Yang Ming Line	3%	2%	3%	4%	4%
CSAV	3%	3%	3%	1%	-
Pacific International Line	1%	1%	1%	0%	1%
Wan Hai	1%	1%	1%	0%	1%
Malaysian Int'l Shipping Co.	1%	1%	1%	1%	-
Zim Container Line	0%	-	1%	-	0%
United Arab Shipping Company	0%	0%	1%	1%	3%
Chipolbrok	0%	0%	0%	0%	0%
Marfret	0%	0%	-	-	-
Deutsche-Afrika Linien	-	0%	0%	-	-
Islamic Republic of Iran Shpg Lines	-	0%	0%	-	-
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Market Size (Millions of TEUs)</b>	<b>8.61</b>	<b>9.74</b>	<b>11.04</b>	<b>9.33</b>	<b>9.64</b>

\* Drewry Container Forecaster Quarterly Reports provide capacity data by service string. For services with multiple carriers, AXS-Alphaliner, which provides vessel data by string, was used to determine the TEU capacity attributed to each individual carrier.

Sources: Drewry Container Forecaster Quarterly Reports and AXS-Alphaliner

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### **Table AE-10 Changes in the Shares of Capacity of the Major Alliances and Vessel Sharing Arrangements**

For each year of the review period from 2006 through 2010, the table gives the vessel capacity in TEUs and share of total capacity as a group by members of each alliance agreement and the selected vessel sharing agreements operating in the Asia/North Europe trade. The total capacity of each agreement is the sum of the total capacity offered by each member of the agreement and is combined to include both import and export capacity measured in TEUs. The annual capacity share percentage is derived by dividing the total capacity of each agreement by the total capacity offered in the trade and multiplying this quotient by 100. The table also gives the sum, and the corresponding share percentage, of the annual vessel capacity deployed in the trade by all of the alliance agreements (as one group) and by all of the alliance and selected vessel sharing agreements (as one group). The selected vessel sharing agreements shown in the table are those where an alliance, as a group, formed a service, or services, under an agreement in partnership with non-alliance carriers operating in the trade. Over the review period, the table shows any annual change that occurred in vessel capacity operated by, and corresponding capacity share percent of, the various agreements and groups of agreements.

**AE- 10 Asia/North Europe Trade  
Changes in Capacity (TEUs) and Shares of Capacity of the Major Alliances and VSAs**

Alliances	2006	2007	2008	2009	2010
New World Alliance Agreement	1,988,724	2,087,809	2,298,347	1,837,827	1,967,732
The Grand Alliance Agreement II	2,252,330	2,409,639	2,698,975	2,376,157	2,435,172
CKYH Worldwide Slot Allocation and Sailing Agreement	3,377,217	3,461,614	4,033,104	3,557,794	3,247,696
Alliances including Partners	2006	2007	2008	2009	2010
New World Alliance/CMA CGM Slot Charter Arrangement	2,854,130	3,353,064	3,688,153	3,294,418	3,631,507
New World Alliance/Yang Ming Slot Charter Arrangement	2,450,448	2,460,786	2,967,292	-	-
Grand Alliance/APL Slot Charter Arrangement	2,873,806	3,057,503	3,399,028	2,937,103	3,050,089
Grand Alliance/HMM Slot Charter Arrangement	2,956,736	3,143,954	3,506,684	3,054,755	3,132,143
Grand Alliance/MOL Slot Charter Arrangement	2,915,172	3,115,269	3,489,559	2,974,440	3,091,017
Grand Alliance/ZIM Slot Charter Arrangement	-	-	-	-	2,465,712
Grand Alliance/Evergreen Slot Charter Arrangement	-	-	-	-	3,390,438
<b>Capacity by Alliances</b>	<b>7,618,271</b>	<b>7,959,062</b>	<b>9,030,425</b>	<b>7,771,778</b>	<b>7,650,600</b>
<b>Capacity by Alliances including Partners</b>	<b>10,934,125</b>	<b>11,685,102</b>	<b>13,387,522</b>	<b>11,066,195</b>	<b>12,267,912</b>

**Shares of Capacity**

Alliances	2006	2007	2008	2009	2010
New World Alliance Agreement	12.8%	12.1%	11.9%	11.3%	11.8%
The Grand Alliance Agreement II	14.5%	13.9%	13.9%	14.6%	14.6%
CKYH Worldwide Slot Allocation and Sailing Agreement	21.7%	20.0%	20.8%	21.8%	19.4%
Alliances including Partners	2006	2007	2008	2009	2010
New World Alliance/CMA CGM Slot Charter Arrangement	18.4%	19.4%	19.1%	20.2%	21.7%
New World Alliance/Yang Ming Slot Charter Arrangement	15.8%	14.2%	15.3%	-	-
Grand Alliance/APL Slot Charter Arrangement	18.5%	17.7%	17.6%	18.0%	18.2%
Grand Alliance/HMM Slot Charter Arrangement	19.0%	18.2%	18.1%	18.7%	18.7%
Grand Alliance/MOL Slot Charter Arrangement	18.8%	18.0%	18.0%	18.2%	18.5%
Grand Alliance/ZIM Slot Charter Arrangement	-	-	-	-	14.7%
Grand Alliance/Evergreen Slot Charter Arrangement	-	-	-	-	20.3%
<b>Market Share of Alliances</b>	<b>49.0%</b>	<b>46.0%</b>	<b>46.7%</b>	<b>47.6%</b>	<b>45.8%</b>
<b>Market Share of Alliances including Partners</b>	<b>70.3%</b>	<b>67.5%</b>	<b>69.2%</b>	<b>67.8%</b>	<b>73.4%</b>

Source: Drewry Container Forecaster Quarterly Reports

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**Table AE-11 Carrier Entry and Exit**

The table shows the level of entry and exit of shipping lines participating in the Asia/North Europe trade for each quarter of the review period from 2006 through 2010. Only those shipping lines that deployed vessels in liner services in the trade were counted as market participants. For purposes of this study, market entry was counted as the initiation of a new liner service in which a shipping line deployed some or all of its own vessels and was not deploying vessels in any other liner services in the trade at the time when the new service was initiated. Market exit was counted as a shipping line terminating its services in the trade and removing its vessels. The level of market entry and exit provides an indication of whether barriers to entry in a market exist, which affects competition between the market participants. The exit or entry of shipping lines in a trade is also a function of the demand for liner shipping services. A contraction in demand for an extended period may cause lines to exit a trade without attracting new entry. Established shipping lines are able to enter and exit trades more readily without incurring any great amount of sunk costs as compared to the start up of a new shipping line in a trade where the capital investment can be substantial. The sources of data are Drewry Maritime Research and AXS-Alphaliner.

**AE-11 Asia/North Europe Trade  
Entries and Exits**

Entry/Exit based on carriers listed as operators in the Asia/North Europe trade as identified by Drewry

N. Europe to Asia	Entry into Trade	Exit from Trade	Asia to N. Europe	Entry into Trade	Exit from Trade
1Q06			1Q06		
2Q06			2Q06		
3Q06			3Q06		
4Q06			4Q06		
1Q07			1Q07		
2Q07			2Q07		
3Q07	IRISL 5,332 TEUs		3Q07	IRISL 6,131 TEU DAL 836 TEUs	
4Q07			4Q07		
1Q08			1Q08		
2Q08			2Q08		
3Q08		IRISL 5,616 TEUs	3Q08		IRISL 6,458 TEUs
4Q08			4Q08		
1Q09			1Q09		
2Q09		CSAV 193,899 TEUs PIL 35,476 TEUs* Wan Hai 35,476 TEUs*	2Q09		CSAV 249,218 TEUs DAL 836 TEUs PIL 45,330 TEUs* Wan Hai 45,330 TEUs*
3Q09			3Q09		
4Q09			4Q09		
1Q10		MISC 42,788 TEUs	1Q10		MISC 56,882 TEUs
2Q10	PIL 29,499 TEUs* Wan Hai 29,499 TEUs*		2Q10	PIL 33,740 TEUs* Wan Hai 33,740 TEUs*	
3Q10			3Q10		
4Q10			4Q10		

\* Drewry Container Forecaster Quarterly Reports provide capacity data by service string. For services with multiple carries, AXS-Alphaliner, which provides vessel data by string, was used to determine the TEU capacity attributed to each individual carrier. Pacific International Line (PIL) and Wan Hai provide only one service string in the trade. The capacity of that string is split evenly between the carriers because they provide an equal number of similarly sized vessels. Derived from Drewry Container Forecaster Quarterly Reports and AXS-Alphaliner.

**Table AE-12 Minimum Efficient Scale (MES) and Ratio of Market Size to MES**

The table on the left estimates the minimum efficient scale (MES) of weekly liner service in the North Europe/Asia trade for each year of the review period from 2006 through 2010. The MES for each year is measured as the smallest level of service among comparable shipping lines that can sustain a competitive weekly service loop in the trade. For each year, the table identifies the shipping line, frequency, type, number of vessels, the average TEU vessel capacity of each MES, and any changes in MES over time.

For each year of the review period from 2006 through 2010, the table on the right also gives the ratio of the size of the market to the MES of service in each direction of the Asia/North Europe trade. The ratio is derived by dividing the annual capacity of the market by the annual capacity of the MES in each direction of the trade. The MES for each year is measured as the smallest level of service among comparable shipping lines that can sustain a competitive weekly service loop in the trade. The market size is measured as the sum of the annual capacity of all of the liner services offered in the trade. The table shows the change in the ratio in each trade direction over the review period. It would be expected that a high ratio of market size to MES indicates that competition among market participants is greater and barriers to market entry are lower. The source of data is Drewry Maritime Research.

**AE-12 Asia/North Europe Trade**

Trend in Minimum Efficient Scale (MES)			Ratio of Market Size to MES	
			N. Europe to Asia	Asia to N. Europe
2006	CMA CGM	weekly loop service using 8 vessels of 6,659 TEU vessel capacity on average	30	40
2007	Maersk	weekly loop service using 8 vessels of 8,925 TEU vessel capacity on average	21	27
2008	CKYH Alliance	weekly loop service using 8 vessels of 9,447 TEU vessel capacity on average	22	25
2009	Grand Alliance	weekly loop service using 9 vessels of 8,934 TEU vessel capacity on average	20	24
2010	Grand Alliance	weekly loop service using 10 vessels of 8,063 TEU vessel capacity on average	24	29

Source: Drewry Maritime Research

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### **Tables AE-13a-e Annual Container Volumes by European Port Range and Asian Country**

For each year of the review period from 2006 through 2010, the tables give the total number and market share percentages of annual containers that moved between the EU member states and each Asian nation included in the geographic scope of the liner shipping trade in the Far East/Europe trade. The total number of containers for each year is combined to include imports and exports measured in TEUs. Each market share percentage of container cargo is derived as a function of the total number of import and export containers that moved in the trade for each year, e.g., 34 percent of the total number of containers in the trade for 2006 moved between the nation of China and North Europe. The tables show the geographic distribution and extent of demand in container cargo between EU member states and each Asian nation through ports in North Europe and the Mediterranean. Over the review period, the tables show any changes that occurred in the distribution and demand of container cargo in the trade. The source of the container cargo data is Eurostat.

**AE-13a Asia/North Europe Trade  
Container Volume and Market Share  
by Asian Country and European Port Range**

2006 Container Volume (TEUs)

Country	North Europe	Mediterranean	Total
Brunei	16	64	80
Cambodia	596	679	1,275
China	5,145,259	1,543,467	6,688,726
East Timor	66	15	81
Hong Kong	1,426,684	377,767	1,804,451
Indonesia	65,786	81,682	147,468
Japan	919,969	71,712	991,681
Macau	34	59	93
Malaysia	884,226	257,407	1,141,633
North Korea	-	191	191
Philippines	3,495	5,475	8,970
Singapore	2,436,604	429,179	2,865,783
South Korea	592,386	101,927	694,313
Taiwan	529,746	87,177	616,923
Thailand	67,939	46,280	114,219
Vietnam	7,656	31,281	38,937
<b>Total 2006</b>	<b>12,080,462</b>	<b>3,034,362</b>	<b>15,114,824</b>

2006 Container Volume Percentage

Country	North Europe	Mediterranean	Total
Brunei	0.0%	0.0%	0.0%
Cambodia	0.0%	0.0%	0.0%
China	34.0%	10.2%	44.3%
East Timor	0.0%	0.0%	0.0%
Hong Kong	9.4%	2.5%	11.9%
Indonesia	0.4%	0.5%	1.0%
Japan	6.1%	0.5%	6.6%
Macau	0.0%	0.0%	0.0%
Malaysia	5.9%	1.7%	7.6%
North Korea	0.0%	0.0%	0.0%
Philippines	0.0%	0.0%	0.1%
Singapore	16.1%	2.8%	19.0%
South Korea	3.9%	0.7%	4.6%
Taiwan	3.5%	0.6%	4.1%
Thailand	0.4%	0.3%	0.8%
Vietnam	0.1%	0.2%	0.3%
<b>Total 2006</b>	<b>79.9%</b>	<b>20.1%</b>	<b>100.0%</b>

Source: Eurostat

## Chapter 5

### AE-13b Asia/North Europe Trade Container Volume and Market Share by Asian Country and European Port Range

2007 Container Volume (TEUs)

Country	North Europe	Mediterranean	Total
Brunei	21	24	45
Cambodia	1,343	1,131	2,474
China	6,454,526	2,013,604	8,468,130
East Timor	-	-	-
Hong Kong	1,392,211	380,705	1,772,916
Indonesia	25,726	75,782	101,508
Japan	840,419	91,665	932,084
Macau	2	69	71
Malaysia	1,243,765	224,115	1,467,880
North Korea	-	15	15
Philippines	4,959	8,494	13,453
Singapore	2,483,512	424,603	2,908,115
South Korea	637,843	114,613	752,456
Taiwan	513,387	83,077	596,464
Thailand	94,957	72,149	167,106
Vietnam	12,212	47,401	59,613
<b>Total 2007</b>	<b>13,704,883</b>	<b>3,537,447</b>	<b>17,242,330</b>

2007 Container Volume Percentage

Country	North Europe	Mediterranean	Total
Brunei	0.0%	0.0%	0.0%
Cambodia	0.0%	0.0%	0.0%
China	37.4%	11.7%	49.1%
East Timor	0.0%	0.0%	0.0%
Hong Kong	8.1%	2.2%	10.3%
Indonesia	0.1%	0.4%	0.6%
Japan	4.9%	0.5%	5.4%
Macau	0.0%	0.0%	0.0%
Malaysia	7.2%	1.3%	8.5%
North Korea	0.0%	0.0%	0.0%
Philippines	0.0%	0.0%	0.1%
Singapore	14.4%	2.5%	16.9%
South Korea	3.7%	0.7%	4.4%
Taiwan	3.0%	0.5%	3.5%
Thailand	0.6%	0.4%	1.0%
Vietnam	0.1%	0.3%	0.3%
<b>Total 2007</b>	<b>79.5%</b>	<b>20.5%</b>	<b>100.0%</b>

Source: Eurostat

**AE-13c Asia/North Europe Trade  
Container Volume and Market Share  
by Asian Country and European Port Range**

2008 Container Volume (TEUs)

Country	North Europe	Mediterranean	Total
Brunei	26	50	76
Cambodia	190	1,950	2,140
China	6,592,154	2,013,264	8,605,418
East Timor	-	-	-
Hong Kong	1,252,058	392,122	1,644,180
Indonesia	27,993	83,930	111,923
Japan	827,415	92,339	919,754
Macau	94	7,199	7,293
Malaysia	1,229,621	177,207	1,406,828
North Korea	-	47	47
Philippines	3,796	11,004	14,800
Singapore	2,363,122	381,898	2,745,020
South Korea	610,238	168,996	779,234
Taiwan	481,544	83,415	564,959
Thailand	120,457	102,382	222,839
Vietnam	15,270	55,460	70,730
<b>Total 2008</b>	<b>13,523,978</b>	<b>3,571,263</b>	<b>17,095,241</b>

2008 Container Volume Percentage

Country	North Europe	Mediterranean	Total
Brunei	0.0%	0.0%	0.0%
Cambodia	0.0%	0.0%	0.0%
China	38.6%	11.8%	50.3%
East Timor	0.0%	0.0%	0.0%
Hong Kong	7.3%	2.3%	9.6%
Indonesia	0.2%	0.5%	0.7%
Japan	4.8%	0.5%	5.4%
Macau	0.0%	0.0%	0.0%
Malaysia	7.2%	1.0%	8.2%
North Korea	0.0%	0.0%	0.0%
Philippines	0.0%	0.1%	0.1%
Singapore	13.8%	2.2%	16.1%
South Korea	3.6%	1.0%	4.6%
Taiwan	2.8%	0.5%	3.3%
Thailand	0.7%	0.6%	1.3%
Vietnam	0.1%	0.3%	0.4%
<b>Total 2008</b>	<b>79.1%</b>	<b>20.9%</b>	<b>100.0%</b>

Source: Eurostat

## Chapter 5

### AE-13d Asia/North Europe Trade Container Volume and Market Share by Asian Country and European Port Range

2009 Container Volume (TEUs)

Country	North Europe	Mediterranean	Total
Brunei	19	89	108
Cambodia	158	1,925	2,083
China	6,393,249	1,745,588	8,138,837
East Timor	-	2	2
Hong Kong	1,249,177	321,470	1,570,647
Indonesia	25,191	87,067	112,258
Japan	634,596	62,502	697,098
Macau	2	185	187
Malaysia	1,053,687	146,858	1,200,545
North Korea	-	935	935
Philippines	5,303	7,337	12,640
Singapore	1,786,586	387,126	2,173,712
South Korea	565,370	163,633	729,003
Taiwan	490,834	87,740	578,574
Thailand	116,609	59,378	175,987
Vietnam	15,703	54,744	70,447
<b>Total 2009</b>	<b>12,336,484</b>	<b>3,126,579</b>	<b>15,463,063</b>

2009 Container Volume Percentage

Country	North Europe	Mediterranean	Total
Brunei	0.0%	0.0%	0.0%
Cambodia	0.0%	0.0%	0.0%
China	41.3%	11.3%	52.6%
East Timor	0.0%	0.0%	0.0%
Hong Kong	8.1%	2.1%	10.2%
Indonesia	0.2%	0.6%	0.7%
Japan	4.1%	0.4%	4.5%
Macau	0.0%	0.0%	0.0%
Malaysia	6.8%	0.9%	7.8%
North Korea	0.0%	0.0%	0.0%
Philippines	0.0%	0.0%	0.1%
Singapore	11.6%	2.5%	14.1%
South Korea	3.7%	1.1%	4.7%
Taiwan	3.2%	0.6%	3.7%
Thailand	0.8%	0.4%	1.1%
Vietnam	0.1%	0.4%	0.5%
<b>Total 2009</b>	<b>79.8%</b>	<b>20.2%</b>	<b>100.0%</b>

Source: Eurostat

**AE-13e Asia/North Europe Trade  
Container Volume and Market Share  
by Asian Country and European Port Range**

2010 Container Volume (TEUs)

Country	North Europe	Mediterranean	Total
Brunei	38	57	95
Cambodia	747	1,466	2,213
China	7,155,038	2,132,155	9,287,193
East Timor	-	-	-
Hong Kong	1,351,595	338,998	1,690,593
Indonesia	32,924	67,997	100,921
Japan	700,732	65,582	766,314
Macau	2	4,678	4,680
Malaysia	1,014,078	168,351	1,182,429
North Korea	-	5	5
Philippines	3,340	9,497	12,837
Singapore	1,936,267	486,636	2,422,903
South Korea	713,373	220,323	933,696
Taiwan	456,175	79,408	535,583
Thailand	130,283	59,731	190,014
Vietnam	18,476	50,593	69,069
<b>Total 2010</b>	<b>13,513,068</b>	<b>3,685,477</b>	<b>17,198,545</b>

2010 Container Volume Percentage

Country	North Europe	Mediterranean	Total
Brunei	0.0%	0.0%	0.0%
Cambodia	0.0%	0.0%	0.0%
China	41.6%	12.4%	54.0%
East Timor	0.0%	0.0%	0.0%
Hong Kong	7.9%	2.0%	9.8%
Indonesia	0.2%	0.4%	0.6%
Japan	4.1%	0.4%	4.5%
Macau	0.0%	0.0%	0.0%
Malaysia	5.9%	1.0%	6.9%
North Korea	0.0%	0.0%	0.0%
Philippines	0.0%	0.1%	0.1%
Singapore	11.3%	2.8%	14.1%
South Korea	4.1%	1.3%	5.4%
Taiwan	2.7%	0.5%	3.1%
Thailand	0.8%	0.3%	1.1%
Vietnam	0.1%	0.3%	0.4%
<b>Total 2010</b>	<b>78.6%</b>	<b>21.4%</b>	<b>100.0%</b>

Source: Eurostat

## Chapter 5

### **Tables AE-14a-e Top Moving Commodities by Year: Exports and Imports between North Europe and Asia**

On an annual basis for each year of the review period from 2006 through 2010, the tables list in ranking order the top 20 export container commodities moved outbound from North Europe to Asia, and the top 20 import commodities moved inbound to North Europe from Asia. The top commodities are ranked from largest to smallest based on the total weight in metric tons in each trade direction. The tables also give the percent of the annual volume of each top commodity as a function of the total weight of all commodities moved in each corresponding direction of the trade. The tables show the types and extent of commodities that accounted for the majority of cargo in each trade direction based on foreign and domestic consumer demand. Over the review period, the tables show any change in the mix, ranking, and volume of the top commodities that moved in the trade as affected by changes in consumer demand and other market factors. Eurostat is the source of the commodity data.

**AE-14a Asia/North Europe Trade**  
**2006 Top Moving Export and Import Commodities in Metric Tons**

2006 North Europe to Asia				2006 Asia to North Europe		
Rank	Commodity	2006 Mtons	PCT	Commodity	2006 Mtons	PCT
1	Wood Pulp Etc; Recovered (Waste & Scrap) Paper & Paperboard	4,112,017	15%	Nuclear Reactors, Boilers, Machinery Etc.; Parts	4,214,213	8%
2	Plastics And Articles Thereof	3,650,119	13%	Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab	3,633,900	7%
3	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	1,883,243	7%	Electric Machinery Etc; Sound Equip; TV Equip;	3,130,750	6%
4	Paper & Paperboard & Articles (inc Papr Pulp Artl)	1,719,771	6%	Plastics And Articles Thereof	2,879,756	6%
5	Nuclear Reactors, Boilers, Machinery Etc.; Parts	1,415,945	5%	Food Industry Residues & Waste; Prep Animal Feed	2,858,492	5%
6	Iron And Steel	1,409,691	5%	Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	2,599,953	5%
7	Milling Products; Malt; Starch; Inulin; Wht Gluten	894,470	3%	Articles Of Iron Or Steel	2,455,254	5%
8	Beverages, Spirits And Vinegar	864,521	3%	Ceramic Products	2,029,642	4%
9	Articles Of Iron Or Steel	762,280	3%	Wood And Articles Of Wood; Wood Charcoal	1,891,535	4%
10	Copper And Articles Thereof	672,265	2%	Rubber And Articles Thereof	1,888,887	4%
11	Wood And Articles Of Wood; Wood Charcoal	628,689	2%	Toys, Games & Sport Equipment; Parts & Accessories	1,768,048	3%
12	Vehicles, Except Railway Or Tramway, And Parts Etc	592,270	2%	Vehicles, Except Railway Or Tramway, And Parts Etc	1,418,553	3%
13	Meat And Edible Meat Offal	561,684	2%	Iron And Steel	1,407,561	3%
14	Miscellaneous Chemical Products	550,943	2%	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	1,339,741	3%
15	Organic Chemicals	533,055	2%	Glass And Glassware	1,025,948	2%
16	Sugars And Sugar Confectionary	524,947	2%	Prep Vegetables, Fruit, Nuts Or Other Plant Parts	920,693	2%
17	Aluminum And Articles Thereof	482,808	2%	Footwear, Gaiters Etc. And Parts Thereof	821,202	2%
18	Electric Machinery Etc; Sound Equip; TV Equip;	458,337	2%	Apparel Articles And Accessories, Not Knit Etc.	811,766	2%
19	Rubber And Articles Thereof	425,336	2%	Organic Chemicals	800,801	2%
20	Tanning & Dye Extracts Etc; Dye, Paint, Putty Etc; Inks	376,680	1%	Coffee, Tea, Mate & Spices	780,297	2%
All Other		4,692,016	17%	All Other	13,332,248	26%
<b>Total 2006</b>		<b>27,211,087</b>	<b>100%</b>	<b>Total 2006</b>	<b>52,009,240</b>	<b>100%</b>

Source: Eurostat

## Chapter 5

### AE-14b Asia/North Europe Trade 2007 Top Moving Export and Import Commodities in Metric Tons

2007 North Europe to Asia				2007 Asia to North Europe		
Rank	Commodity	2007 Mtons	PCT	Commodity	2007 Mtons	PCT
1	Wood Pulp Etc; Recovered (Waste & Scrap) Paper & Paperboard	4,059,469	15%	Nuclear Reactors, Boilers, Machinery Etc.; Parts	5,407,098	8%
2	Plastics And Articles Thereof	3,795,893	14%	Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab	4,557,422	7%
3	Iron And Steel	2,242,092	8%	Electric Machinery Etc; Sound Equip; TV Equip;	3,714,017	5%
4	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	1,775,653	6%	Articles Of Iron Or Steel	3,685,546	5%
5	Nuclear Reactors, Boilers, Machinery Etc.; Parts	1,503,403	5%	Plastics And Articles Thereof	3,493,510	5%
6	Paper & Paperboard & Articles (inc Papr Pulp Artl)	1,459,115	5%	Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	3,299,642	5%
7	Beverages, Spirits And Vinegar	879,950	3%	Iron And Steel	3,195,459	5%
8	Wood And Articles Of Wood; Wood Charcoal	755,501	3%	Ceramic Products	2,626,267	4%
9	Vehicles, Except Railway Or Tramway, And Parts Etc	748,728	3%	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	2,377,840	4%
10	Meat And Edible Meat Offal	731,440	3%	Wood And Articles Of Wood; Wood Charcoal	2,342,667	3%
11	Copper And Articles Thereof	729,026	3%	Food Industry Residues & Waste; Prep Animal Feed	2,332,325	3%
12	Articles Of Iron Or Steel	666,023	2%	Rubber And Articles Thereof	2,316,562	3%
13	Milling Products; Malt; Starch; Inulin; Wht Gluten	646,609	2%	Toys, Games & Sport Equipment; Parts & Accessories	1,799,772	3%
14	Organic Chemicals	562,981	2%	Glass And Glassware	1,662,246	2%
15	Miscellaneous Chemical Products	507,297	2%	Edible Vegetables & Certain Roots & Tubers	1,630,742	2%
16	Rubber And Articles Thereof	477,488	2%	Vehicles, Except Railway Or Tramway, And Parts Etc	1,607,144	2%
17	Electric Machinery Etc; Sound Equip; TV Equip;	470,048	2%	Paper & Paperboard & Articles (inc Papr Pulp Artl)	1,109,056	2%
18	Aluminum And Articles Thereof	464,379	2%	Prep Vegetables, Fruit, Nuts Or Other Plant Parts	1,108,136	2%
19	Tanning & Dye Extracts Etc; Dye, Paint, Putty Etc; Inks	379,818	1%	Mineral Fuel, Oil Etc.; Bitumin Subst; Mineral Wax	1,090,225	2%
20	Dairy Prods; Birds Eggs; Honey; Ed Animal Pr Nesoi	373,611	1%	Organic Chemicals	1,063,610	2%
All Other		4,667,805	17%	All Other	17,418,198	26%
<b>Total 2007</b>		<b>27,896,331</b>	<b>100%</b>	<b>Total 2007</b>	<b>67,837,483</b>	<b>100%</b>

Source: Eurostat

**AE-14c Asia/North Europe Trade**  
**2008 Top Moving Export and Import Commodities in Metric Tons**

2008 North Europe to Asia				2008 Asia to North Europe		
Rank	Commodity	2008 Mtons	PCT	Commodity	2008 Mtons	PCT
1	Wood Pulp Etc; Recovered (Waste & Scrap) Paper & Paperboard	5,709,722	18%	Nuclear Reactors, Boilers, Machinery Etc.; Parts	5,698,023	8%
2	Plastics And Articles Thereof	3,877,514	12%	Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab	4,409,029	7%
3	Iron And Steel	2,329,622	7%	Electric Machinery Etc; Sound Equip; TV Equip;	3,824,582	6%
4	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	1,806,485	6%	Plastics And Articles Thereof	3,436,320	5%
5	Paper & Paperboard & Articles (inc Papr Pulp Artl)	1,791,056	6%	Articles Of Iron Or Steel	3,223,411	5%
6	Nuclear Reactors, Boilers, Machinery Etc.; Parts	1,618,698	5%	Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	3,131,653	5%
7	Meat And Edible Meat Offal	1,008,514	3%	Iron And Steel	2,560,635	4%
8	Wood And Articles Of Wood; Wood Charcoal	961,794	3%	Ceramic Products	2,465,873	4%
9	Copper And Articles Thereof	869,633	3%	Wood And Articles Of Wood; Wood Charcoal	2,291,239	3%
10	Beverages, Spirits And Vinegar	840,198	3%	Food Industry Residues & Waste; Prep Animal Feed	2,254,644	3%
11	Articles Of Iron Or Steel	786,007	3%	Rubber And Articles Thereof	2,231,348	3%
12	Aluminum And Articles Thereof	769,112	2%	Mineral Fuel, Oil Etc.; Bitumin Subst; Mineral Wax	1,829,057	3%
13	Vehicles, Except Railway Or Tramway, And Parts Etc	751,040	2%	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	1,713,438	3%
14	Organic Chemicals	662,007	2%	Toys, Games & Sport Equipment; Parts & Accessories	1,704,455	3%
15	Miscellaneous Chemical Products	596,294	2%	Glass And Glassware	1,635,341	2%
16	Milling Products; Malt; Starch; Inulin; Wht Gluten	565,374	2%	Edible Vegetables & Certain Roots & Tubers	1,581,650	2%
17	Electric Machinery Etc; Sound Equip; TV Equip;	477,856	2%	Vehicles, Except Railway Or Tramway, And Parts Etc	1,526,621	2%
18	Rubber And Articles Thereof	444,192	1%	Organic Chemicals	1,117,818	2%
19	Ceramic Products	356,433	1%	Prep Vegetables, Fruit, Nuts Or Other Plant Parts	1,054,219	2%
20	Tanning & Dye Extracts Etc; Dye, Paint, Putty Etc; Inks	349,801	1%	Ships, Boats And Floating Structures	1,027,533	2%
All Other		4,777,233	15%	All Other	18,445,731	27%
<b>Total 2008</b>		<b>31,348,585</b>	<b>100%</b>	<b>Total 2008</b>	<b>67,162,619</b>	<b>100%</b>

Source: Eurostat

## Chapter 5

### AE-14d Asia/North Europe Trade 2009 Top Moving Export and Import Commodities in Metric Tons

2009 North Europe to Asia				2009 Asia to North Europe		
Rank	Commodity	2009 Mtons	PCT	Commodity	2009 Mtons	PCT
1	Wood Pulp Etc; Recovered (Waste & Scrap) Paper & Paperboard	6,881,354	21%	Nuclear Reactors, Boilers, Machinery Etc.; Parts	3,781,266	7%
2	Plastics And Articles Thereof	5,061,625	15%	Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab	3,750,810	7%
3	Iron And Steel	2,215,292	7%	Electric Machinery Etc; Sound Equip; TV Equip;	3,344,522	6%
4	Paper & Paperboard & Articles (inc Papr Pulp Artl)	2,158,794	7%	Plastics And Articles Thereof	3,034,280	6%
5	Nuclear Reactors, Boilers, Machinery Etc.; Parts	1,389,385	4%	Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	2,963,543	6%
6	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	1,238,565	4%	Food Industry Residues & Waste; Prep Animal Feed	2,627,792	5%
7	Copper And Articles Thereof	1,149,520	3%	Articles Of Iron Or Steel	2,191,563	4%
8	Meat And Edible Meat Offal	969,432	3%	Ceramic Products	2,078,352	4%
9	Beverages, Spirits And Vinegar	748,921	2%	Rubber And Articles Thereof	1,796,032	3%
10	Aluminum And Articles Thereof	739,141	2%	Wood And Articles Of Wood; Wood Charcoal	1,695,074	3%
11	Vehicles, Except Railway Or Tramway, And Parts Etc	683,395	2%	Toys, Games & Sport Equipment; Parts & Accessories	1,417,696	3%
12	Wood And Articles Of Wood; Wood Charcoal	677,495	2%	Glass And Glassware	1,253,273	2%
13	Organic Chemicals	668,091	2%	Mineral Fuel, Oil Etc.; Bitumin Subst; Mineral Wax	1,231,423	2%
14	Milling Products; Malt; Starch; Inulin; Wht Gluten	631,314	2%	Vehicles, Except Railway Or Tramway, And Parts Etc	1,169,549	2%
15	Articles Of Iron Or Steel	529,801	2%	Iron And Steel	1,040,540	2%
16	Rubber And Articles Thereof	505,640	2%	Paper & Paperboard & Articles (inc Papr Pulp Artl)	1,033,141	2%
17	Miscellaneous Chemical Products	448,761	1%	Animal Or Vegetable Fats, Oils Etc. & Waxes	903,267	2%
18	Raw Hides And Skins (no Furskins) And Leather	440,150	1%	Organic Chemicals	902,348	2%
19	Food Industry Residues & Waste; Prep Animal Feed	390,539	1%	Miscellaneous Chemical Products	585,195	1%
20	Electric Machinery Etc; Sound Equip; TV Equip;	383,846	1%	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	543,868	1%
All Other		5,158,885	16%	All Other	14,904,522	29%
<b>Total 2009</b>		<b>33,069,947</b>	<b>100%</b>	<b>Total 2009</b>	<b>52,248,055</b>	<b>100%</b>

Source: Eurostat

**AE-14e Asia/North Europe Trade**  
**2010 Top Moving Export and Import Commodities in Metric Tons**

2010 North Europe to Asia				2010 Asia to North Europe		
Rank	Commodity	2010 Mtons	PCT	Commodity	2010 Mtons	PCT
1	Wood Pulp Etc; Recovered (Waste & Scrap) Paper & Paperboard	5,158,845	15%	Nuclear Reactors, Boilers, Machinery Etc.; Parts	4,812,502	8%
2	Plastics And Articles Thereof	4,886,796	14%	Electric Machinery Etc; Sound Equip; TV Equip;	4,599,994	8%
3	Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	2,571,391	8%	Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab	4,389,102	7%
4	Paper & Paperboard & Articles (inc Papr Pulp Artl)	2,069,025	6%	Plastics And Articles Thereof	3,382,851	6%
5	Iron And Steel	1,816,525	5%	Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	3,252,118	5%
6	Nuclear Reactors, Boilers, Machinery Etc.; Parts	1,629,440	5%	Articles Of Iron Or Steel	2,880,521	5%
7	Meat And Edible Meat Offal	1,193,579	3%	Rubber And Articles Thereof	2,276,427	4%
8	Copper And Articles Thereof	1,125,132	3%	Ceramic Products	2,240,266	4%
9	Milling Products; Malt; Starch; Inulin; Wht Gluten	942,329	3%	Food Industry Residues & Waste; Prep Animal Feed	2,056,078	3%
10	Vehicles, Except Railway Or Tramway, And Parts Etc	909,781	3%	Wood And Articles Of Wood; Wood Charcoal	1,859,478	3%
11	Beverages, Spirits And Vinegar	863,523	3%	Iron And Steel	1,690,092	3%
12	Aluminum And Articles Thereof	702,027	2%	Toys, Games & Sport Equipment; Parts & Accessories	1,636,013	3%
13	Wood And Articles Of Wood; Wood Charcoal	658,881	2%	Vehicles, Except Railway Or Tramway, And Parts Etc	1,448,581	2%
14	Rubber And Articles Thereof	644,993	2%	Glass And Glassware	1,430,744	2%
15	Organic Chemicals	639,936	2%	Organic Chemicals	1,192,113	2%
16	Miscellaneous Chemical Products	633,085	2%	Miscellaneous Chemical Products	1,143,607	2%
17	Articles Of Iron Or Steel	622,436	2%	Prep Vegetables, Fruit, Nuts Or Other Plant Parts	1,067,670	2%
18	Food Industry Residues & Waste; Prep Animal Feed	445,588	1%	Paper & Paperboard & Articles (inc Papr Pulp Artl)	1,007,740	2%
19	Raw Hides And Skins (no Furskins) And Leather	398,384	1%	Footwear, Gaiters Etc. And Parts Thereof	971,605	2%
20	Electric Machinery Etc; Sound Equip; TV Equip;	393,453	1%	Fish, Crustaceans & Aquatic Invertebrates	941,156	2%
All Other		5,890,857	17%	All Other	15,714,821	26%
<b>Total 2010</b>		<b>34,196,008</b>	<b>100%</b>	<b>Total 2010</b>	<b>59,993,482</b>	<b>100%</b>

Source: Eurostat

## Chapter 5

**Table AE-15 Annual Value of Liner Cargo and Average Value per Kilogram (Kg)**

For each year of the review period from 2006 through 2010, the table on the left gives the total value of container exports moved outbound from North Europe to Asia, and the total value of container imports moved inbound to North Europe from Asia. The value of container cargo is expressed in US dollars. The table also gives the percent of annual growth or decline in the value of container exports and imports from one year to the next over the review period. The table shows the direction of the trade with the highest value of container cargo and any imbalance and change over time in the directional value and growth of container exports and imports. Eurostat's ComExt database is the source of the data. (USA Trade Online data were used to derive container penetration rates by commodity at the HS2 level which were then applied to the ComExt data to obtain the value of containerized cargo.)

For each year of the review period from 2006 through 2010, the table on the right gives the value per kilogram (Kg) of container exports that moved outbound from North Europe to Asia, and the value per Kg of container imports that moved from Asia to North Europe. The figures for each year are derived from the total US dollar value of container exports and imports divided by their total weight in kilograms. The table also gives the percent of annual growth or decline in the value per Kg of container exports and imports from one year to the next over the review period. On a per Kg basis, the table shows the direction of the trade with the highest value of container cargo and any change over time. Eurostat is the source of the data.

**AE-15 Container Cargo Value by Year  
Trade Between Asia and North Europe**

Year	Annual Value of Liner Cargo				Average Value of Liner Cargo per Kg			
	N. Europe to Asia	Percent Change	Asia to N. Europe	Percent Change	N. Europe to Asia	Percent Change	Asia to N. Europe	Percent Change
2006	\$90,697,765,354	-	\$209,348,276,170	-	\$3.33	-	\$4.03	-
2007	\$107,605,627,858	19%	\$273,566,396,797	31%	\$3.86	16%	\$4.09	2%
2008	\$125,570,558,529	17%	\$316,379,086,538	16%	\$4.01	4%	\$4.78	17%
2009	\$110,731,382,294	-12%	\$250,988,990,560	-21%	\$3.35	-16%	\$4.80	0%
2010	\$127,277,933,979	15%	\$313,725,201,717	25%	\$3.72	11%	\$5.23	9%

Source: Eurostat

## Asia/Europe Carrier Conduct

Table AE-16 Active Agreements in the Trade

The table shows each agreement between shipping lines in the North Europe/Asia trade that was operating in the trade in each calendar quarter of the review period from 2006 through 2010. For each agreement, the table gives the period of time when the agreement was in effect. The table shows any change in cooperative activity among shipping lines in the trade over the review period. The source of data is Drewry Maritime Research.

### AE-16 Carrier Agreements in the Asia/North Europe Trade

• The period of time the agreement was in effect.

	2006				2007				2008				2009				2010			
	Q1	Q2	Q3	Q4																
Conferences																				
Far Eastern Freight Conference (FEFC)	•	•	•	•	•	•	•	•	•	•	•									
Alliances																				
The Grand Alliance	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
The New World Alliance	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Cosco/K-Line/Yang Ming/Hanjin/Senator (CKYH)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Vessel Sharing Arrangements																				
CMA CGM/China Shipping Company	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Pacific International Lines (PIL)/Wan Hai	•	•	•	•	•	•	•	•	•	•	•	•	•							
CSAV/Norasia	•	•	•	•	•	•	•	•	•	•	•	•	•							
CMA CGM/Hapag-Lloyd/Marfret	•	•	•	•	•	•														
Evergreen/Italia Marittima/Hatsu Marine	•	•	•	•	•	•														
China Shipping/Zim	•	•	•	•																
CMA CGM/Deutsche-Afrika Linien (DAL)							•	•	•	•	•	•	•							
IRISL/ECL							•	•	•	•										
Hanjin/UASC									•	•	•	•								
CMA CGM/Hapag-Lloyd												•	•	•	•	•	•	•	•	•
China Shipping/Evergreen															•	•	•	•	•	•
The Grand Alliance/The New World Alliance																		•	•	

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### AE-16 Carrier Agreements in the Asia/North Europe Trade (continued)

• The period of time the agreement was in effect.

	2006				2007				2008				2009				2010			
	Q1	Q2	Q3	Q4																
CMA CGM/ Maersk																				•
China Shipping/ Evergreen/ CMA CGM																				•
Slot Chartering Arrangements																				
Australian National Line on CMA CGM	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
APL on CMA CGM	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
APL on Grand Alliance	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CMA CGM on New World Alliance	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Grand Alliance on the New World Alliance	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Safmarine on Maersk	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Zim on China Shipping	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CMA CGM on Evergreen	•	•	•	•	•	•	•	•	•	•	•	•	•							
Yang Ming on New World Alliance	•	•	•	•	•	•	•	•	•	•	•									
Evergreen/ China Shipping/Zim Reciprocal	•	•	•	•	•	•														
UASC on Hanjin	•	•	•										•	•	•	•	•	•	•	•
HMM on Grand Alliance		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MOL on Grand Alliance		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Zim on CSAV/ Norasia				•	•	•	•	•												
UASC on Hanjin Cosco					•	•	•													
HMM on CMA CGM							•	•	•	•	•	•	•	•	•	•	•	•	•	•
MOL on CMA CGM							•	•	•	•	•	•	•	•	•	•	•	•	•	•
UASC on Cosco								•	•	•	•									
Senator on Hanjin UASC									•	•										
Maersk on Evergreen									•	•	•	•								
Hanjin and Senator on UASC										•	•	•								
CMA CGM on APL												•								

**AE-16 Carrier Agreements in the Asia/North Europe Trade (continued)**

• The period of time the agreement was in effect.

	2006				2007				2008				2009				2010			
	Q1	Q2	Q3	Q4																
Hanjin on UASC														•	•	•	•	•	•	•
China Shipping/ CMA CGM Reciprocal														•	•	•	•	•	•	•
Zim on Grand Alliance														•	•	•	•	•	•	•
CMA CGM/ Evergreen Reciprocal														•	•	•	•	•	•	•
Evergreen/ Maersk Reciprocal														•	•					
CMA CGM/ Maersk Reciprocal															•	•	•	•	•	
PIL on CKYH																	•			
Evergreen on Grand Alliance																		•	•	•
HDS Lines on China Shipping																		•	•	•
NYK on Evergreen																		•	•	•

Source: Drewry Maritime Research

## Chapter 5

### Tables AE-17a-e Liner Services in the Asia/North Europe Trade

The tables list the liner services offered by shipping lines operating in the North Europe/Asia trade for each year of the review period from 2006 through 2010. For each liner service in each year, the tables identify the service name, type, shipping lines, frequency, the number of service vessels, the average TEU vessel capacity, the annual TEU operational capacity, and the percent of the market capacity provided by the service. The percent of the market for each service is derived from the total annual amount of operational capacity deployed in the market. The tables show the annual level of liner services and capacity offered by the shipping lines serving the trade and any changes that occurred over the review period. The source of the data is Drewry Maritime Research.

#### AE-17a Liner Services between Asia and North Europe As of October 1, 2006

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
EU1	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	8	6,433	335,461	3.0%
EU2	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	8	6,224	324,537	2.9%
EU3	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	8	8,404	438,235	3.9%
EU4	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	9	7,448	388,372	3.5%
AE1	ETE	Maersk Line	7	9	9,300	484,929	4.4%
AE2	ETE	Maersk Line	7	9	8,211	428,151	3.9%
AE7	ETE	Maersk Line	7	8	8,431	439,629	4.0%
AE8	ETE	Maersk Line	7	7	7,163	373,492	3.4%
AE9	ETE	Maersk Line	7	7	4,953	258,271	2.3%
AE10	ETE	Maersk Line	7	8	5,087	265,231	2.4%
Japan Exp. JEX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	8	6,381	332,737	3.0%
Asia Exp. EAEX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	8	6,194	322,979	2.9%
China Exp. CEX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	8	5,751	299,900	2.7%
South China Exp. SCX (APL/MOL)	ETE	New World Alliance: APL, HMM, MOL	7	7	5,582	291,061	2.6%
FAL (French Asia Line)	ETE	CMA CGM	7	*** (7)	8,326	379,861	3.4%
NCX (North China Express)	ETE	CMA CGM	7	8	6,659	347,213	3.1%
FAL2/AEX7	ETE	CMA CGM, CSCL	7	*** (6)	9,274	362,673	3.3%
AME (Asia Europe service)	ETE	CSAV Norasia	7	*** (7)	5,372	258,765	2.3%
JES/AE2 (K Line)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	5,609	292,482	2.6%
AE1/AES (Yang Ming)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	5,890	307,115	2.8%
NCX (Cosco)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	8,951	466,757	4.2%
AEX (Hanjin/Cosco)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	5,544	289,093	2.6%

**AE-17a Liner Services between Asia and North Europe  
As of October 1, 2006 (continued)**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
FEX (Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	5,715	297,977	2.7%
SCX (Cosco/Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	7	5,514	287,538	2.6%
PDS (Hanjin)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	12	4,914	256,221	2.3%
AEC	ETE	UASC	7	10	3,788	197,507	1.8%
WAE (Evergreen/Hatsu/Italia)	PDM	Evergreen, Italia Marittima, Hatsu Marine	7	12	5,445	283,900	2.6%
CEM (Evergreen/Hatsu/Italia)	ETE	Evergreen, Italia Marittima, Hatsu Marine	7	8	8,073	420,949	3.8%
Silk Express	ETE	Mediterranean Shipping Co (MSC)	7	9	9,111	475,079	4.3%
Lion service	ETE	Mediterranean Shipping Co (MSC)	7	9	7,237	377,340	3.4%
Australia service	Multi	Mediterranean Shipping Co (MSC)	7	13	3,084	160,788	1.4%
China Shipping AEX 1	ETE	China Shipping	7	9	5,652	294,717	2.7%
China Shipping/Zim AEX 2	ETE	China Shipping, Zim	7	***(2)	5,678	65,793	0.6%
PIL/Wan Hai	ETE	PIL, Wan Hai	7	8	2,809	146,443	1.3%
CMA CGM/Hapag-Lloyd/Marfret	RTW	CMA CGM, Hapag-Lloyd, Marfret	7	12	2,280	118,903	1.1%
Chipolbrok	ETE	CMA CGM, Hapag-Lloyd, Marfret	12-13		500	14,600	0.1%
Rickmers	ETE	CMA CGM, Hapag-Lloyd, Marfret	15-16		600	14,400	0.1%
<b>Total</b>						<b>11,099,099</b>	<b>100.0%</b>

\*\*\*() Services temporarily under strength for various reasons (the number of ships in operation is given in brackets).  
Source: Drewry Container Forecaster, Drewry Maritime Research

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### AE-17b Liner Services between Asia and North Europe As of October 1, 2007

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
EU1	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	8	6,404	333,936	2.7%
EU2	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	9	7,586	395,533	3.2%
EU3	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	9	8,762	456,887	3.7%
EU4	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	9	8,256	430,515	3.5%
AE1	ETE	Maersk Line	7	9	8,178	426,413	3.5%
AE2	ETE	Maersk Line	7	8	8,925	465,375	3.8%
AE7	ETE	Maersk Line	7	8	11,912	621,152	5.1%
AE8/AE10 Butterfly	BUT	Maersk Line	7	17	7,880	410,904	3.4%
AE9	ETE	Maersk Line	7	7	6,414	334,459	2.7%
Japan Exp. JEX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	8	6,381	332,737	2.7%
Asia Exp. AEX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	8	6,800	354,571	2.9%
China Exp. CEX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	8	5,761	300,421	2.5%
South China Exp. SCX (APL/MOL)	ETE	New World Alliance: APL, HMM, MOL	7	7	5,582	291,061	2.4%
FAL1	ETE	CMA CGM, MOL	7	9	8,426	439,344	3.6%
FAL3	ETE	CMA CGM	7	8	6,680	348,321	2.9%
FAL2/AEX7	ETE	CMA CGM, CSCL	7	8	9,497	495,227	4.1%
AME (Asia Europe service)	ETE	CSAV Norasia	7	8	6,287	327,848	2.7%
JES/AE2 (K Line)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	5,613	292,704	2.4%
AE1/AES (Yang Ming, K Line)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	8,622	449,576	3.7%
Loop 1/NCX (Cosco)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	8,982	468,354	3.8%
Loop 2/AEX (Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	5,664	295,318	2.4%
Loop 3/FEX (Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	6,166	321,500	2.6%
Loop 4/SCX (Cosco)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	7	7,573	394,855	3.2%
AEC	ETE	UASC	7	10	3,876	202,127	1.7%
CES	ETE	Evergreen	7	8	7,024	366,251	3.0%
CEM	ETE	Evergreen	7	8	8,073	420,949	3.4%
Silk Express	ETE	Mediterranean Shipping Co (MSC)	7	9	9,178	478,567	3.9%
Lion service	ETE	Mediterranean Shipping Co (MSC)	7	10	8,497	443,079	3.6%
Australia service	Multi	Mediterranean Shipping Co (MSC)	7	*** (12)	3,180	153,079	1.3%
China Shipping AEX 1	ETE	China Shipping	7	8	8,588	447,790	3.7%
China Shipping AEX 2	ETE	China Shipping	7	*** (3)	5,629	110,067	0.9%

**AE-17b Liner Services between Asia and North Europe  
As of October 1, 2007 (continued)**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
PIL/Wan Hai	ETE	PIL, Wan Hai	7	8	4,284	223,400	1.8%
Hapag-Lloyd Suez pendulum	PDM	Hapag-Lloyd	7	***(11)	2,317	110,730	0.9%
CMA CGM/DAL Nemo service	PDM	CMA CGM, DAL	7	***(11)	2,747	121,200	1.0%
Chipolbrok	ETE		12-13		500	14,600	0.1%
Rickmers	ETE		15-16		600	14,400	0.1%
IRIS ECL pendulum	ETE	IRIS	7	***(9)	2,610	111,363	0.9%
<b>Total</b>						<b>12,204,613</b>	<b>100.0%</b>

\*\*\*() Services temporarily under strength for various reasons (the number of ships in operation is given in brackets).  
Source: Drewry Container Forecaster, Drewry Maritime Research

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### AE-17c Liner Services between Asia and North Europe As of October 1, 2008

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
EU1	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	9	6,411	334,305	2.5%
EU2	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	10	7,631	397,907	3.0%
EU3	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	9	8,762	456,887	3.4%
EU4	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	9	8,574	447,079	3.4%
EU5	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	8	3,306	172,404	1.3%
AE1/AE8 Butterfly	BUT	Maersk Line	7	*** (17)	8,368	412,073	3.1%
AE2	ETE	Maersk Line	7	9	10,037	523,340	3.9%
AE7	ETE	Maersk Line	7	9	13,509	704,392	5.3%
AE9	ETE	Maersk Line	7	8	6,512	339,541	2.6%
AE10	ETE	Maersk Line	7	9	7,603	396,431	3.0%
Japan Exp. JEX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	*** (8)	6,381	295,766	2.2%
Asia Exp. AEX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	*** (8)	6,800	315,175	2.4%
China Exp. CEX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	*** (8)	6,239	289,196	2.2%
South China Exp. SCX (APL/MOL)	ETE	New World Alliance: APL, HMM, MOL	7	8	8,110	422,879	3.2%
FAL/FAL1	ETE	CMA CGM, HMM	7	9	8,519	444,228	3.4%
FAL3	ETE	CMA CGM	7	9	6,867	358,071	2.7%
FAL2/AEX7	ETE	CMA CGM, CSCL	7	8	9,497	495,227	3.7%
FAL4/AEX8	ETE	CMA CGM, CSCL	7	*** (4)	9,620	250,820	1.9%
ANE	ETE	CSAV Norasia	7	*** (8)	6,287	291,421	2.2%
PAN/PM1 (K Line)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	13	5,613	292,666	2.2%
AE1/AES (Yang Ming, K Line)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	8,621	449,550	3.4%
AE3/AES3 (Yang Ming)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	*** (6)	5,573	193,734	1.5%
Loop 1/AES (Cosco)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	8	9,447	492,574	3.7%
Loop 2/AEX (Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	*** (7)	5,670	258,700	2.0%
Loop 3/FEX (Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	*** (8)	6,622	308,454	2.3%
Loop 4/AEN (Cosco)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin, Senator	7	*** (8)	8,946	414,663	3.1%
AEC3/CNX	ETE	UASC, Hanjin	7	8	6,557	341,907	2.6%
AEC1	ETE	UASC	7	10	3,802	198,247	1.5%
CES	ETE	Evergreen	7	8	7,024	366,251	2.8%
CEM	ETE	Evergreen	7	8	8,073	420,949	3.2%
Silk Express	ETE	Mediterranean Shipping Co (MSC)	7	10	9,258	482,759	3.6%

**AE-17c Liner Services between Asia and North Europe  
As of October 1, 2008 (continued)**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
Lion service	ETE	Mediterranean Shipping Co (MSC)	7	10	8,433	439,705	3.3%
Australia service	Multi	Mediterranean Shipping Co (MSC)	7	13	3,153	164,386	1.2%
China Shipping AEX 1	ETE	China Shipping	7	8	8,069	420,754	3.2%
Zim EWX	ETE	Zim	7	*** (8)	4,251	197,036	1.5%
PIL/Wan Hai FES	ETE	PIL, Wan Hai	7	*** (8)	4,252	197,100	1.5%
Hapag-Lloyd Suez pendulum	PDM	Hapag-Lloyd	7	*** (10)	2,362	102,656	0.8%
CMA CGM/DAL NEMO service	PDM	CMA CGM, DAL	7	*** (12)	2,788	134,192	1.0%
Chipolbrok	ETE		15-16		500	11,774	0.1%
Rickmers	ETE		15-16		600	14,400	0.1%
<b>Total</b>						<b>13,249,599</b>	<b>100.0%</b>

\*\*\*() Services temporarily under strength for various reasons (the number of ships in operation is given in brackets).  
Source: Drewry Container Forecaster, Drewry Maritime Research

## Chapter 5

### AE-17d Liner Services between Asia and North Europe As of October 1, 2009

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
EU1	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	***(8)	6,512	301,803	2.8%
EU2	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	***(8)	6,857	317,799	2.9%
EU3	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	***(9)	8,934	419,244	3.9%
EU4	ETE	Grand Alliance: Hapag-Lloyd, MISC, NYK, OOCL	7	10	8,502	443,345	4.1%
AE1/AE10 Butterfly	BUT	Maersk Line	7	19	8,284	431,962	4.0%
AE2	ETE	Maersk Line	7	9	8,400	438,000	4.0%
AE7 (****)	ETE	Maersk Line	7	10	13,351	696,138	6.4%
AE9	ETE	Maersk Line	7	8	6,846	356,963	3.3%
Japan Exp. JEX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	9	6,378	332,556	3.1%
Asia Exp. AEX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	9	8,366	436,239	4.0%
South China Exp. SCX (APL/MOL)	ETE	New World Alliance: APL, HMM, MOL	7	9	7,983	416,251	3.8%
FAL1	ETE	CMA CGM	7	10	9,738	507,757	4.7%
FAL3 (****)	ETE	CMA CGM	7	9	8,880	463,029	4.3%
FAL2/AEX7	ETE	CMA CGM, CSCL	7	8	9,497	495,227	4.6%
AE1/AES (Yang Ming, K Line)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	8,625	449,732	4.1%
AE3/AES3 (Yang Ming, K Line)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	8,205	427,838	3.9%
AEN/NNX (Cosco/Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	8,750	456,256	4.2%
AEX (Cosco/Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	9,898	516,123	4.7%
FEX (Hanjin)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	6,540	341,003	3.1%
AEC2	ETE	UASC	7	9	6,924	361,049	3.3%
CES	ETE	Evergreen	7	9	6,872	358,303	3.3%
CSCL/Evergreen AEX1/CEM	ETE	CSCL, Evergreen	7	8	8,695	453,402	4.2%
Silk Express	ETE	Mediterranean Shipping Co (MSC)	7	11	12,218	637,072	5.9%
Lion service	ETE	Mediterranean Shipping Co (MSC)	7	11	8,799	458,786	4.2%
Australia service	Multi	Mediterranean Shipping Co (MSC)	7	14	3,752	195,644	1.8%
New NEMO/EAX	ETE	CMA CGM, Hapag-Lloyd	7	12	2,799	145,974	1.3%
Chipolbrok	ETE		15-16		500	11,774	0.1%
Rickmers	ETE		15-16		600	14,400	0.1%
<b>Total</b>						<b>10,883,669</b>	<b>100.0%</b>

\*\*\*() Services temporarily under strength for various reasons (the number of ships in operation is given in brackets).

Source: Drewry Container Forecaster, Drewry Maritime Research

\*\*\*\* Includes two smaller ships working in tandem.

**AE-17e Liner Services between Asia and North Europe  
As of October 1, 2010**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
AE1/AE10 Butterfly	BUT	Maersk Line	7	21	8,232	429,225	3.3%
AE2	ETE	Maersk Line	7	10	8,407	438,344	3.4%
AE7	ETE	Maersk Line	7	10	13,173	686,878	5.3%
AE9	ETE	Maersk Line	7	9	7,014	365,753	2.8%
LPA (NYK)	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	10	9,026	470,626	3.6%
LPB/NWX pendulum (Hapag-Lloyd)	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	17	8,690	453,131	3.5%
LPC (OOCL)	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	10	8,063	420,428	3.2%
LPD	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	10	6,083	317,195	2.4%
Japan Exp. JEX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	9	6,594	343,851	2.6%
Asia Exp. AEX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	9	8,210	428,072	3.3%
South China Exp. SCX (APL/MOL)	ETE	New World Alliance: APL, HMM, MOL	7	9	8,194	427,259	3.3%
CEX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	10	6,172	321,805	2.5%
FAL1	ETE	CMA CGM	7	10	10,837	565,083	4.4%
FAL3	ETE	CMA CGM	7	10	9,030	470,840	3.6%
FAL5/AE8	ETE	CMA CGM, Maersk Line	7	10	13,045	680,204	5.2%
NE1	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	9,848	513,520	4.0%
NE2	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	8,586	447,716	3.5%
NE3	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	1	8,905	464,348	3.6%
NE4	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	8,777	457,664	3.5%
NE5	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	6,521	340,012	2.6%
AEC1	ETE	UASC	7	*** (10)	4,044	191,696	1.5%
AEC2	ETE	UASC	7	10	6,928	361,267	2.8%
CES	ETE	Evergreen	7	10	7,129	371,721	2.9%
CSCL/Evergreen AEX1/CEM	ETE	CSCL, Evergreen	7	8	9,192	479,323	3.7%
AEX7/AEX7/FAL2	ETE	CSCL, Evergreen, CMA CGM	7	9	9,067	472,802	3.6%
Silk Express	ETE	Mediterranean Shipping Co (MSC)	7	11	13,945	727,156	5.6%
Lion service	ETE	Mediterranean Shipping Co (MSC)	7	11	11,341	591,357	4.6%
Australia service	Multi	Mediterranean Shipping Co (MSC)	7	14	3,153	164,395	1.3%
FES	ETE	PIL, Wan Hai	7	9	4,253	221,740	1.7%
AME	ETE	Zim	7	11	3,471	180,978	1.4%
New NEMO/EAX	ETE	CMA CGM, Hapag-Lloyd	7	13	2,798	145,896	1.1%
Chipolbrok	ETE		15-16		500	11,774	0.1%
Rickmers	ETE		15-16		600	14,400	0.1%
<b>Total</b>						<b>12,976,459</b>	<b>100.0%</b>

\*\*\*() Services temporarily under strength for various reasons (the number of ships in operation is given in brackets).  
Source: Drewry Container Forecaster, Drewry Maritime Research

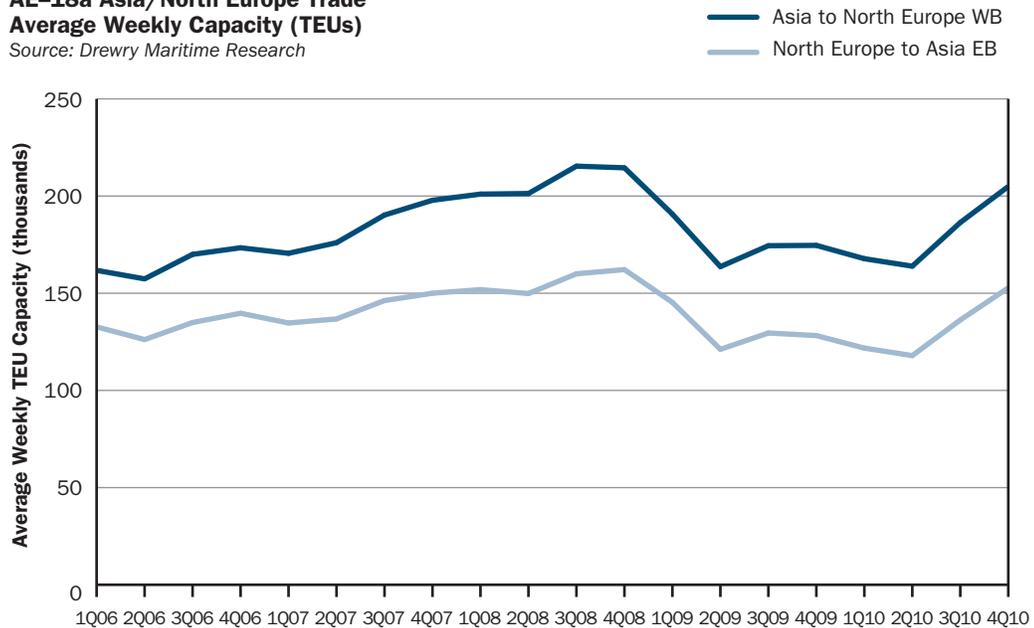
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### Charts AE-18a-c Changes in Average Weekly Capacity in the Asia/North Europe Trade

The charts provide trend lines showing the levels of average weekly vessel capacity supplied in each trade direction per quarter for the review period from 2006 through 2010. Chart AE-18a shows the trend line of average weekly capacity in each trade direction over the entire review period; the horizontal axis gives the series of time in quarters from 2006 through 2010, and the vertical axis measures the average weekly amount of vessel capacity supplied for each quarter in TEUs. Charts AE-18b-c compare the levels of average weekly capacity supplied for each year per calendar quarter; the horizontal axis gives the series of time as the four quarters of a single year, and the vertical axis measures the average weekly amount of vessel capacity supplied for each quarter in TEUs. Chart AE-18b compares the levels of capacity in the westbound trade direction, and Chart AE-18c compares the levels of capacity in the eastbound trade direction. The source of data is Drewry Maritime Research.

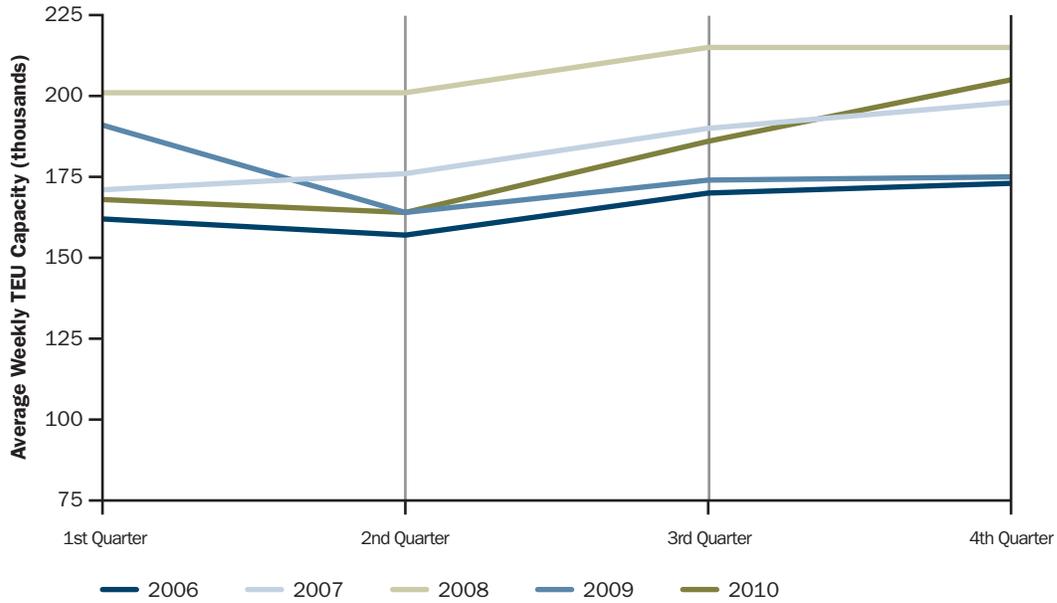
#### AE-18a Asia/North Europe Trade Average Weekly Capacity (TEUs)

Source: Drewry Maritime Research



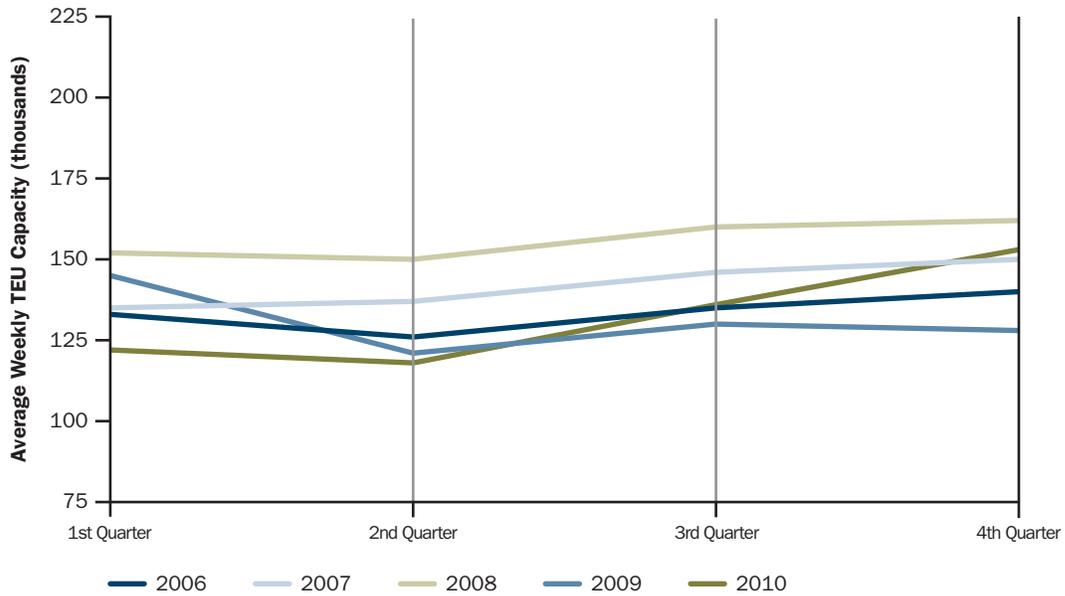
**AE-18b Westbound Capacity  
From Asia to North Europe**

Source: Drewry Maritime Research



**AE-18c Eastbound Capacity  
From North Europe to Asia**

Source: Drewry Maritime Research



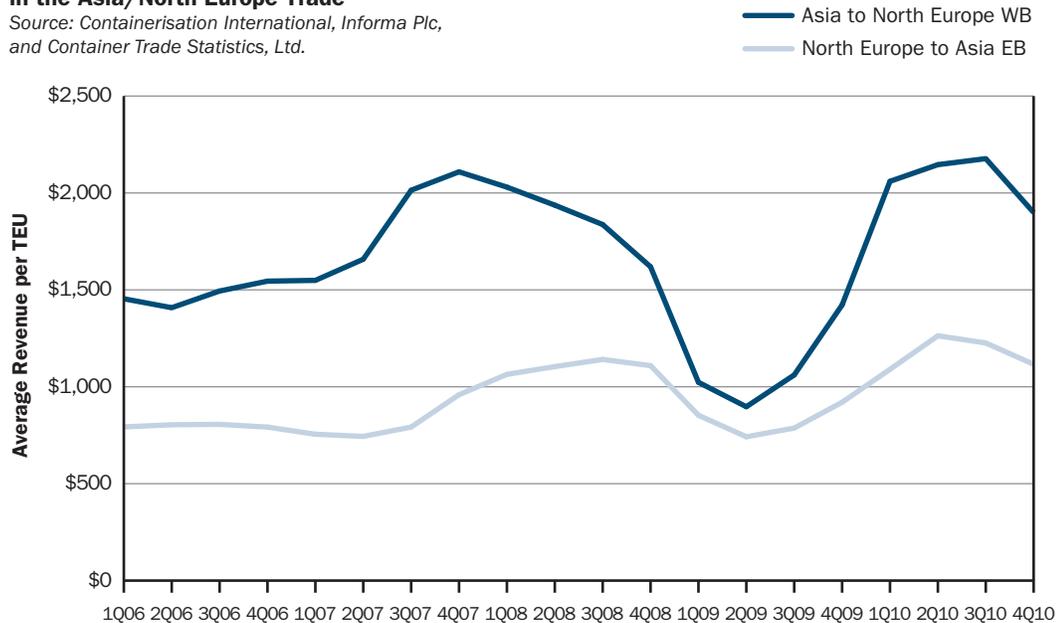
## Asia/Europe Economic Performance

Chart AE-19 Quarterly Average Revenue per TEU, Inbound and Outbound

The chart provides trend lines of time series data showing the levels of average revenue per TEU earned by shipping lines in the westbound and eastbound directions of the Asia/North Europe trade for each quarter of the review period from 2006 through 2010. The horizontal axis of the chart gives the time series in calendar quarters over the review period, and the vertical axis measures the average revenue per TEU in US dollars. The average revenue figures are derived from published information and are inclusive of ocean freight, accessorial charges, and any charges for inland haulage. The trend lines throughout the review period show the quarterly change in the average revenue earnings of the shipping lines in each trade direction. The level of earnings and the change over time are a function of the corresponding supply and demand conditions in the trade as affected by market and regulatory factors. The sources of data are Containerisation International, Informa Plc; and Container Trade Statistics, Ltd.

### AE-19 Average Revenue per TEU in the Asia/North Europe Trade\*

Source: Containerisation International, Informa Plc, and Container Trade Statistics, Ltd.



\* Fluctuations in the average revenue per container data obtained from Containerisation International ("CI") parallel similar data published by the Shanghai Shipping Exchange. Fluctuations in the China (export-only) Containerized Freight Index ("CCFI") published by the Shanghai Shipping Exchange, that tracks movements in average container rates from China to North Europe, closely match the fluctuations in the Asia to Europe average revenue per container data obtained from CI. It is not known, however, exactly how closely the underlying CCFI average rate information mirrors the CI average revenue data because the CCFI is publicly available in index form only. (The Shanghai Shipping Exchange generously contributed CCFI weekly data dating back to January 6, 2006 for use in this Study.)

**Table AE-20 Average Quarterly Vessel Utilization, Inbound and Outbound**

For each quarter of the review period from 2006 through 2010, the table gives the percentage levels of the utilization of vessel capacity for each direction of the Asia/North Europe trade. The percentage levels are derived by dividing the amount of container cargo moved in each trade direction by the amount of container vessel capacity supplied in each trade direction and multiplying the quotient by 100. The container cargo moved and vessel capacity are measured in TEUs. The trend in the percentage levels of utilization shows how the supply of, and demand for, vessel space are aligned in each trade lane and the change in utilization over the review period as affected by market conditions and other factors. A higher percentage of utilization indicates that supply and demand are more closely aligned, whereas a lower utilization percentage shows a period of greater excess vessel capacity in the market. The degree to which supply and demand are aligned impacts the level of freight rates. It would be expected that the trend in rate levels correlates to the trend in utilization levels. Further, the utilization of vessel space provides a general indication of service quality by showing whether shipping lines are deploying sufficient vessel capacity in relation to demand in the marketplace. The source of data is Drewry Maritime Research.

**AE-20 Asia/North Europe Trade  
Quarterly Capacity Utilization**

Quarter	N. Europe to Asia	Asia to N. Europe
1Q06	57%	83%
2Q06	62%	92%
3Q06	56%	94%
4Q06	56%	93%
1Q07	60%	92%
2Q07	62%	98%
3Q07	55%	99%
4Q07	53%	92%
1Q08	52%	81%
2Q08	57%	86%
3Q08	49%	81%
4Q08	42%	69%
1Q09	44%	67%
2Q09	67%	83%
3Q09	64%	87%
4Q09	66%	85%
1Q10	62%	92%
2Q10	66%	104%
3Q10	54%	95%
4Q10	54%	78%

Source: Drewry Maritime Research

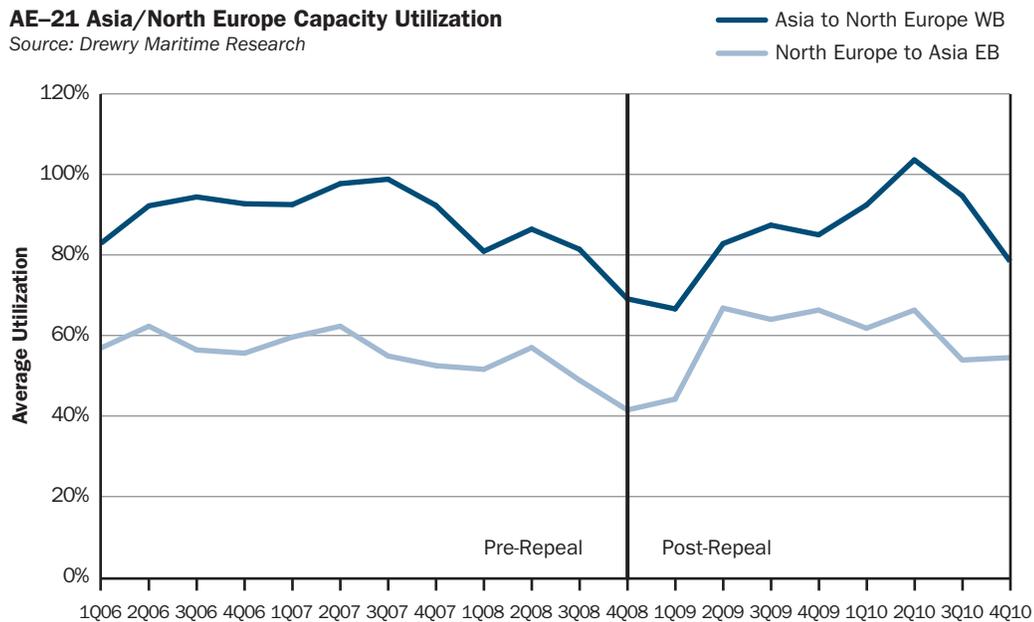
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**Chart AE-21 Average Quarterly Vessel Utilization, Inbound and Outbound**

For each quarter of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the percentage levels of the utilization of vessel capacity for each direction of the Asia/North Europe trade. The horizontal axis gives the series of time in quarters over the review period, and the vertical axis measures the level of vessel capacity utilization as a percentage. The percentage levels are derived by dividing the amount of container cargo moved in each trade direction by the amount of container vessel capacity supplied in each trade direction and multiplying the quotient by 100. The container cargo moved and vessel capacity are measured in TEUs. The trend line over the time series shows the change in vessel capacity utilization as affected by the change in the market conditions of supply and demand in each trade lane. A higher utilization level indicates that supply and demand are more closely aligned, whereas a lower utilization level shows a period of greater excess vessel capacity in the market. A utilization level that exceeds 100 percent indicates a period of time when the demand for vessel space exceeded the supply of vessel space. The degree to which supply and demand are aligned impacts the level of freight rates. It would be expected that the trend in rate levels correlates to the trend in utilization levels. Further, the utilization of vessel provides a general indication of service quality by showing whether shipping lines are deploying sufficient vessel capacity in relation to demand in the marketplace. The source of data is Drewry Maritime Research.

**AE-21 Asia/North Europe Capacity Utilization**

Source: Drewry Maritime Research



**Table AE-22 Market Share Instability Index (MSII)**

The table gives, in the form of a market share instability index (“MSII”), the total change in market share of participating shipping lines in the Asia/North Europe trade from one time period to the next for the review period from 2006 through 2010. The MSII for the entire trade is the sum of the absolute values of the change in the percentages of market share of the individual shipping lines that occurred from one period to the next. The percentage of market share for each shipping line is derived from its total container capacity in the trade for the given period. A high value of MSII indicates that a high portion of the market shifted among the shipping lines in the trade for a given time. The source of data is Drewry Maritime Research.

**AE-22 Asia/North Europe Trade  
Market Share Instability Index**

Year	Quarter	N. Europe to Asia	Asia to N. Europe
2006	1st Quarter	4.6%	1.8%
	2nd Quarter	26.4%	24.3%
	3rd Quarter	2.6%	2.7%
	4th Quarter	5.7%	4.4%
2007	1st Quarter	6.3%	8.0%
	2nd Quarter	4.2%	4.0%
	3rd Quarter	3.2%	3.9%
	4th Quarter	4.1%	6.2%
2008	1st Quarter	4.0%	3.8%
	2nd Quarter	8.1%	7.0%
	3rd Quarter	4.6%	4.5%
	4th Quarter	7.3%	6.0%
2009	1st Quarter	10.2%	9.4%
	2nd Quarter	14.1%	15.0%
	3rd Quarter	5.4%	6.3%
	4th Quarter	6.2%	8.7%
2010	1st Quarter	6.5%	5.6%
	2nd Quarter	4.9%	5.8%
	3rd Quarter	13.6%	12.0%
	4th Quarter	9.8%	8.0%

Source: Drewry Maritime Research

### Far East /US

#### Background

The transpacific is by far the United States' largest ocean liner trade lane.<sup>1</sup> The transpacific accounts for approximately 65 percent all US containerized cargo. Around 70 percent of US container imports originate from the transpacific, and this region receives approximately 50 percent of US container exports. These percentages have fluctuated little since 2006. Globally, the transpacific is the third largest ocean liner trade lane after the intra-Asia and the Asia-Europe trade lanes.<sup>2</sup>

Over the past decade, eastbound transpacific container cargo (US imports) and westbound container cargo (US exports) each grew, on average, by six percent.<sup>3</sup> Since 2006, eastbound transpacific cargo increased by just one percent and westbound cargo grew by seven percent. For both imports and exports, China is the United States' largest overseas ocean liner trading partner, and accounts for nearly 60 percent of the ocean liner trade between the US and Asia (see Tables TP-13a-e).

The Ports of Los Angeles and Long Beach handle over 40 percent of all US container cargo originating from or destined to Asia and the Indian Subcontinent. Over 70 percent of the transpacific container trade moves through Pacific Coast ports (see Tables TP-13a-e). Another 25 percent moves through the US Atlantic Coast ports (see Tables TP-13a-e). Of all Atlantic Coast ports, the Port of New York/New Jersey handles the most transpacific container cargo. The US Gulf Coast handles very little transpacific container cargo because most transpacific container cargo destined to, or originating from, this region moves intermodally through the Ports of Los Angeles and Long Beach. The Port of Houston handles the most transpacific container cargo along the Gulf Coast, but its share of the overall transpacific market is around one percent.

The top three foreign ports that handle over 40 percent of all container cargo destined to, or originating from, the US are the Chinese ports of Shanghai, Yantian and Hong Kong. Six of the top ten foreign ports that move transpacific container cargo are Chinese ports, and they handle more than half of all transpacific container cargo. The Ports of Busan (Korea), Kaohsiung (Taiwan), Singapore and Tokyo (Japan) are the only four non-Chinese ports to make it into the top ten and together they handle approximately 22 percent of all transpacific US cargo.

The eastbound trade lane is the headhaul leg of the transpacific. This is due to higher container volumes, shipment value, time definite requirements (except for westbound refrigerated shipments) and revenues (see Tables TP-1 and TP-15 and Chart TP-2). In 2010, the US imported two containers for just under one container that it exported (see Table TP-5 and Chart TP-6). However, the trade imbalance appears to be shrinking. In 2006, the US imported three containers for every container that it exported. Major transpacific imports include furniture, clothing, toys, footwear and automobile parts, while major exports include wastepaper, scrap metal, animal feed, and agricultural products (see Tables TP-14a-e).

US exports are heavier than Asian imports. The average weight is 11 metric tons per TEU for a westbound container cargo compared to only six metric tons per TEU for

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1 The transpacific encompasses the US container trade with countries located in Northeast and Southeast Asia.

2 The intra-Asia trade is as large as the transpacific and Asia-Europe container markets combined. *Asian Recovery to Strain Infrastructure*, APL Warns by Peter T. Leach, *Journal of Commerce Online*, May 20, 2010.

3 Unless otherwise indicated, all cargo-related data cited in this section are sourced from the *Port Import Export Reporting Service* (PIERS), United Business Media, Ltd.

eastbound container cargo.<sup>4</sup> Because container exports are so much heavier, outbound sailings have a tendency to reach their maximum loading weight before all their available container slots are filled.

Because of the trade and weight imbalance, transpacific carriers need to return substantial numbers of empty containers back to Asia. Effective capacity, the maximum number of containers that can be placed on a ship after taking account of all operational considerations, is affected by a variety of factors, including the mix of container sizes onboard, oversized project cargo (machinery, industrial vehicles, etc.), load-bearing constraints on hatches and the deck, balancing the ship, maintaining visibility from the bridge, and load sequencing of priority cargo.

In the eastbound trade lane, cargo volumes surge throughout the summer and early fall as retailers begin preparing for the holiday season by shipping merchandise manufactured in Asia to the US (see Tables TP-1 and TP-3 and Charts TP-2 and TP-4). In anticipation of the peak season, carriers often deploy additional capacity beginning in June and ending in October. Recently, transpacific carriers have noticed a surge in cargo volumes after the holidays as US retailers are anxious to restock depleted inventories before the Chinese New Year when factories in China close for their major holiday. During these peak times, transpacific carriers usually attempt to assess a Peak Season Surcharge (“PSS”) to cover the cost to deploy additional capacity needed. Except for the few weeks prior to the Chinese New Year, transpacific container volumes are at their lowest during the winter months and early spring. Carriers typically remove capacity during this slack season.

In the westbound trade, cargo volumes do not peak during the year as they do in the eastbound trade (see Tables TP-1 and TP-3 and Charts TP-2 and TP-4). Commodity volumes are generally seasonal throughout the year depending on when agricultural products are harvested and shipped. Carriers find it difficult to predict agricultural export volumes due to crop failures, slower or faster harvesting times due to weather conditions, and to the fact that the time between harvesting and when the product actually ships has become more detached. Typically, transpacific carriers do not assess a PSS on westbound cargo movements since westbound container volumes are significantly lower than eastbound volumes and, therefore, the deployment of additional capacity is not usually required. However, some US exporters from time-to-time may experience capacity and equipment shortages, especially agricultural exporters booking space out of the Pacific Northwest, and obtaining equipment in the agricultural regions of the upper Midwest can be challenging.

Comparing 2006 with 2010, annualized, operational capacity remained flat despite the 2009 recession (See Tables TP-17a-e).<sup>5</sup> However, there were 21 percent fewer carriers operating in the transpacific in third quarter 2006 when compared to the same quarter in 2010 (see Tables TP-17a-e). This was mainly due to mergers and carriers leaving the market. During the third quarter of 2010, 81 service strings were operating in the transpacific trade, a fourteen percent decrease from the third quarter 2006 (see Tables TP-17a-e). The number of vessels deployed in the transpacific fell by five percent.<sup>6</sup> In third quarter 2006, there were 645 vessels operating in the transpacific, and by third quarter 2010 this number had fallen to 610 (see Tables TP-17a-e).

The transpacific is a very competitive market (see Table TP-9). It is occupied by

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4 PIERS. The World Shipping Council estimated that, in 2008, transpacific exports weighed on average 12 tons per TEU whereas imports weighed 9 tons per TEU. See *Facts About Serving US Export Commerce*, February 2010 at [http://www.worldshipping.org/Facts\\_About\\_Serving\\_U\\_S\\_Export\\_Commerce\\_Feb\\_2010\\_-2-.pdf](http://www.worldshipping.org/Facts_About_Serving_U_S_Export_Commerce_Feb_2010_-2-.pdf).

5 See *The Drewry Container Forecaster*, 3Q10, Appendix 1, pages 157–163 and *The Drewry Container Market Quarterly*, September 2006, Table 5.5, pages 85–92.

6 Ibid.

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numerous large global carriers that compete vigorously with each other. Some of the moderate size carriers have joined together to form global alliances. The global alliances and the large independent global carriers, such as Maersk, CMA CGM, MSC and Evergreen, face strong competition from niche containership operators and new entrants. To a lesser degree, the global containership companies also must compete for certain cargoes against breakbulk and bulk operators.

Three global ocean liner alliances operate in the transpacific, the CKYH Alliance,<sup>7</sup> the New World Alliance<sup>8</sup> and the Grand Alliance<sup>9</sup> (see Table TP-10). An alliance is a group of ocean carriers who have agreed to coordinate vessel service strings and share vessel space on each other's ships. Although ships are generally operated independently by each alliance member, they sail on a jointly developed schedule. Despite their operational cooperation, alliance members compete with each other for customers and independently market and price their services.<sup>10</sup> Through this cooperation, alliances may reduce operational costs, expand port coverage, and trim transit times. The three global alliances also operate in the transatlantic and the Asia-Europe trade lanes. During third quarter 2010, the three alliances together supplied 49 percent of all eastbound transpacific capacity, the same percentage they supplied in third quarter 2006.<sup>11</sup> Maersk Line, MSC and CMA CGM have a variety of vessel sharing agreements restricted to the transpacific, and one could consider these three carriers as operating in an informal alliance.<sup>12</sup>

In 2006, the top five eastbound transpacific carriers in rank order, in terms of TEUs lifted, were Maersk Line, Evergreen, Hanjin, APL and China Shipping. In 2010, the top five eastbound carriers in rank order were Maersk Line, Evergreen, APL, Hanjin and Hyundai.

The westbound transpacific carrier rankings experienced even greater fluctuations. In 2006, the top five carriers in rank order were Maersk Line, Hanjin, Evergreen, APL and OOCL. In 2010, the top five westbound carriers in rank order were Maersk Line, MSC, Evergreen, APL and Hanjin.

Market shares among global carriers have fluctuated with some carriers gaining at the expense of others. As examples, Maersk Line, the world's largest containership company, has seen its share of the transpacific market shrink from 2006 to 2010; whereas MSC, the world's second largest containership company, has expanded its transpacific market share.

Although global containership operators are prominent in the transpacific market, niche operators also actively compete to carry containerized cargo. For example, Matson, a US flag operator, offers two inbound transpacific ocean liner services from a number of Chinese ports to the Port of Long Beach.<sup>13</sup> From 2006 to 2010, Matson increased its TEU liftings by 107 percent from 59,000 TEUs to 123,000 TEUs. Matson was the 19<sup>th</sup> largest eastbound

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7 The CKYH Alliance consists of COSCO, K Line, Yang Ming and Hanjin. See FMC Agreement No. 011794 at [http://www2.fmc.gov/agreement\\_lib/011794-014.pdf](http://www2.fmc.gov/agreement_lib/011794-014.pdf).

8 The New World Alliance members are APL, HMM, and Mitsui. See FMC Agreement No. 011960 at [http://www2.fmc.gov/agreement\\_lib/011960-006.pdf](http://www2.fmc.gov/agreement_lib/011960-006.pdf).

9 The Grand Alliance members include Hapag-Lloyd, NYK Line and OOCL. See FMC Agreement No. at [http://www2.fmc.gov/agreement\\_lib/011602-012.pdf](http://www2.fmc.gov/agreement_lib/011602-012.pdf).

10 Although alliance members price independently of each other, all members of the three alliances, with the exception of Mitsui, are members of the TSA and WTSA that collectively establish VSCGs on rates and surcharges.

11 See *The Drewry Container Forecaster*, October 1, 2010, Appendix 1.1, pages 126-131 and *The Drewry Container Market Quarterly*, September 2006, Table 5.13, pages 105-135.

12 These agreements include the CMA CGM, MSC, Maersk Line North and Central China-US Pacific Coast Two Loop Space Charter, Sailing and Cooperative Working Agreement (FMC Agreement No. 012032), Maersk Line/CMA CGM TP5 Space Charter Agreement (FMC Agreement No. 012119), Maersk Line/MSC Space Charter Agreement (FMC Agreement No. 012036), and the CMA CGM Maersk Line Space Charter, Sailing and Cooperative Working Agreement Asia to USEC and PNW-Suez/PNW & Panama Loops (FMC Agreement No. 012057).

13 See Matson's website at <http://www.matson.com/china/index.html>.

transpacific carrier in 2006 and the 17<sup>th</sup> largest in 2010. In the westbound transpacific, Matson moves very little cargo destined to China, carrying less than 7,000 TEUs in 2010. Instead, the carrier moves more profitable domestic offshore container cargo destined to Hawaii and the US territory of Guam. Another US flag operator, Horizon, entered the eastbound transpacific with a business plan that closely parallels Matson's. In December 2010, Horizon launched an eastbound service from Shanghai and Ningbo to Los Angeles and Oakland, which involved carrying domestic offshore container cargo westbound.<sup>14</sup>

Because of the relative ease of market entry in the transpacific trade, incumbent carriers have to contend with new containership companies entering the transpacific container market. In addition to Horizon, TS Lines, PO Shipping, Grand China Shipping, and the Containership Company all launched new transpacific services in 2010. These new entrants offered service only between Asia and the US West Coast.<sup>15</sup> Such services require the deployment of just five vessels to provide a weekly service compared to eight or more vessels for a weekly service to the US East Coast.

Beyond actual new entrants, the contestability of this trade is evidenced by competition from other shipping sources. For example, breakbulk carriers also move container cargo in the transpacific. Westwood, a subsidiary of the forest product company Weyerhaeuser, moves westbound logs, lumber, newsprint and wood pulp by breakbulk for its parent company from the Pacific Northwest to Asia. But the carrier also moves containers on deck for other shippers on its vessels. Eastbound, Westwood moves containers as well as breakbulk and project cargoes destined to the Pacific Northwest.<sup>16</sup>

In some instances, container operators compete with bulk operators to move certain commodities from the US to Asia. For example, grain exporters will consider transporting their cargo by container or bulk carrier depending on which mode offers the lowest freight rate.<sup>17</sup> Containerized grain movements represent approximately five percent of total oceangoing grain exports.<sup>18</sup> In addition, grain exporters use containers to allow commodity identity preservation ("IP"),<sup>19</sup> serve niche markets, and facilitate just-in-time delivery.<sup>20</sup> Scrap metal exporters also migrate between container and bulk carriers depending on which mode offers the lower freight rate.

## Discussion Agreements

There are two major rate discussion agreements in the transpacific that, among other things, establish voluntary service contract guidelines ("VSCGs") on rates and surcharges. The Transpacific Stabilization Agreement ("TSA")<sup>21</sup> develops VSCGs for Asian imports to the US

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14 See Horizon's website at <http://www.horizonlines.com/Ocean-Services/Asia-Service.aspx>.

15 In 2011, as trade conditions deteriorated, Horizon, Grand China and the Containership Company left the trade, and PO Shipping and TS Lines reduced their services.

16 See Westwood's website at <http://www.weyerhaeuser.com/Businesses/WestwoodShipping/About>.

17 See the USDA Agricultural Marketing Service's *Grain Transport Report* for January 11, 2011 at page 2.

18 Ibid, September 24, 2009, at page 2.

19 Identity-preserved (IP) grains are frequently referred to as specialty, high value, premium or niche market grains. They are produced with a specific end use in mind -- perhaps human food, a specific kind of animal feed, cosmetics, pharmaceuticals or industrial use.

20 Op. cit, USDA Agricultural Marketing Service.

21 The members of the TSA include APL, China Shipping, CMA CGM, COSCO, Evergreen, Hanjin, Hapag-Lloyd, HMM, K Line, Maersk Line, MSC, NYK Line, OOCL, Yang Ming and Zim. The TSA's geographic scope includes Northeast Asia, Southeast Asia and the Indian Subcontinent. In July 2007, the TSA amended its basic agreement to include the Indian Subcontinent within its geographic scope. FMC Agreement No. 011223.

## Chapter 5

and the Westbound Transpacific Stabilization Agreement (“WTSA”)<sup>22</sup> develops VSCGs for US exports to Asia. Typically, the two agreements’ guidelines address general rate increase proposals and surcharges, but they also decide on guidelines for inclusion in tariff rules, such as for free time and demurrage.

TSA consists of 15 carriers, who had a combined market share of 92 percent in 2010. Currently, Mitsui OSK Line (“MOL”) is the only global carrier not a member of the TSA; it had four percent of the transpacific trade in 2010. At one time, MOL was a TSA member, but it resigned in 2008. Despite the resignation of MOL, the TSA’s membership has grown since 2006. Between 2006 and 2010, five carriers have joined TSA. After resigning in January 2006, CMA CGM re-joined the TSA in March 2007. MSC joined the TSA in May 2007, followed by Zim in June 2007, China Shipping in January 2008 and Maersk Line in January 2010. Primarily due to an expanding membership, TSA’s market share increased by 31 percentage points between 2006 and 2010.

WTSA consists of ten carriers, who had a combined market share of 62 percent in 2010, down from 65 percent in 2006. Over the five year review period, there were no changes in WTSA’s membership. All WTSA members are also members of TSA.

In January 2007, both TSA and WTSA changed their executive structure, replacing the former Secretariat with a four-member carrier committee, known as the CEO Executive Committee. Each year, the CEO Executive Committee is elected by each agreement’s membership. The CEO Executive Committee then elects an Executive Committee Chairman who speaks on behalf of each agreement. An Executive Administrator handles the administrative functions of the two agreements.

Both TSA and WTSA have two decision making committees, the Chief Executive Officers Committee (“CEO Committee”) and the Revenue Policy Committee (“RPC”). Either or both of these committees must unanimously agree to the establishment of VSCGs. The CEO Committee representatives consist of each member’s CEO or similar top-ranking executive. The CEOs meet approximately four to six times a year to provide overall guidance to all other committees. The RPC consists of carrier officials who report directly to each company’s CEO. The RPC meets regularly, usually by telephone, to discuss service contracting issues, as well as market conditions, economic forecasts or regulatory issues that may affect service contract negotiations or the movement of container cargo.

Additionally, both TSA and WTSA have a Local Working Committee (“LWC”) in many foreign countries within the geographic scope of their respective agreements. There are two LWCs in China – one in North China and one in South China. LWCs meet periodically and only at the request of the Executive Administrator. These meetings are convened to discuss and provide information or recommendations on specific local issues identified by the Executive Administrator, such as proposed government regulations or surcharges by local ports. The LWCs do not have authority to act on behalf of the full membership.

The non-decision making committee structures of TSA and WTSA are different because of the way each agreement sets VSCGs. WTSA establishes commodity subcommittees to recommend VSCGs on specific commodities because individual carriers negotiate service contracts throughout the year. TSA members on the other hand, negotiate almost all their service contracts in the spring to become effective May 1. Additionally, TSA usually establishes, in November of the prior year, VSCGs that are intended to apply across-the-board to all commodities.

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<sup>22</sup> The members of the WTSA include APL, COSCO, Evergreen, Hanjin, Hapag-Lloyd, HMM, K Line, NYK Line, OOCL and Yang Ming. The WTSA’s geographic scope includes Northeast Asia, Southeast Asia, and the Indian Subcontinent. FMC Agreement No. 011325.

As WTSA typically sets VSCGs to coincide with the main shipping season for each commodity, it convenes commodity subcommittees to examine market conditions and to make recommendations regarding rates and/or terms of carriage. Recommendations made by the commodity subcommittees must be approved by either the RPC or CEO Committee or both. Commodity subcommittees are composed of the top five carriers that move a particular commodity.

TSA has several non-decision making committees: Cost Committee, Bunker Committee and Origin Review Committee (“ORC”). The Cost Committee attempts to estimate the average cost that agreement members incur in providing transpacific liner service, and uses those estimates to make general pricing recommendations to the RPC and/or CEO Committee. Similarly, the Bunker Committee attempts to estimate the average bunker costs that agreement members incur in providing transpacific liner service and makes recommendations to the RPC and/or CEO Committee on the application of a Bunker Adjustment Factor (“BAF”). The Cost and Bunker committees did not meet in 2010; instead the RPC itself addressed those cost issues. ORC meets overseas, typically in China, during the slack season to discuss current market conditions. A summary is then forwarded to the RPC and CEO Committee. The ORC met just once in 2010, but typically meets three or four times a year.

Unlike the EU, Asian nations generally permit ocean liner rate discussion agreements. Like the EU, they also allow vessel sharing arrangements and global alliances. Japan and Korea have laws, similar to the Shipping Act, that exempt ocean liner agreements from their competition law. However, other Asian nations have implemented or are considering competition law that prohibits companies from colluding on rates and services. For example, Singapore has a competition law, but ocean liner agreements are exempt from it. That competition law exemption is, however, for a fixed duration. The exemption expired in 2010, but Singapore has extended it through 2015. Singapore announced it was continuing the exemption given that “...the presence of an extensive network of liner shipping companies has played, and continues to play a large part in contributing to Singapore’s status as a premier international maritime centre.”<sup>23</sup>

China enacted a competition law in 2008, but the government has yet to issue implementing regulations. Chinese officials are said to be waiting for commissioned academic studies to be completed before deciding on any exemption from the law for ocean liner agreements. Currently, ocean liner agreements, including the TSA and WTSA, continue to operate as usual in Chinese trades.

Chinese maritime regulations require ocean carrier agreements to be filed with the government. In 2009, the Chinese government also issued regulations stipulating that export container rates and tariffs be “normal and reasonable.” In addition, the regulations mandate that each carrier file minimum and maximum tariff and service contract rates with the Shanghai Shipping Exchange. These regulations prohibit carriers from moving cargo for free or assessing negative freight rates.

In May 2009, India implemented its competition law without an exemption for ocean liner agreements. As result, the TSA and WTSA suspended India from their geographic scopes, and they no longer discuss or establish VSCGs for container cargo to/from India. India is considering an exemption for ocean liner agreements. Like China, India has commissioned an economic study and, once completed, will make a decision on whether to issue an exemption.

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23 Singapore Ministry of Trade and Industry, Press Release dated 16 December 2010.

### Commentary

This section addresses liner shipping activities in the transpacific for the review period of 2006 through 2010.<sup>24</sup> The review period provides a span of time to assess the trade prior to and after the repeal by the European Union of its block exemption regulations for liner shipping conferences. The repeal had no direct impact on the transpacific trade because the original block exemption did not apply in this trade. In the transpacific trade, carrier agreements with rate authority continue to enjoy antitrust immunity and remain subject to regulatory oversight by the FMC. These comments address economic factors and the changes over the review period that shaped the structure of the market and affected the conduct and performance of the ocean carriers.

As globalization has advanced, the trade in containerized commodities between the US and its transpacific trading partners has grown rapidly over the past two decades. US container cargo volume with nations in Asia grew by 250 percent, as a whole, from 1990 through 2010. An analysis of the NOI responses appeared to show that on average the liner services of the carriers in the trade accounted for around 30 percent of their total revenue earnings. Over the review period, the geographic distribution of cargo changed little. China is the United States' largest trading partner, both in the transpacific and globally. China accounts for nearly 60 percent of the total transpacific ocean liner trade with the United States (see Tables TP-13a-e). Japan, South Korea, Taiwan and Hong Kong are the United States' other major trading partners in the transpacific and together account for approximately 27 percent of the total ocean liner trade (see Tables TP-13a-e). Over 70 percent of the transpacific ocean liner cargo moves through US Pacific Coast ports with the Ports of Los Angeles and Long Beach handling much of the volume. Over 25 percent of the transpacific ocean liner cargo moves through US Atlantic Coast ports with the Port of New York-New Jersey handling most of the volume. Less than two percent of all transpacific ocean liner cargo moves through US Gulf Coast ports.

During the five-year review period, market concentration in the transpacific trade declined modestly (see Chart TP-8). In 2006, the top four carriers with highest market shares had a concentration ratio ("CR4") of 40 percent, but by 2010, the CR4 was 36 percent. Market concentration as measured by the Herfindahl-Hirschman Index ("HHI") declined from 705 in 2006 to 651 in 2010<sup>25</sup> (see Tables TP-7a-e). The transpacific trade experienced a modest amount of new entry late in the review period as several small lines opted to provide limited port-to-port service (mainly to NVOCC shippers) between China and Southern California (see Table TP-11).

In terms of value and quantity, US imports from Asia make up the headhaul direction of the transpacific trade, that is, the trade direction with the greatest quantity of cargo and that generates the highest revenue for carriers (see Table TP-15). From 2006 through mid-2007, demand for US imports from Asia initially increased, but in the last half of 2007 began to sag. A long period of robust growth in US container imports was cut short as the global recession unfolded in late 2008. That recession-driven decline in demand gave rise to a significant increase in excess capacity that peaked in March 2009 and did not abate until the final quarter of the year – at which time average revenue per container began to recover.

Competition among lines for the diminished availability of cargo was particularly fierce

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24 The United States' trading partners in the transpacific include China, Japan, Taiwan, Hong Kong, South Korea, Mongolia, Macau, Philippines, Brunei, Indonesia, Malaysia, Cambodia, Laos, Vietnam, Thailand, Burma, Sri Lanka, Bangladesh, Nepal, Pakistan, and India.

25 The 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as not concentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 as highly concentrated.

in late 2008 through mid-2009, and ended only as lines began to remove excess capacity or absorb it by slow steaming service strings. For example, available vessel capacity in the US/Far East trade dropped by an estimated 21 percent between August 2008 and January 2010.<sup>26</sup>

From the final months of 2009, through the summer of 2010, a combination of significant increases in demand for liner services and very low levels of excess capacity led to freight rate increases that began moderately and then ramped up sharply in early 2010. Those rates peaked at the end of the 3<sup>rd</sup> quarter 2010 and declined through the remainder of the year.

When demand rebounded in late 2009 and continued through much of the first half of 2010, the absence of the withdrawn vessel capacity, and the lines' forceful efforts to recover the revenues lost in the previous year,<sup>27</sup> pushed rates back to levels that matched and then slightly exceeded the pre-crisis peak rates in mid-2008.

In the US outbound trade to the Far East (US exports), demand increased, while average revenue per container was relatively stable throughout 2006 and 2007. Average revenue per container then increased throughout 2008 until the end of the 3<sup>rd</sup> quarter. The impact of the global recession saw demand plunge and helped to produce a rapid increase in excess capacity. That, in turn, led to a dramatic decline in average revenue per container – with serious consequences for carriers' financial well-being – beginning in October 2008. That decline did not bottom out until mid-2009. In mid-2009, average revenue per container began to rebound in the westbound trade and increased steadily for a full year before they began to decline again in the late summer of 2010.

Available capacity for the US export trade to the Far East is limited by capacity decisions made by the lines based on expected import volumes (i.e., based on the headhaul trade). In addition, factors such as cargo weight, container availability at inland points, the demand for containers in Asia, and the seasonality of various cargoes affect US exports. Consequently, the connection between excess capacity (however defined) and demand for shipping service is more complex than it is in the inbound (US imports) trade.

The remainder of this section consists of a series of tables and charts that track and describe changes between 2006 and 2010 in various aspects of market structure, carrier conduct, and economic performance in the Far East/US trade.

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<sup>26</sup> *Alphaliner Weekly Newsletter*, Volume 2010, Issue 51, 12/14/2010 to 12/20/2010.

<sup>27</sup> In particular, the Emergency Revenue Charge of \$400 per FEU (effective January 15, 2010) that TSA's member lines instituted, with what was reportedly a high degree of success, led to a significant increase in rate levels in the Far East/US trade. See *Alphaliner Weekly Newsletter*, Vol. 2010, Issue 4, 1/19/2010 to 1/25/2010.

## Transpacific Market Structure

Table TP-1 Monthly TEU Cargo Volume

For each month of the review period from 2006 through 2010, the table provides time series data showing in each trade direction the total number of US container exports that moved outbound to Asia, and the total number of container imports that moved inbound to the US from Asia. The container imports and exports are measured in TEUs. The trend in the number of the containers moved over the time series shows the extent of cargo growth and seasonality in each trade direction based on the foreign and domestic consumer demand for container exports and imports, which affects the price of the liner shipping services in the trade. Further, the number of containers moved inbound and outbound identifies the headhaul and backhaul directions of the trade, and the extent of any imbalance in the directional flow of container cargo. The source of the container data is PIERs.

### TP-1 US/Asia Trade Monthly Cargo Volume in TEUs

	US to Asia TEUs	Asia to US TEUs
Jan-06	372,852	1,073,860
Feb-06	367,518	915,666
Mar-06	429,075	970,853
Apr-06	373,277	1,140,313
May-06	397,665	1,164,565
Jun-06	379,444	1,146,888
Jul-06	361,129	1,145,792
Aug-06	370,528	1,253,755
Sep-06	373,522	1,224,273
Oct-06	397,317	1,274,988
Nov-06	386,116	1,140,552
Dec-06	382,848	1,082,509
Jan-07	400,321	1,090,483
Feb-07	400,002	1,117,404
Mar-07	439,364	1,000,797
Apr-07	420,690	1,119,780
May-07	455,017	1,140,172
Jun-07	471,573	1,204,546
Jul-07	405,342	1,198,843
Aug-07	442,681	1,212,436
Sep-07	416,942	1,245,943
Oct-07	453,921	1,186,173
Nov-07	462,370	1,118,158
Dec-07	465,099	1,039,613
Jan-08	468,608	1,066,722
Feb-08	534,970	1,049,734
Mar-08	527,449	893,112
Apr-08	515,744	1,033,311
May-08	523,269	1,112,337
Jun-08	492,064	1,031,619
Jul-08	525,964	1,087,059
Aug-08	492,056	1,173,417
Sep-08	451,354	1,123,507

**TP-1 US/Asia Trade**  
**Monthly Cargo Volume in TEUs (continued)**

	US to Asia TEUs	Asia to US TEUs
Oct-08	430,690	1,133,565
Nov-08	352,026	978,225
Dec-08	339,399	865,144
Jan-09	346,303	904,733
Feb-09	371,660	680,951
Mar-09	467,457	790,505
Apr-09	464,735	834,508
May-09	488,081	835,149
Jun-09	478,351	856,559
Jul-09	481,222	950,575
Aug-09	498,389	993,292
Sep-09	473,859	998,029
Oct-09	489,092	1,051,589
Nov-09	481,894	941,405
Dec-09	495,381	893,554
Jan-10	430,109	955,535
Feb-10	459,281	866,915
Mar-10	500,822	872,455
Apr-10	498,739	943,258
May-10	487,786	1,051,020
Jun-10	464,090	1,094,163
Jul-10	465,390	1,087,477
Aug-10	467,541	1,200,048
Sep-10	448,756	1,128,130
Oct-10	530,360	1,141,159
Nov-10	519,741	1,059,959
Dec-10	523,521	951,023

Source: Federal Maritime Commission, PIERS Interactive

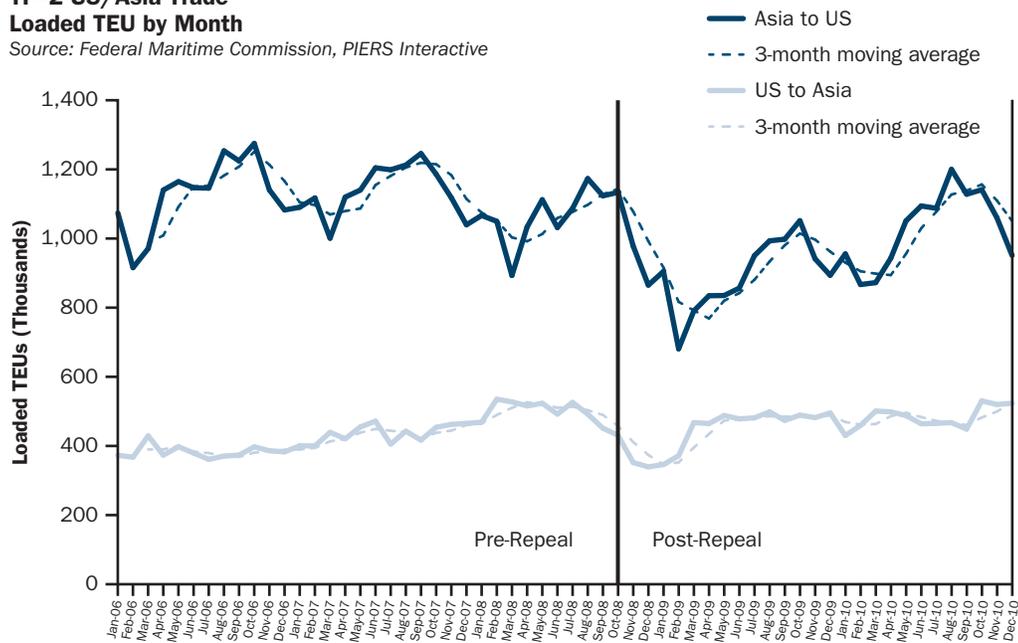
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**Chart TP-2 Monthly and Three-Month Moving Average TEU Cargo Volumes**

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the actual import and export container cargo loads in each direction of the US/Asia trade. The chart also provides a three-month moving average of the import and export cargo loads to smooth out fluctuations in the data and delineate the overall trend lines more clearly. The horizontal axis of the chart gives the series of time in months over the review period, and the vertical axis measures container cargo loads in thousands of TEUs. The trend lines of the data show the extent of growth, seasonality, and change that occurred over the review period in the consumer demand for container imports and exports in the trade. In turn, the extent of container cargo growth, or a serious reduction in container cargo volume due to a contraction in demand, directly affects the price of liner shipping service in the trade. Further, the trend lines of container imports and exports identify the headhaul and the backhaul directions of the trade, and any imbalance and change over time in the directional flow of cargo. PIERS is the source of the container cargo data.

**TP-2 US/Asia Trade  
Loaded TEU by Month**

Source: Federal Maritime Commission, PIERS Interactive



**Table TP-3 Monthly Container Cargo Volumes in Metric Tons**

For each month of the review period from 2006 through 2010, the table provides time series data showing in each trade direction the total weight of the container exports that moved outbound from the US to Asia, and the total weight of the container imports that moved inbound to the US from Asia. The trend in the metric tons of containers moved over the time series is an indication of the extent of cargo growth and seasonality in each trade direction based on the foreign and domestic demand for container exports and imports. The trend in the data also shows the extent of any weight imbalance in the direction flow of container cargo in the trade. The weight of the cargo moving in a trade lane can affect the utilization of vessel capacity and impose draft limitations on containerships. PIERS is the source of the container cargo data.

**TP-3 US/Asia Trade  
Monthly Cargo Volume in Containerized Metric Tons**

	US to Asia Metric Tons	Asia to US Metric Tons
Jan-06	3,819,858	6,631,591
Feb-06	3,752,783	5,679,803
Mar-06	4,356,508	6,143,599
Apr-06	3,795,227	7,120,120
May-06	4,043,119	7,335,601
Jun-06	3,879,167	7,157,826
Jul-06	3,740,536	7,098,469
Aug-06	3,838,967	7,628,135
Sep-06	3,881,032	7,325,486
Oct-06	4,111,287	7,574,074
Nov-06	4,015,085	6,974,876
Dec-06	4,003,448	6,719,096
Jan-07	4,235,499	6,781,021
Feb-07	4,216,327	6,793,493
Mar-07	4,606,454	6,297,897
Apr-07	4,386,867	7,025,843
May-07	4,764,489	7,241,637
Jun-07	4,933,156	7,582,594
Jul-07	4,261,374	7,468,458
Aug-07	4,624,703	7,343,079
Sep-07	4,496,304	7,400,686
Oct-07	5,074,143	7,004,272
Nov-07	4,916,874	6,807,033
Dec-07	4,938,310	6,471,536
Jan-08	5,025,829	6,654,136
Feb-08	5,713,135	6,460,683
Mar-08	5,588,266	5,661,397
Apr-08	5,426,014	6,524,039
May-08	5,467,859	6,990,553
Jun-08	5,234,866	6,501,685
Jul-08	5,516,028	6,702,481
Aug-08	5,164,963	7,132,927
Sep-08	4,733,312	6,733,596
Oct-08	4,489,256	6,814,182
Nov-08	3,663,840	6,152,324

**TP-3 US/Asia Trade**  
**Monthly Cargo Volume in Containerized Metric Tons**  
**(continued)**

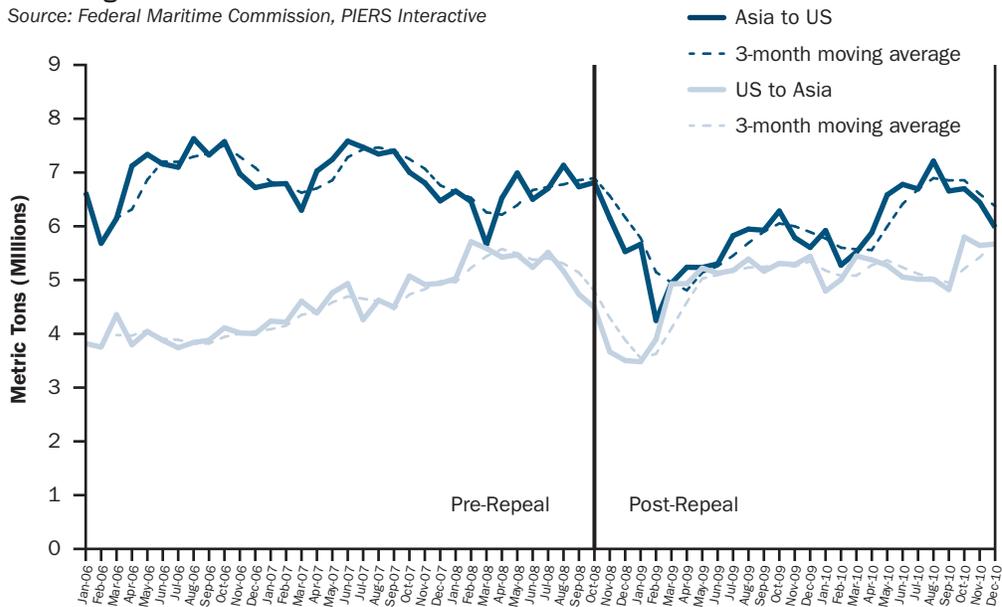
	US to Asia Metric Tons	Asia to US Metric Tons
Dec-08	3,502,772	5,528,794
Jan-09	3,480,969	5,665,833
Feb-09	3,896,457	4,248,064
Mar-09	4,928,750	4,940,226
Apr-09	4,933,482	5,237,874
May-09	5,221,431	5,233,971
Jun-09	5,126,493	5,300,673
Jul-09	5,178,408	5,825,051
Aug-09	5,390,981	5,947,253
Sep-09	5,162,914	5,925,987
Oct-09	5,310,435	6,283,216
Nov-09	5,287,910	5,787,822
Dec-09	5,441,651	5,606,134
Jan-10	4,794,315	5,920,885
Feb-10	5,006,954	5,275,683
Mar-10	5,448,116	5,519,324
Apr-10	5,375,323	5,881,020
May-10	5,273,309	6,583,827
Jun-10	5,055,368	6,778,334
Jul-10	5,017,252	6,693,698
Aug-10	5,013,146	7,212,368
Sep-10	4,822,532	6,656,500
Oct-10	5,799,892	6,698,700
Nov-10	5,643,130	6,445,744
Dec-10	5,669,471	5,978,564

Source: Federal Maritime Commission, PIERS Interactive

### Chart TP-4 Monthly and Three-Month Moving Average in Container Cargo Metric Tons

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the actual import and export container cargo loads in each direction of the US/Asia trade. The chart also provides a three-month moving average of the import and export cargo loads to smooth out fluctuations in the data and delineate the overall trend lines more clearly. The horizontal axis of the chart gives the series of time in months over the review period, and the vertical axis measures container cargo loads in millions of metric tons. The trend lines of the data show the extent of growth, seasonality, and change that occurred over the review period in the consumer demand for container imports and exports in the trade. In turn, the extent of container cargo growth, or a serious reduction in container cargo volume due to a contraction in demand, directly affects the price of liner shipping service in the trade. Further, the trend lines of container imports and exports identify the headhaul and the backhaul directions of the trade, and any imbalance and change over time in the directional flow of cargo. PIERS is the source of the container cargo data.

**TP-4 US/Asia Trade**  
**Liner Cargo Volume in Metric Tons**  
 Source: Federal Maritime Commission, PIERS Interactive



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**Table TP-5 Ratio of Inbound to Outbound Cargo**

For each month of the review period from 2006 through 2010, the table provides time series data showing the ratio in the weight and number of container imports divided by the weight and number of container exports that moved in the US/Asia trade. The weight of the container cargo is measured in metric tons, and the number of containers is measured in TEUs. The ratio of container imports to container exports provides a measure of the extent of any imbalance in the directional flow of container cargo in the trade. The higher the ratio, the higher the extent of an imbalance in the weight or number of container imports in excess of container exports. A ratio of less than 1.0 indicates a period of time when container exports exceeded container imports. Further, the ratio shows the extent to which the US demand for container imports from Asia exceeded Asia's demand for US container exports. PIERs is the source for the container cargo data.

**TP-5 Trade Imbalance between the US and Asia  
Ratio of Inbound to Outbound Cargo**

	Metric Tons	TEUs
Jan-06	1.74	2.88
Feb-06	1.51	2.49
Mar-06	1.41	2.26
Apr-06	1.88	3.05
May-06	1.81	2.93
Jun-06	1.85	3.02
Jul-06	1.90	3.17
Aug-06	1.99	3.38
Sep-06	1.89	3.28
Oct-06	1.84	3.21
Nov-06	1.74	2.95
Dec-06	1.68	2.83
Jan-07	1.60	2.72
Feb-07	1.61	2.79
Mar-07	1.37	2.28
Apr-07	1.60	2.66
May-07	1.52	2.51
Jun-07	1.54	2.55
Jul-07	1.75	2.96
Aug-07	1.59	2.74
Sep-07	1.65	2.99
Oct-07	1.38	2.61
Nov-07	1.38	2.42
Dec-07	1.31	2.24
Jan-08	1.32	2.28
Feb-08	1.13	1.96
Mar-08	1.01	1.69
Apr-08	1.20	2.00
May-08	1.28	2.13
Jun-08	1.24	2.10
Jul-08	1.22	2.07
Aug-08	1.38	2.38
Sep-08	1.42	2.49
Oct-08	1.52	2.63

**TP-5 Trade Imbalance between the US and Asia  
Ratio of Inbound to Outbound Cargo (continued)**

	Metric Tons	TEUs
Nov-08	1.68	2.78
Dec-08	1.58	2.55
Jan-09	1.63	2.61
Feb-09	1.09	1.83
Mar-09	1.00	1.69
Apr-09	1.06	1.80
May-09	1.00	1.71
Jun-09	1.03	1.79
Jul-09	1.12	1.98
Aug-09	1.10	1.99
Sep-09	1.15	2.11
Oct-09	1.18	2.15
Nov-09	1.09	1.95
Dec-09	1.03	1.80
Jan-10	1.23	2.22
Feb-10	1.05	1.89
Mar-10	1.01	1.74
Apr-10	1.09	1.89
May-10	1.25	2.15
Jun-10	1.34	2.36
Jul-10	1.33	2.34
Aug-10	1.44	2.57
Sep-10	1.38	2.51
Oct-10	1.15	2.15
Nov-10	1.14	2.04
Dec-10	1.05	1.82

Source: Federal Maritime Commission, PIERS Interactive

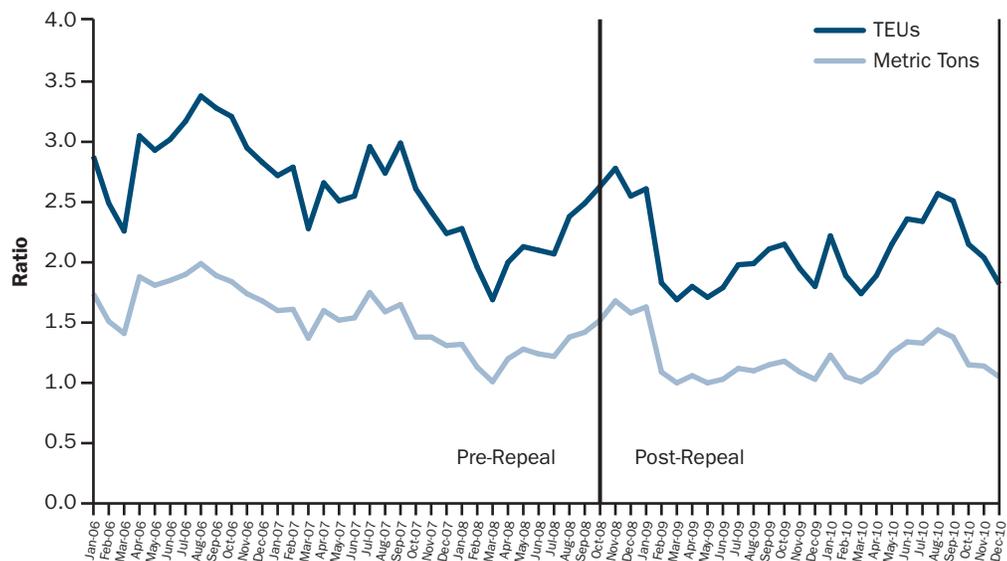
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### Chart TP-6 Ratio of Inbound to Outbound Cargo

For each month of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the ratio in weight and number of the container imports to the weight and number of container exports that moved in the US/Asia trade. The weight of the containers is measured in metric tons, and the number of the containers is measured in TEUs. The horizontal axis of the chart gives the series of time in months over the review period, and the vertical axis measures the level of the ratio container imports to container exports. The trend lines of the ratio show the extent of an imbalance in the weight or number of container imports in excess of container exports in the trade over the review period. The degree to which the trend lines exceed 1.0 shows the degree of an imbalance in container imports above container exports. A trend line that falls below 1.0 indicates a period of time when the weight or number of container exports exceeded container imports. The trend lines over the time series show how any imbalance in directional flow of container cargo changed over the review period. They can also be interpreted as showing the change over time in the US demand for container imports from Asia compared to Asia's demand for US container exports. PIER'S is the source for the container cargo data.

#### TP-6 Imbalance in the US/Asia Trade Ratio of US Inbound to Outbound Cargo

Source: Federal Maritime Commission, PIER'S Interactive



### Tables TP-7a-e Annual Concentration Ratios (CR4 and HHI)

The tables provide measures of the annual levels of market concentration among the shipping lines that participated in the US/Asia trade for the review period from 2006 through 2010. The shipping lines that moved more than 1,000 TEUs for each year are shown in ranking order based on their total annual container carriage. The amount of total containers moved by each shipping line includes both imports and exports. The percent of market share is derived for each shipping line from the container data. From the market share data, two measures of market concentration are derived: the concentration ratio of the top four shipping lines with the highest market shares (“CR4”) and the Herfindahl-Hirschman Index (“HHI”). The CR4 in the Cumulative Percent column is simply derived as the sum of the percent of the market shares of the top four lines. The figures in the Market Share and Cumulative Percent columns in the following tables have been rounded to the nearest whole number and may not appear to sum accurately.

The HHI for each year is shown in bold at the bottom of the HHI column and is derived as the sum of the squared values of the market shares for each shipping line. As a benchmark for assessing concentration based on HHI, the 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as unconcentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 as highly concentrated. The source of the container data is PIERS.

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### TP-7a US/Asia Total Liner Cargo [Imports & Exports] CR4 & HHI - 2006

Rank	Shipping Line	2006 TEUs	Market Share	Cumulative Percent	HHI
1	Maersk	2,463,759	14%	14%	185.1
2	Evergreen Line	1,954,776	11%	24%	116.5
3	Hanjin Shipping	1,606,535	9%	33%	78.7
4	American President Lines	1,238,629	7%	40%	46.8
5	COSCO	1,120,120	6%	46%	38.3
6	OOCL	1,039,859	6%	52%	33.0
7	Hyundai Merchant Marine	1,020,917	6%	58%	31.8
8	Yang Ming Line	988,868	5%	63%	29.8
9	China Shipping Container Line	932,498	5%	68%	26.5
10	K Line	922,838	5%	73%	26.0
11	NYK Line	921,381	5%	78%	25.9
12	Mediterranean Shipping Company	856,748	5%	83%	22.4
13	Mitsui OSK Line	693,125	4%	87%	14.7
14	CMA CGM	656,472	4%	91%	13.1
15	Hapag-Lloyd	583,329	3%	94%	10.4
16	Wan Hai Lines Ltd	270,956	1%	95%	2.2
17	Zim Container Line	262,297	1%	97%	2.1
18	China National Foreign Trade Transportation Corp.	128,894	1%	98%	0.5
19	P & O Nedlloyd	86,530	0%	98%	0.2
20	CSAV Norasia	65,193	0%	98%	0.1
21	Westwood Shipping Lines	59,896	0%	99%	0.1
22	Matson Navigation Company, Inc	59,426	0%	99%	0.1
23	CP Ships USA LLC	36,017	0%	99%	0.0
24	US Lines Ltd	35,889	0%	99%	0.0
25	ANL Container Line	30,563	0%	100%	0.0
26	United Arab Shipping Company	12,265	0%	100%	0.0
27	Pacific International Line (Pte) Ltd	7,672	0%	100%	0.0
28	Emirates Shipping (Hong Kong) Ltd	7,179	0%	100%	0.0
29	Seth Shipping Corp	6,233	0%	100%	0.0
30	Star Shipping	5,747	0%	100%	0.0
31	Saga Forest Carriers International	5,264	0%	100%	0.0
32	Amerasia Shipping Line	5,236	0%	100%	0.0
33	Lykes	4,206	0%	100%	0.0
34	Rickmers Linie (America)	4,186	0%	100%	0.0
35	Maruba S.C.A.	3,934	0%	100%	0.0
36	Great Western Steamship	3,669	0%	100%	0.0
37	Chinese-Polish Joint Stock Shipping Co in Shanghai	3,502	0%	100%	0.0
38	Scanwell Container Line Ltd	1,511	0%	100%	0.0
39	Mexican Line	1,040	0%	100%	0.0
<b>2006 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>18,107,160</b>	<b>100%</b>	<b>-</b>	<b>705</b>

Source: Federal Maritime Commission, PIER Interactive

**TP-7b US/Asia  
Total Liner Cargo [Imports & Exports]  
CR4 & HHI - 2007**

Rank	Shipping Line	2007 TEUs	Market Share	Cumulative Percent	HHI
1	Evergreen Line	2,052,440	11%	11%	118.1
2	Maersk	1,954,640	10%	21%	107.1
3	Hanjin Shipping	1,699,139	9%	30%	80.9
4	American President Lines	1,413,300	7%	38%	56.0
5	COSCO	1,203,109	6%	44%	40.6
6	Yang Ming Line	1,176,345	6%	50%	38.8
7	OOCL	1,121,731	6%	56%	35.3
8	China Shipping Container Lines	1,098,946	6%	62%	33.8
9	Hyundai Merchant Marine	1,066,448	6%	68%	31.9
10	K Line	1,021,609	5%	73%	29.3
11	NYK Line	967,268	5%	78%	26.2
12	Mediterranean Shipping Company	909,819	5%	83%	23.2
13	CMA CGM	849,506	4%	88%	20.2
14	Mitsui OSK Line	762,064	4%	92%	16.3
15	Hapag-Lloyd	693,684	4%	95%	13.5
16	Zim Container Line	281,503	1%	97%	2.2
17	Wan Hai Lines Ltd	175,441	1%	98%	0.9
18	Matson Navigation Company, Inc	95,015	1%	98%	0.3
19	Westwood Shipping Lines	56,267	0%	98%	0.1
20	United Arab Shipping Co	42,047	0%	99%	0.0
21	China National Foreign Trade Transportation Corp.	41,332	0%	99%	0.0
22	Pacific International Line (Pte) Ltd	40,772	0%	99%	0.0
23	Emirates Shipping (Hong Kong) Ltd	34,064	0%	99%	0.0
24	ANL Container Line	33,253	0%	99%	0.0
25	US Lines Ltd	32,780	0%	100%	0.0
26	CSAV Norasia	30,527	0%	100%	0.0
27	Saga Forest Carriers International	7,221	0%	100%	0.0
28	Seth Shipping Corp	5,863	0%	100%	0.0
29	Amerasia Shipping Line	5,065	0%	100%	0.0
30	Rickmers Linie (America)	4,111	0%	100%	0.0
31	Namucar Line	3,186	0%	100%	0.0
32	Star Shipping	2,337	0%	100%	0.0
33	Guarani Line Ltd	2,080	0%	100%	0.0
34	Chinese-Polish Joint Stock Shipping Co in Shanghai	1,684	0%	100%	0.0
35	Gear Bulk	1,631	0%	100%	0.0
36	Shipping Corporation of India	1,243	0%	100%	0.0
37	Horizon Lines	1,167	0%	100%	0.0
<b>2007 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>18,888,633</b>	<b>100%</b>	<b>-</b>	<b>675</b>

Source: Federal Maritime Commission, PIERIS Interactive

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### TP-7c US/Asia Total Liner Cargo [Imports & Exports] CR4 & HHI - 2008

Rank	Shipping Line	2008 TEUs	Market Share	Cumulative Percent	HHI
1	Evergreen Line	1,996,199	11%	11%	120.4
2	Maersk	1,901,203	10%	21%	109.2
3	Hanjin Shipping	1,503,837	8%	30%	68.3
4	American President Lines	1,346,076	7%	37%	54.7
5	Hyundai Merchant Marine	1,091,087	6%	43%	36.0
6	OOCL	1,080,500	6%	49%	35.3
7	Yang Ming Line	1,079,882	6%	55%	35.2
8	Mediterranean Shipping Company	1,017,022	6%	61%	31.2
9	NYK Line	1,013,129	6%	66%	31.0
10	K Line	1,009,637	6%	72%	30.8
11	CMA CGM	992,700	5%	77%	29.8
12	COSCO	913,644	5%	82%	25.2
13	China Shipping Container Lines	885,619	5%	87%	23.7
14	Mitsui OSK Line	759,267	4%	91%	17.4
15	Hapag-Lloyd	738,234	4%	95%	16.5
16	Zim Container Line	285,608	2%	97%	2.5
17	Wan Hai Lines Ltd	235,185	1%	98%	1.7
18	Matson Navigation Company, Inc	94,257	1%	99%	0.3
20	ANL Container Line	65,042	0%	99%	0.1
21	Pacific International Line (Pte) Ltd	62,386	0%	99%	0.1
22	Westwood Shipping Lines	54,496	0%	100%	0.1
23	United Arab Shipping Co	38,665	0%	100%	0.0
24	Seth Shipping Corp	6,380	0%	100%	0.0
25	US Lines Ltd	6,105	0%	100%	0.0
26	Rickmers Linie (America)	3,653	0%	100%	0.0
27	Emirates Shipping (Hong Kong) Ltd	3,556	0%	100%	0.0
28	Saga Forest Carriers International	2,526	0%	100%	0.0
29	CSAV Norasia	2,233	0%	100%	0.0
30	Namucar Line	1,990	0%	100%	0.0
31	Chinese-Polish Joint Stock Shipping Co in Shanghai	1,773	0%	100%	0.0
32	Amerasia Shipping Line	1,707	0%	100%	0.0
33	Star Shipping	1,307	0%	100%	0.0
34	Guarani Line Ltd	1,044	0%	100%	0.0
<b>2008 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>18,195,952</b>	<b>100%</b>	<b>-</b>	<b>669</b>

Source: Federal Maritime Commission, PIERS Interactive

**TP-7d US/Asia  
Total Liner Cargo [Imports & Exports]  
CR4 & HHI - 2009**

Rank	Market Participant (Shipping Line)	2009 TEUs	Market Share	Cumulative Percent	HHI
1	Maersk	1,748,311	11%	11%	115.6
2	Evergreen Line	1,708,916	11%	21%	110.5
3	Hanjin Shipping	1,297,635	8%	29%	63.7
4	American President Lines	1,158,239	7%	36%	50.7
5	Mediterranean Shipping Company	1,131,914	7%	43%	48.5
6	Hyundai Merchant Marine	995,884	6%	49%	37.5
7	CMA CGM	992,496	6%	56%	37.3
8	OOCL	942,603	6%	61%	33.6
9	K Line	939,326	6%	67%	33.4
10	Yang Ming Line	919,538	6%	73%	32.0
11	China Shipping Container Line	881,345	5%	78%	29.4
12	NYK Line	797,960	5%	83%	24.1
13	COSCO	780,759	5%	88%	23.1
14	Mitsui OSK Line	683,145	4%	92%	17.7
15	Hapag-Lloyd	613,606	4%	96%	14.2
16	Zim Container Line	300,389	2%	98%	3.4
17	Matson Navigation Company, Inc	88,548	1%	98%	0.3
18	Wan Hai Lines Ltd	84,980	1%	99%	0.3
19	ANL Container Line	57,230	0%	99%	0.1
20	Westwood Shipping Lines	34,523	0%	99%	0.0
21	Pacific International Line (Pte) Ltd	33,972	0%	100%	0.0
22	United Arab Shipping Co	30,324	0%	100%	0.0
23	CSAV Norasia	29,264	0%	100%	0.0
24	Seth Shipping Corp	7,402	0%	100%	0.0
25	Rickmers Linie (America)	2,284	0%	100%	0.0
<b>2009 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>16,260,595</b>	<b>100%</b>	<b>-</b>	<b>675</b>

Source: Federal Maritime Commission, PIERS Interactive

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### TP-7e US/Asia Total Liner Cargo [Imports & Exports] CR4 & HHI - 2010

Rank	Market Participant (Shipping Line)	2010 TEUs	Market Share	Cumulative Percent	HHI
1	Evergreen Line	1,766,963	10%	10%	94.9
2	Maersk	1,758,113	10%	19%	94.0
3	Hanjin Shipping	1,490,703	8%	28%	67.6
4	American President Lines	1,461,915	8%	36%	65.0
5	Hyundai Merchant Marine	1,239,315	7%	43%	46.7
6	Mediterranean Shipping Company	1,188,232	7%	49%	42.9
7	COSCO	1,084,541	6%	55%	35.8
8	China Shipping Container Lines	1,059,233	6%	61%	34.1
9	Yang Ming Line	1,045,727	6%	67%	33.3
10	CMA CGM	938,283	5%	72%	26.8
11	K Line	937,947	5%	77%	26.8
12	OOCL	928,495	5%	82%	26.2
13	NYK Line	829,662	5%	87%	20.9
14	Mitsui OSK Line	785,778	4%	91%	18.8
15	Hapag-Lloyd	646,693	4%	95%	12.7
16	Zim Container Line	319,883	2%	96%	3.1
17	Matson Navigation Company, Inc	129,504	1%	97%	0.5
18	CSAV Norasia	114,532	1%	98%	0.4
19	Pacific International Line (Pte) Ltd	80,715	0%	98%	0.2
20	ANL Container Line	79,807	0%	99%	0.2
21	Wan Hai Lines Ltd	77,968	0%	99%	0.2
22	TCC (The Containership Co)	55,236	0%	99%	0.1
23	Westwood Shipping Lines	54,161	0%	100%	0.1
24	PO Shipping Co Ltd (Hainan)	37,623	0%	100%	0.0
25	Seth Shipping Corp	10,515	0%	100%	0.0
27	Horizon Lines	4,469	0%	100%	0.0
28	United Arab Shipping Co	3,441	0%	100%	0.0
29	Rickmers Linie (America)	2,465	0%	100%	0.0
30	Chinese-Polish Joint Stock Shipping Co in Shanghai	1,267	0%	100%	0.0
31	Wallenius Wilhelmsen Line	1,110	0%	100%	0.0
<b>2010 Total TEUs &amp; Herfindahl-Hirschman Index</b>		<b>18,134,297</b>	<b>100%</b>	<b>-</b>	<b>651</b>

Source: Federal Maritime Commission, PIERIS Interactive

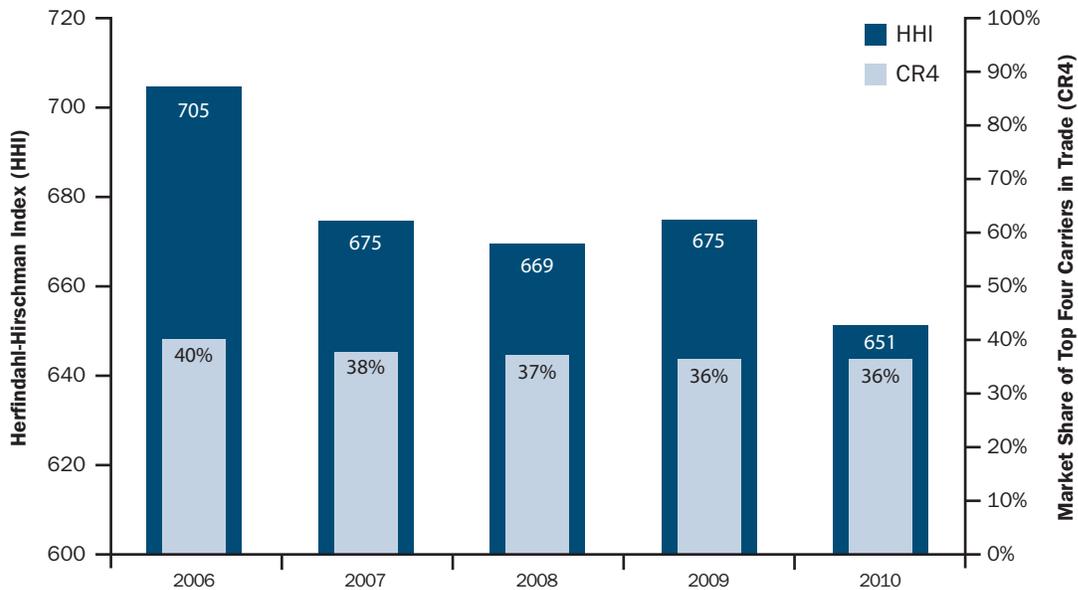
### Chart TP-8 Concentration Ratios (CR4 and HHI)

The chart provides a summary of the changes in market concentration among the participating shipping lines in the US/Asia trade over the review period from 2006 through 2010. Two measures of market concentration are shown: the concentration ratio of the top four shipping lines with the highest market shares (“CR4”) in the light columns with the scale shown on the right and the Herfindahl-Hirschman Index (“HHI”) in the dark columns with the scale shown on the left. The CR4 is derived as the sum of market shares of the top four shipping lines, and the HHI is derived as the sum of the squared values of the market shares for each shipping line participating in the trade. The market share of each shipping line is based on its total annual container carriage in the trade measured in TEUs.

As a benchmark for accessing concentration based on HHI, the 2010 Horizontal Merger Guidelines of the US Department of Justice and the Federal Trade Commission view a market with an HHI below 1500 as unconcentrated, an HHI between 1500 and 2500 as moderately concentrated, and an HHI above 2500 as highly concentrated. The source of the container data is PIERS.

#### TP-8 US/Asia Trade Measures of Market Concentration CR4 & HHI

Source: Federal Maritime Commission, PIERS Interactive



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**Table TP-9 Changes in the Market Shares of Participants**

The table provides a summary of the changes in the market share percentages of the participating shipping lines in the US/Asia trade for each year of the review period from 2006 through 2010. The annual market share percentages of each shipping line are based on its total annual container cargo carriage in the trade measured in TEUs. The shifts in market share between the shipping lines provide an indication of how well each line competed in the marketplace from one year to the next and over the course of the review period. The bottom row of the table gives the size of the market in millions of TEUs as measured by the sum of the annual amount of total import and export containers moved in the trade by each of the identified shipping lines. Only those shipping lines that deployed vessels in the trade in a given year were included as market participants. PIERS is the source of the container cargo data.

**TP-9 US/Asia Trade  
Changes in the Market Shares of Participants**

Shipping Line	2006 MS	2007 MS	2008 MS	2009 MS	2010 MS
Evergreen Line	11%	11%	11%	11%	10%
Maersk	14%	10%	10%	11%	10%
Hanjin Shipping	9%	9%	8%	8%	8%
American President Lines	7%	8%	7%	7%	8%
Hyundai Merchant Marine	6%	6%	6%	6%	7%
Mediterranean Shipping Company	5%	5%	6%	7%	7%
COSCO	6%	6%	5%	5%	6%
China Shipping Container Lines	5%	6%	5%	5%	6%
Yang Ming Line	5%	6%	6%	6%	6%
CMA CGM	4%	5%	5%	6%	5%
K Line	5%	5%	6%	6%	5%
OOCL	6%	6%	6%	6%	5%
NYK Line	5%	5%	6%	5%	5%
Mitsui OSK Line	4%	4%	4%	4%	4%
Hapag-Lloyd	3%	4%	4%	4%	4%
Zim Container Line	1%	1%	2%	2%	2%
Matson Navigation Company, Inc	0%	1%	1%	1%	1%
CSAV Norasia	0%	0%	0%	0%	1%
Pacific International Line (Pte) Ltd	0%	0%	0%	0%	0%
ANL Container Line	0%	0%	0%	0%	0%
Wan Hai Lines Ltd	2%	1%	1%	1%	0%
TCC (The Containership Co)	-	-	-	-	0%
Westwood Shipping Lines	0%	0%	0%	0%	0%
P O Shipping Co Ltd (Hainan)	-	-	-	-	0%
US Lines Ltd	0%	0%	0%	-	-
Emirates Shipping (Hong Kong) Ltd	0%	0%	0%	-	-
China National Foreign Trade Transportation Corp.	1%	0%	0%	-	-
Swire Shipping Ltd	0%	0%	0%	0%	-
Maruba S.C.A.	0%	0%	0%	-	-
Indotrans	0%	0%	-	-	-
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Market Size (Millions of TEUs)</b>	<b>18.06</b>	<b>18.81</b>	<b>18.14</b>	<b>16.22</b>	<b>18.11</b>

Source: Federal Maritime Commission, PIERS Interactive

**Table TP-10 Changes in Cargo Lifts and Market Shares of Major Alliances and Vessel Sharing Arrangements**

For each year of the review period from 2006 through 2010, the table gives the total number and market share percentage of annual containers moved as a group by members of each alliance and the selected vessel sharing agreements operating in the US/Asia trade. The total number of annual containers moved by each agreement is the sum of the total number of annual containers moved by each member of the agreement and is combined to include imports and exports measured in TEUs. The annual market share percentage is derived by dividing the total number of containers of each agreement by the total number of import and export containers that moved in the trade and multiplying the quotient by 100. The table also gives the sum, and the corresponding market share percentage, of the annual containers moved in the trade by all of the alliance agreements (as one group) and by all of the alliance and selected vessel sharing agreements (as one group). The selected vessel sharing agreements shown in the table are those in which an alliance, as a group, formed a service, or services, under an agreement in partnership with non-alliance carriers operating in the trade. Over the review period, the table shows any annual change that occurred in the total number, and corresponding market share percentage, of containers moved by the various agreements and groups of agreements. The source of data is PIERS.

**TP-10 US/Asia  
Changes in Cargo Lifts (TEUs) and Market Shares of the Major Alliances and VSAs**

Alliances	2006	2007	2008	2009	2010
New World Alliance Agreement	2,952,671	3,241,812	3,196,430	2,837,269	3,487,008
The Grand Alliance Agreement II	2,544,569	2,782,683	2,831,864	2,354,169	2,404,850
CKYH Worldwide Slot Allocation and Sailing Agreement	4,638,361	5,100,201	4,506,999	3,937,259	4,558,918
Alliances including Partners	2006	2007	2008	2009	2010
Grand Alliance/ZIM Transpacific VSA	-	-	-	2,654,558	2,724,733
<b>Liftings by Alliances</b>	<b>10,135,601</b>	<b>11,124,696</b>	<b>10,535,293</b>	<b>9,128,697</b>	<b>10,450,776</b>
<b>Liftings by Alliances including Partners</b>	<b>10,135,601</b>	<b>11,124,696</b>	<b>10,535,293</b>	<b>9,429,086</b>	<b>10,770,659</b>

**Shares of Capacity**

Alliances	2006	2007	2008	2009	2010
New World Alliance Agreement	16.3%	17.2%	17.6%	17.4%	19.2%
The Grand Alliance Agreement II	14.0%	14.7%	15.6%	14.5%	13.3%
CKYH Worldwide Slot Allocation and Sailing Agreement	25.6%	27.0%	24.8%	24.2%	25.1%
Alliances including Partners	2006	2007	2008	2009	2010
Grand Alliance/ZIM Transpacific VSA	-	-	-	16.3%	15.0%
<b>Market Share of Alliances</b>	<b>56.0%</b>	<b>58.9%</b>	<b>57.9%</b>	<b>56.1%</b>	<b>57.6%</b>
<b>Market Share of Alliances including Partners</b>	<b>56.0%</b>	<b>58.9%</b>	<b>57.9%</b>	<b>58.0%</b>	<b>59.4%</b>

Source: Federal Maritime Commission, PIERS Interactive

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### Table TP-11 Carrier Entry and Exit

The table shows the level of entry and exit of shipping lines participating in the US/Asia trade for each quarter of the review period from 2006 through 2010. Only those shipping lines that deployed vessels in liner services in the trade were counted as market participants. For purposes of this study, market entry was counted as the initiation of a new liner service in which a shipping line deployed some or all of its own vessels and was not deploying vessels in any other liner services in the trade at the time when the new service was initiated. Market exit was counted as a shipping line terminating its services in the trade and removing its vessels. The level of market entry and exit provides an indication of whether barriers to entry in a market exist, which affects competition between the market participants. The exit or entry of shipping lines in a trade is also a function of the demand for liner shipping services. A contraction in demand for an extended period may cause lines to exit a trade without attracting new entry. Established shipping lines are able to enter and exit trades more readily without incurring any great amount of sunk cost as opposed to the start up of a new shipping line in a trade where the capital investment can be substantial. The sources of data are Drewry Maritime Research and the Federal Maritime Commission.

**TP-11 US/Asia Trade  
Entries and Exits**

Entry/Exit based on carriers listed as operators in the transpacific trade as identified by Drewry

US to Asia	Entry into Trade	Exit from Trade	Asia to US	Entry into Trade	Exit from Trade
1Q06			1Q06		
2Q06	Matson 23,558 TEUs	Great Western 91,004 TEUs	2Q06	Matson 147,241 TEUs	Great Western 113,755 TEUs
3Q06	Emirates 10,401 TEUs With Zim		3Q06	Emirates 13,001 TEUs With Zim	
4Q06			4Q06		
1Q07			1Q07		
2Q07	Swire Shipping 2,048 TEUs	Gold Star 20,470 TEUs w/CSAV Norasia Indotrans 2,048 TEUs	2Q07	Swire Shipping 1,222 TEUs	Indotrans 611 TEUs
3Q07			3Q07		
4Q07			4Q07		
1Q08		Norasia and Sinotrans 83,366 TEUs w/Wan Hai & CSAV	1Q08		Norasia and Sinotrans 83,366 TEUs w/Wan Hai & CSAV
2Q08			2Q08		ANL and US Lines 53,354 TEUs
3Q08			3Q08		
4Q08			4Q08		
1Q09			1Q09		
2Q09			2Q09		
3Q09		Wan Hai and PIL 42,899 TEUs	3Q09		Wan Hai and PIL 50,943 TEUs
4Q09		Swire Shipping 2,048 TEUs	4Q09		Swire Shipping 2,432 TEUs
1Q10			1Q10		
2Q10		CLANSA and Maruba 22,967 TEUs w/CMA CGM	2Q10		CLANSA and Maruba 22,967 TEUs w/CMA CGM
3Q10	PIL 67,477 TEUs TCC 121,066 TEUs		3Q10	PIL 80,679 TEUs TCC 142,054 TEUs	
4Q10	Norasia 32,322 TEUs w/CSAV Hainan Pan Ocean 127,395 TEUs		4Q10	Norasia 38,099 TEUs w/CSAV Hainan Pan Ocean 150,167 TEUs	

Derived from Drewry Container Forecaster Quarterly Reports, and the Federal Maritime Commission

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**Table TP-12 Minimum Efficient Scale (MES) and Ratio to Market Size to MES**

The table estimates the minimum efficient scale (MES) of weekly liner service in the US/Asia trade for each year of the review period from 2006 through 2010. The MES for each year is measured as the smallest level of service among comparable shipping lines that can sustain a competitive weekly service loop in the trade. For each year, the table identifies the shipping lines, frequency, type, number of vessels, the average TEU vessel capacity of each MES, and any changes in MES over time. It would be expected that where the ratio of the size of the market to MES is high, the trade would be more competitive and easier for new participants to enter.

For each year of the review period from 2006 through 2010, the table also gives the ratio of the size of the market to the minimum efficient scale (MES) of service in each direction of the US/Asia trade. The ratio is derived by dividing the annual capacity of the market by the annual capacity of the MES in each direction of the trade. The MES for each year is measured as the smallest level of service among comparable shipping lines that can sustain a competitive weekly service loop in the trade. The market size is measured as the sum of the annual capacity of all of the liner services offered in the trade. The table shows the change in the ratio in each trade direction over the review period. It would be expected that a high ratio of market size to MES indicates that competition among market participants is greater and barriers to market entry are lower. The source of data is Drewry Maritime Research.

**TP-12 US/Asia Trade**

Trend in Minimum Efficient Scale (MES)			Ratio of Market Size to MES	
			Asia to US	US to Asia
2006	Hapag-Lloyd/APL	weekly loop service using 6 vessels of 4,293 TEU vessel capacity on average	83	83
2007	MSC	weekly loop service using 6 vessels of 5,492 TEU vessel capacity on average	65	63
2008	APL	weekly loop service using 6 vessels of 5,570 TEU vessel capacity on average	64	62
2009	APL	weekly loop service using 6 vessels of 5,762 TEU vessel capacity on average	56	54
2010	Evergreen	weekly loop service using 6 vessels of 6,447 TEU vessel capacity on average	57	56

Source: Drewry Maritime Research

### **Tables TP-13a-e Container Volume by US Port Range and Foreign Nation**

For each year of the review period from 2006 through 2010, the tables give the total number and market share percentages of annual containers that moved between the US Atlantic, Gulf, and Pacific Coasts and each foreign nation included in the geographic scope of the liner shipping trade between the US and Asia. The regions of the Great Lakes, US Virgin Islands, and Puerto Rico are included in the US Atlantic Coast, and Alaska and Hawaii are included in the US Pacific Coast. The total number of containers for each year is combined to include imports and exports measured in TEUs. Each market share percentage of container cargo is derived as a function of the total number of import and export containers that moved in the trade for each year, e.g., 44.7 percent of the total number of containers in the trade for 2006 moved between the nation of China and the US Pacific Coast. The tables show the geographic distribution and extent of demand in container cargo between the US and each Asian nation through each US coastal range. Over the review period, the tables show any change that occurred in the distribution and demand of container cargo in the trade. PIERS is the source of the container cargo data.

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### TP-13a US/Asia Trade Container Volume and Market Share by Asian Country and US Port Range

2006 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Brunei	141	12	599	752
Cambodia	6,117	6	43,719	49,843
China	2,546,685	180,397	8,093,758	10,820,840
Hong Kong	277,149	14,330	819,985	1,111,464
Indonesia	138,955	1,277	347,249	487,481
Japan	246,584	1,989	1,457,519	1,706,092
Laos	18	-	72	90
Macau	1,415	4	5,395	6,813
Malaysia	86,967	5,480	287,101	379,549
Mongolia	161	-	764	925
North Korea	3	-	127	131
Philippines	56,727	616	195,481	252,824
Singapore	47,794	1,808	139,512	189,114
South Korea	220,975	22,927	848,180	1,092,081
Taiwan	201,686	2,175	884,920	1,088,781
Thailand	145,606	1,817	435,598	583,022
Vietnam	89,036	1,625	264,638	355,300
<b>Total 2006</b>	<b>4,066,162</b>	<b>234,467</b>	<b>13,824,678</b>	<b>18,125,307</b>

2006 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Brunei	0.0%	0.0%	0.0%	0.0%
Cambodia	0.0%	0.0%	0.2%	0.3%
China	14.1%	1.0%	44.7%	59.7%
Hong Kong	1.5%	0.1%	4.5%	6.1%
Indonesia	0.8%	0.0%	1.9%	2.7%
Japan	1.4%	0.0%	8.0%	9.4%
Laos	0.0%	0.0%	0.0%	0.0%
Macau	0.0%	0.0%	0.0%	0.0%
Malaysia	0.5%	0.0%	1.6%	2.1%
Mongolia	0.0%	0.0%	0.0%	0.0%
North Korea	0.0%	0.0%	0.0%	0.0%
Philippines	0.3%	0.0%	1.1%	1.4%
Singapore	0.3%	0.0%	0.8%	1.0%
South Korea	1.2%	0.1%	4.7%	6.0%
Taiwan	1.1%	0.0%	4.9%	6.0%
Thailand	0.8%	0.0%	2.4%	3.2%
Vietnam	0.5%	0.0%	1.5%	2.0%
<b>Total 2006</b>	<b>22.4%</b>	<b>1.3%</b>	<b>76.3%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TP-13b US/Asia Trade  
Container Volume and Market Share  
by Asian Country and US Port Range**

2007 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Brunei	75	-	496	571
Cambodia	8,497	8	48,873	57,377
China	2,830,006	186,905	8,230,557	11,247,468
Hong Kong	287,656	9,596	773,303	1,070,554
Indonesia	157,595	3,040	366,677	527,312
Japan	240,083	2,298	1,383,175	1,625,556
Laos	8	-	147	155
Macau	1,022	9	4,325	5,355
Malaysia	93,928	4,138	272,572	370,639
Mongolia	84	-	157	242
North Korea	4	20	51	75
Philippines	62,731	767	190,680	254,178
Singapore	70,270	4,131	160,562	234,963
South Korea	240,941	36,744	925,728	1,203,413
Taiwan	227,967	5,363	1,052,326	1,285,656
Thailand	158,327	2,491	394,434	555,251
Vietnam	132,901	2,987	332,830	468,717
<b>Total 2007</b>	<b>4,512,217</b>	<b>258,497</b>	<b>14,136,959</b>	<b>18,907,673</b>

2007 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Brunei	0.0%	0.0%	0.0%	0.0%
Cambodia	0.0%	0.0%	0.3%	0.3%
China	15.0%	1.0%	43.5%	59.5%
Hong Kong	1.5%	0.1%	4.1%	5.7%
Indonesia	0.8%	0.0%	1.9%	2.8%
Japan	1.3%	0.0%	7.3%	8.6%
Laos	0.0%	0.0%	0.0%	0.0%
Macau	0.0%	0.0%	0.0%	0.0%
Malaysia	0.5%	0.0%	1.4%	2.0%
Mongolia	0.0%	0.0%	0.0%	0.0%
North Korea	0.0%	0.0%	0.0%	0.0%
Philippines	0.3%	0.0%	1.0%	1.3%
Singapore	0.4%	0.0%	0.8%	1.2%
South Korea	1.3%	0.2%	4.9%	6.4%
Taiwan	1.2%	0.0%	5.6%	6.8%
Thailand	0.8%	0.0%	2.1%	2.9%
Vietnam	0.7%	0.0%	1.8%	2.5%
<b>Total 2007</b>	<b>23.9%</b>	<b>1.4%</b>	<b>74.8%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERIS Interactive

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### TP-13c US/Asia Trade Container Volume and Market Share by Asian Country and US Port Range

2008 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Brunei	156	-	461	617
Cambodia	11,365	41	46,333	57,740
China	2,812,477	189,599	7,559,048	10,561,124
Hong Kong	250,693	7,246	721,917	979,856
Indonesia	187,904	3,569	359,176	550,649
Japan	255,536	7,422	1,321,326	1,584,285
Laos	3	1	104	108
Macau	943	2	3,086	4,031
Malaysia	105,593	3,846	277,680	387,119
Mongolia	73	-	411	484
North Korea	120	-	308	428
Philippines	67,295	1,169	172,833	241,297
Singapore	66,645	5,369	151,811	223,825
South Korea	244,898	45,453	994,137	1,284,488
Taiwan	247,857	6,068	971,090	1,225,016
Thailand	172,840	4,444	366,513	543,797
Vietnam	171,629	5,393	379,297	556,319
<b>Total 2008</b>	<b>4,596,139</b>	<b>279,622</b>	<b>13,325,585</b>	<b>18,201,345</b>

2008 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Brunei	0.0%	0.0%	0.0%	0.0%
Cambodia	0.1%	0.0%	0.3%	0.3%
China	15.5%	1.0%	41.5%	58.0%
Hong Kong	1.4%	0.0%	4.0%	5.4%
Indonesia	1.0%	0.0%	2.0%	3.0%
Japan	1.4%	0.0%	7.3%	8.7%
Laos	0.0%	0.0%	0.0%	0.0%
Macau	0.0%	0.0%	0.0%	0.0%
Malaysia	0.6%	0.0%	1.5%	2.1%
Mongolia	0.0%	0.0%	0.0%	0.0%
North Korea	0.0%	0.0%	0.0%	0.0%
Philippines	0.4%	0.0%	0.9%	1.3%
Singapore	0.4%	0.0%	0.8%	1.2%
South Korea	1.3%	0.2%	5.5%	7.1%
Taiwan	1.4%	0.0%	5.3%	6.7%
Thailand	0.9%	0.0%	2.0%	3.0%
Vietnam	0.9%	0.0%	2.1%	3.1%
<b>Total 2008</b>	<b>25.3%</b>	<b>1.5%</b>	<b>73.2%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TP-13d US/Asia Trade  
Container Volume and Market Share  
by Asian Country and US Port Range**

2009 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Brunei	183	33	594	811
Cambodia	13,488	83	37,924	51,496
China	2,743,667	205,706	6,739,664	9,689,037
Hong Kong	230,320	8,951	630,606	869,876
Indonesia	169,251	4,236	323,373	496,860
Japan	190,455	3,801	1,057,030	1,251,286
Laos	11	-	17	28
Macau	416	-	1,025	1,442
Malaysia	96,926	2,894	224,952	324,772
Mongolia	97	-	282	379
North Korea	-	-	-	-
Philippines	55,428	1,365	156,239	213,033
Singapore	56,553	13,119	128,434	198,106
South Korea	236,011	34,021	871,920	1,141,953
Taiwan	226,755	5,757	730,664	963,176
Thailand	148,480	3,380	315,639	467,499
Vietnam	170,911	10,973	414,879	596,763
<b>Total 2009</b>	<b>4,339,040</b>	<b>294,320</b>	<b>11,633,337</b>	<b>16,266,697</b>

2009 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Brunei	0.0%	0.0%	0.0%	0.0%
Cambodia	0.1%	0.0%	0.2%	0.3%
China	16.9%	1.3%	41.4%	59.6%
Hong Kong	1.4%	0.1%	3.9%	5.3%
Indonesia	1.0%	0.0%	2.0%	3.1%
Japan	1.2%	0.0%	6.5%	7.7%
Laos	0.0%	0.0%	0.0%	0.0%
Macau	0.0%	0.0%	0.0%	0.0%
Malaysia	0.6%	0.0%	1.4%	2.0%
Mongolia	0.0%	0.0%	0.0%	0.0%
North Korea	0.0%	0.0%	0.0%	0.0%
Philippines	0.3%	0.0%	1.0%	1.3%
Singapore	0.3%	0.1%	0.8%	1.2%
South Korea	1.5%	0.2%	5.4%	7.0%
Taiwan	1.4%	0.0%	4.5%	5.9%
Thailand	0.9%	0.0%	1.9%	2.9%
Vietnam	1.1%	0.1%	2.6%	3.7%
<b>Total 2009</b>	<b>26.7%</b>	<b>1.8%</b>	<b>71.5%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERS Interactive

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### TP-13e US/Asia Trade Container Volume and Market Share by Asian Country and US Port Range

2010 Container Volume (TEUs)

Country	Atlantic	Gulf	Pacific	Total
Brunei	90	16	425	531
Cambodia	12,547	65	45,921	58,534
China	2,956,627	161,585	7,643,265	10,761,477
Hong Kong	278,518	7,454	723,905	1,009,877
Indonesia	200,184	3,209	333,362	536,756
Japan	216,955	3,372	1,199,011	1,419,338
Laos	-	-	7	7
Macau	202	-	733	934
Malaysia	103,639	3,599	225,805	333,043
Mongolia	76	-	778	855
North Korea	6	-	14	20
Philippines	61,813	1,663	176,524	239,999
Singapore	66,681	20,136	144,806	231,623
South Korea	271,211	31,062	1,021,594	1,323,866
Taiwan	244,586	5,607	812,320	1,062,512
Thailand	164,304	4,042	338,917	507,263
Vietnam	198,011	8,211	452,904	659,126
<b>Total 2010</b>	<b>4,775,527</b>	<b>250,023</b>	<b>13,120,381</b>	<b>18,145,932</b>

2010 Container Volume Percentage of the Total Trade

Country	Atlantic	Gulf	Pacific	Total
Brunei	0.0%	0.0%	0.0%	0.0%
Cambodia	0.1%	0.0%	0.3%	0.3%
China	16.3%	0.9%	42.1%	59.3%
Hong Kong	1.5%	0.0%	4.0%	5.6%
Indonesia	1.1%	0.0%	1.8%	3.0%
Japan	1.2%	0.0%	6.6%	7.8%
Laos	0.0%	0.0%	0.0%	0.0%
Macau	0.0%	0.0%	0.0%	0.0%
Malaysia	0.6%	0.0%	1.2%	1.8%
Mongolia	0.0%	0.0%	0.0%	0.0%
North Korea	0.0%	0.0%	0.0%	0.0%
Philippines	0.3%	0.0%	1.0%	1.3%
Singapore	0.4%	0.1%	0.8%	1.3%
South Korea	1.5%	0.2%	5.6%	7.3%
Taiwan	1.3%	0.0%	4.5%	5.9%
Thailand	0.9%	0.0%	1.9%	2.8%
Vietnam	1.1%	0.0%	2.5%	3.6%
<b>Total 2010</b>	<b>26.3%</b>	<b>1.4%</b>	<b>72.3%</b>	<b>100.0%</b>

Source: Federal Maritime Commission, PIERS Interactive

## Tables TP-14a-e Top Moving Commodities by Year: Container Exports and Imports between the US and Asia

On an annual basis for each year of the review period from 2006 through 2010, the tables list in ranking order the top 20 US export container commodities moved outbound to Asia, and the top 20 import container commodities moved inbound to the US from Asia. The top commodities are ranked from largest to smallest based on the number of annual containers moved in TEUs in each trade direction. The tables also give the percentage of the annual number of each top commodity as a function of the total number of containers moved in each corresponding direction of the trade. The tables show the types and extent of commodities that accounted for the majority of container cargo in each trade direction based on foreign and domestic consumer demand. Over the review period, the tables show any change in the mix, ranking, and number of the top container commodities that moved in the trade as affected by changes in consumer demand and other market factors. PIERS is the source of the container cargo data.

### TP-14a US/Asia Trade Top Moving Container Export and Import Commodities by Year

2006 US to Asia				2006 Asia to US		
Rank	Commodity	2006 TEUs	PCT	Commodity	2006 TEUs	PCT
1	Paper & Paperboard, Incl Waste	960,686	21%	Furniture	1,890,173	14%
2	Mixed Metal Scrap	265,714	6%	Toys	614,875	5%
3	Pet & Animal Feeds	263,956	6%	General Cargo, Misc	503,912	4%
4	Fabrics, Incl. Raw Cotton	248,692	5%	Footware	445,363	3%
5	Logs & Lumber	155,831	3%	Auto Parts	401,407	3%
6	Wood Pulp	121,920	3%	Plastic Prods, Misc	390,791	3%
7	Foam Waste & Scrap	120,966	3%	Women's & Infantware	358,676	3%
8	Synthetic Resins, NSPF	112,367	2%	EDP, Number, Address Machinery	346,360	3%
9	Vegetables	97,323	2%	Auto & Truck Tire & Tubes	321,361	2%
10	Soybeans & Prods	92,097	2%	Hard Ware, Misc	294,136	2%
11	Grains & Flour Prods	84,423	2%	Lamps & Parts	293,794	2%
12	General Cargo, Misc	72,433	2%	Elec & Electronic Prods, Misc	220,203	2%
13	Synth Resins & Plastics	65,296	1%	TV Equip	209,695	2%
14	Plastic Prods, Misc	64,358	1%	Sheets, Towels, Blankets	209,619	2%
15	Grocery Prods, Misc.	61,501	1%	Apparels, Misc.	202,195	1%
16	Meat, Chiefly Fresh & Frozen	58,610	1%	Sporting Goods, Misc	189,493	1%
17	Poultry, Chiefly Fresh & Frozen	57,638	1%	Woodenware, Misc.	182,468	1%
18	Newspapers	56,031	1%	Cooking, Ironing, Heat Appliances	182,429	1%
19	Vegetable Fibres	51,653	1%	Kitchenware	178,383	1%
20	Auto Parts	50,963	1%	Menswear	175,250	1%
All Other		1,528,704	33%	All Other	5,923,432	44%
<b>Total 2006</b>		<b>4,591,161</b>	<b>100%</b>	<b>Total 2006</b>	<b>13,534,015</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERS Interactive

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### TP-14b US/Asia Trade Top Moving Container Export and Import Commodities by Year

2007 US to Asia				2007 Asia to US		
Rank	Commodity	2007 TEUs	PCT	Commodity	2007 TEUs	PCT
1	Paper & Paperboard, Incl Waste	1,027,223	20%	Furniture	1,836,371	13%
2	Mixed Metal Scrap	326,419	6%	Toys	615,579	5%
3	Pet & Animal Feeds	284,050	5%	General Cargo, Misc	588,104	4%
4	Soybeans & Prods	218,102	4%	Footware	446,050	3%
5	Grains & Flour Prods	210,466	4%	Auto Parts	413,942	3%
6	Fabrics, Incl. Raw Cotton	207,177	4%	Plastic Prods, Misc	381,209	3%
7	Logs & Lumber	204,295	4%	Women's & Infantware	378,738	3%
8	Foam Waste & Scrap	146,328	3%	Auto & Truck Tire & Tubes	345,041	3%
9	Wood Pulp	142,683	3%	EDP, Number, Address Machinery	332,729	2%
10	Synthetic Resins, NSPF	125,964	2%	Hard Ware, Misc	325,724	2%
11	Metal Scrap, Ferrous, Pig Iron	120,627	2%	Lamps & Parts	280,108	2%
12	General Cargo, Misc	106,599	2%	Elec & Electronic Prods, Misc	226,281	2%
13	Vegetables	92,114	2%	Sheets, Towels, Blankets	220,263	2%
14	Meat, Chiefly Fresh & Frozen	78,235	1%	Apparels, Misc.	220,182	2%
15	Grocery Prods, Misc.	71,570	1%	Sporting Goods, Misc	202,911	1%
16	Plastic Prods, Misc	69,660	1%	Paper & Paperboard, Incl Waste	194,756	1%
17	Poultry, Chiefly Fresh & Frozen	60,689	1%	Metalware, Misc	190,648	1%
18	Synth Resins & Plastics	57,154	1%	Cooking, Ironing, Heat Appliances	178,970	1%
19	Hides, Skins, Furs	51,237	1%	Menswear	176,932	1%
20	Automobiles	51,082	1%	TV Equip	172,235	1%
All Other		1,581,574	30%	All Other	5,947,575	43%
<b>Total 2007</b>		<b>5,233,247</b>	<b>100%</b>	<b>Total 2007</b>	<b>13,674,347</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERIS Interactive

**TP-14c US/Asia Trade**  
**Top Moving Container Export and Import Commodities by Year**

2008 US to Asia				2008 Asia to US		
Rank	Commodity	2008 TEUs	PCT	Commodity	2008 TEUs	PCT
1	Paper & Paperboard, Incl Waste	1,093,398	19%	Furniture	1,727,786	14%
2	Mixed Metal Scrap	367,249	6%	Toys	561,771	4%
3	Pet & Animal Feeds	277,491	5%	General Cargo, Misc	446,995	4%
4	Grains & Flour Prods	239,235	4%	Footware	419,663	3%
5	Metal Scrap, Ferrous, Pig Iron	232,515	4%	Auto Parts	362,776	3%
6	Soybeans & Prods	220,638	4%	Women's & Infantware	357,052	3%
7	Logs & Lumber	202,278	4%	Plastic Prods, Misc	352,314	3%
8	Fabrics, Incl. Raw Cotton	201,153	4%	Auto & Truck Tire & Tubes	317,651	3%
9	Foam Waste & Scrap	162,926	3%	EDP, Number, Address Machinery	310,889	2%
10	Wood Pulp	144,611	3%	Hard Ware, Misc	262,915	2%
11	Synthetic Resins, NSPF	131,686	2%	Elec & Electronic Prods, Misc	241,459	2%
12	Meat, Chiefly Fresh & Frozen	119,672	2%	Lamps & Parts	240,737	2%
13	General Cargo, Misc	107,520	2%	Sheets, Towels, Blankets	204,491	2%
14	Vegetables	105,709	2%	Apparels, Misc.	191,804	2%
15	Poultry, Chiefly Fresh & Frozen	75,521	1%	Paper & Paperboard, Incl Waste	180,177	1%
16	Grocery Prods, Misc.	72,855	1%	Sporting Goods, Misc	176,329	1%
17	Automobiles	63,744	1%	Cooking, Ironing, Heat Appliances	167,196	1%
18	Plastic Prods, Misc	60,395	1%	Metalware, Misc	164,830	1%
19	Unclassifiable Chemicals	55,526	1%	Menswear	155,162	1%
20	Synth Resins & Plastics	52,867	1%	Kitchenware	150,196	1%
All Other		1,666,175	29%	All Other	5,555,556	44%
<b>Total 2008</b>		<b>5,653,165</b>	<b>100%</b>	<b>Total 2008</b>	<b>12,547,750</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERIS Interactive

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### TP-14d US/Asia Trade Top Moving Container Export and Import Commodities by Year

2009 US to Asia				2009 Asia to US		
Rank	Commodity	2009 TEUs	PCT	Commodity	2009 TEUs	PCT
1	Paper & Paperboard, Incl Waste	1,218,818	22%	Furniture	1,476,290	14%
2	Mixed Metal Scrap	350,904	6%	Toys	482,166	4%
3	Pet & Animal Feeds	273,506	5%	Footware	390,286	4%
4	Grains & Flour Prods	248,659	4%	Women's & Infantware	351,727	3%
5	Metal Scrap, Ferrous, Pig Iron	200,874	4%	General Cargo, Misc	341,171	3%
6	Logs & Lumber	199,689	4%	Plastic Prods, Misc	308,051	3%
7	Wood Pulp	187,321	3%	Auto Parts	298,987	3%
8	Soybeans & Prods	173,698	3%	EDP, Number, Address Machinery	274,351	3%
9	Foam Waste & Scrap	172,807	3%	Auto & Truck Tire & Tubes	270,733	3%
10	Synthetic Resins, NSPF	152,153	3%	Hard Ware, Misc	209,402	2%
11	Fabrics, Incl. Raw Cotton	150,420	3%	Sheets, Towels, Blankets	201,646	2%
12	Meat, Chiefly Fresh & Frozen	106,234	2%	Elec & Electronic Prods, Misc	200,033	2%
13	Vegetables	95,410	2%	Lamps & Parts	194,701	2%
14	General Cargo, Misc	92,817	2%	Apparels, Misc.	178,146	2%
15	Plastic Prods, Misc	82,999	1%	Paper & Paperboard, Incl Waste	162,460	2%
16	Poultry, Chiefly Fresh & Frozen	73,478	1%	Cooking, Ironing, Heat Appliances	151,899	1%
17	Grocery Prods, Misc.	71,097	1%	Sporting Goods, Misc	147,445	1%
18	Synth Resins & Plastics	59,627	1%	Menswear	147,104	1%
19	Hides, Skins, Furs	51,273	1%	TV Equip	138,330	1%
20	Automobiles	48,508	1%	Kitchenware	130,579	1%
All Other		1,526,131	28%	All Other	4,675,343	44%
<b>Total 2009</b>		<b>5,536,424</b>	<b>100%</b>	<b>Total 2009</b>	<b>10,730,848</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERS Interactive

**TP-14e US/Asia Trade**  
**Top Moving Container Export and Import Commodities by Year**

2010 US to Asia				2010 Asia to US		
Rank	Commodity	2010 TEUs	PCT	Commodity	2010 TEUs	PCT
1	Paper & Paperboard, Incl Waste	1,105,002	19%	Furniture	1,653,980	13%
2	Mixed Metal Scrap	297,845	5%	Toys	573,742	5%
3	Pet & Animal Feeds	295,204	5%	Footware	443,575	4%
4	Grains & Flour Prods	273,312	5%	Auto Parts	408,770	3%
5	Logs & Lumber	208,030	4%	Women's & Infantware	358,590	3%
6	Fabrics, Incl. Raw Cotton	190,467	3%	Plastic Prods, Misc	350,165	3%
7	Foam Waste & Scrap	179,442	3%	Auto & Truck Tire & Tubes	330,684	3%
8	Soybeans & Prods	166,623	3%	EDP, Number, Address Machinery	315,569	3%
9	Wood Pulp	165,716	3%	General Cargo, Misc	274,451	2%
10	Metal Scrap, Ferrous, Pig Iron	158,280	3%	Hard Ware, Misc	244,866	2%
11	Synthetic Resins, Nspf	127,645	2%	Sheets, Towels, Blankets	242,016	2%
12	Meat, Chiefly Fresh & Frozen	118,799	2%	Elec & Electronic Prods, Misc	234,413	2%
13	General Cargo, Misc	117,995	2%	Lamps & Parts	227,004	2%
14	Vegetables	96,125	2%	Apparels, Misc.	211,391	2%
15	Grocery Prods, Misc.	92,153	2%	Paper & Paperboard, Incl Waste	175,961	1%
16	Soluble Coffee	84,811	1%	Cooking, Ironing, Heat Appliances	173,768	1%
17	Alumin Rods, Forgings, Scrap	77,251	1%	Sporting Goods, Misc	172,396	1%
18	Poultry, Chiefly Fresh & Frozen	72,777	1%	Kitchenware	167,227	1%
19	Plastic Prods, Misc	71,594	1%	Menswear	166,845	1%
20	Synth Resins & Plastics	61,862	1%	TV Equip	151,532	1%
All Other		1,834,840	32%	All Other	5,474,196	44%
<b>Total 2010</b>		<b>5,795,774</b>	<b>100%</b>	<b>Total 2010</b>	<b>12,351,140</b>	<b>100%</b>

Source: Federal Maritime Commission, PIERS Interactive

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**Table TP-15 Annual Value of Liner Cargo and Average Value per Kilogram (Kg)**

For each year of the review period from 2006 through 2010, the table gives the total value of US container exports moved outbound to Asia, and the total value of container imports moved inbound to the US from Asia. The value of container cargo is expressed in US dollars. The table also gives the percent of annual increase or decline in the value of container exports and imports from one year to the next over the review period. The table shows the direction of the trade with the highest value of container cargo and any imbalance and change over time in the directional value and growth of container exports and imports. USA Trade Online, US Census Bureau, is the commercial source of the data.

For each year of the review period from 2006 through 2010, the table also gives the value per kilogram (Kg) of US container exports that moved outbound to Asia, and the value per Kg of container imports that moved from Asia to the US. The figures for each year are derived from the total US dollar value of container exports and imports divided by their total weight in kilograms. The table also gives the percentage of annual increase or decline in the value per Kg of container exports and imports from one year to the next over the review period. On a per Kg basis, the table shows the direction of the trade with the highest value of container cargo and any change over time. USA Trade Online, US Census Bureau, is the source of the data.

**TP-15 Container Cargo Value by Year  
Trade Between the US and Asia**

Year	Annual Value of Liner Cargo				Average Value of Liner Cargo per Kg			
	US to Asia	Percent Change	Asia to US	Percent Change	US to Asia	Percent Change	Asia to US	Percent Change
2006	\$62,464,793,542	16%	\$331,861,460,959	11%	\$1.49	2%	\$4.26	-3%
2007	\$71,958,731,989	15%	\$361,029,701,435	9%	\$1.49	0%	\$4.55	7%
2008	\$83,536,041,844	16%	\$380,220,602,556	5%	\$1.54	3%	\$5.08	12%
2009	\$70,674,197,596	-15%	\$312,648,581,102	-18%	\$1.40	-9%	\$5.19	2%
2010	\$86,323,832,060	22%	\$376,890,329,191	21%	\$1.56	12%	\$5.29	2%

Source: USA Trade Online

## Transpacific Carrier Conduct

### Table TP-16 Active Agreements in the Trade and their Authorities

The table shows each agreement between shipping lines in the US/Asia trade that was in effect and on file with the Federal Maritime Commission in each calendar quarter of the review period from 2006 through 2010. For each agreement, the table gives the FMC number, name, membership, authority, and period of time when the agreement was in effect. The table shows any change in agreement activity among shipping lines in the trade over the review period. The source of data is the Federal Maritime Commission.

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### TP-16 Carrier Agreements In The Transpacific Trade For 2006 Through 2010

• The period of time the agreement was in effect and on file with the FMC

Number	Name	Members	Authority	2006				2007				2008				2009				2010			
				Q1	Q2	Q3	Q4																
Conference Agreement																							
008493	Trans-Pacific American Flag Berth Operators Agreement	APL, Maersk	Vessel sharing and service rationalization authority; covers US government cargo only	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Rate Discussion Agreements																							
010050	US-Flag Discussion Agreement	APL, Maersk, HL	Rate authority (Non-binding), discussion of non-rate matters of interest, voluntary service contract guidelines	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011223	Transpacific Stabilization Agreement	NYK, Hanjin, Yang Ming, HYMM, APL, OOCL, K-Line, HL, CMA CGM, COSCO, Evergreen Line, MSC, China Shipping, Zim, Maersk Line	Rate authority (Non-binding), voluntary service contract guidelines, ad hoc vessel sharing, joint service contracts, and discuss environmental issues	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011325	Westbound Transpacific Stabilization Agreement	Hanjin, APL, K-Line, HYMM, NYK, Yang Ming, OOCL, HL, COSCO, Evergreen Line	Rate authority (Non-binding), voluntary service contract guidelines, joint service contracts, discussion of capacity rationalization plans	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Non-Rate Discussion Agreement																							
011427	Japanese-United States Flag Carrier Discussion Agreement	NYK, MOL, APL, K-Line	Discussion of non-rate matters of interest	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Joint Service Agreement																							
011982	Evergreen Line Joint Service Agreement	Evergreen, Italia, Hatsu	Joint service					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

**TP-16 Carrier Agreements In The Transpacific Trade For 2006 Through 2010 (continued)**

• The period of time the agreement was in effect and on file with the FMC

Number	Name	Members	Authority	2006				2007				2008				2009				2010			
				Q1	Q2	Q3	Q4																
Alliance Agreements																							
011602	The Grand Alliance II	NYK, OOCL, HL	Vessel sharing, service and capacity rationalization, equipment interchange, joint service contracts	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011960	The New World Alliance Agreement	APL, HYMM, MOL	Vessel sharing, service and capacity rationalization		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Vessel Sharing/Sailing Agreements																							
011324	Transpacific Space Utilization Agreement	APL, Yang Ming, HYMM, Westwood, Hanjin, NYK, K-Line, OOCL, HL, Evergreen	Vessel sharing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011435	APL/HLAG Space Charter Agreement	APL, HL	Vessel sharing, service rationalization, equipment interchange	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011646	CSAV/NYK Space Charter Agreement	CSAV/NYK	Vessel sharing, service rationalization	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011689	ZIM/CSCL Space Charter Agreement	China Shipping, Zim	Vessel sharing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011794	COSCO/KL/YMUK/HANJIN/Senator Worldwide Slot Allocation & Sailing Agreement	K-Line, Yang Ming, Hanjin, COSCO	Vessel sharing, service rationalization, equipment interchange	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011885	CMA CGM/MSC Reciprocal Space Charter, Sailing And Cooperative Working Agreement	CMA CGM, MSC	Vessel sharing, service rationalization, operating expense sharing, equipment interchange	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
011886	HMM/MOL Space Charter Agreement	HYMM, MOL	Vessel sharing, equipment interchange	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•







## Tables TP-17a-e Liner Service in the Transpacific Trade

The tables list the liner services offered by shipping lines operating in the US/Asia trade for each year of the review period from 2006 through 2010. For each liner service in each year, the tables identify the service name, type, shipping lines, frequency, the number of service vessels, the average TEU vessel capacity, the annual TEU operational capacity, and the percentage of the market capacity provided by the service. The percent of the market for each service is derived as a function of the total annual amount of operational capacity deployed in the market. The tables show the annual level of liner services and capacity offered by the shipping lines serving the trade and any changes that occurred over the review period. The sources of data are Drewry Maritime Research and the Federal Maritime Commission.

### TP-17a Liner Services between the US and Asia As of October 1, 2006

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
TP6	PDM	Maersk Line	7	11	8,073	420,935	2.0%
TP2	PDM	Maersk Line	7	9	2,806	146,330	0.7%
TP1	ETE	Maersk Line	7	5	2,123	110,720	0.5%
TP5	ETE	Maersk Line	7	4	4,882	254,548	1.2%
TP8	ETE	Maersk Line	7	5	4,062	211,804	1.0%
TP9 & TP10	BUT	Maersk Line	7	9	6,576	342,903	1.6%
TP14	ETE	Maersk Line	7	4	3,220	167,900	0.8%
Far East/Central America/Mexico		Maersk Line	7	7	3,855	201,033	1.0%
TP3	ETE	Maersk Line	7	8	4,685	244,315	1.2%
TP7	ETE	Maersk Line	7	8	4,341	226,333	1.1%
TP12	ETE	Maersk Line	7	7	4,582	238,941	1.1%
Asia/Caribbean		Maersk Line	7	8	4,306	224,521	1.1%
MECL2/SZX2	ETE	Maersk Line	7	8	4,893	255,128	1.2%
SSX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	8,063	420,428	2.0%
SCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	6,457	336,686	1.6%
PNX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	5,613	292,695	1.4%
JCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	2,992	155,991	0.7%
NWX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	5,437	283,490	1.4%
CCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	4	4,236	220,864	1.1%
NCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	3,177	165,679	0.8%
AEX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	9	5,401	281,612	1.3%
PAX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,712	425,701	2.0%
ECN	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	8	4,473	233,222	1.1%
ECS/EC3		Grand Alliance/New World Alliance: Hapag-Lloyd, NYK, OOCL, APL, HMM, MOL	7	*** (3)	3,893	76,129	0.4%

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### TP-17a Liner Services between the US and Asia As of October 1, 2006 (continued)

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
PS1 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	6	4,963	258,768	1.2%
PS2 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,108	266,346	1.3%
PS3 (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	4	5,072	264,469	1.3%
PSX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,281	275,346	1.3%
PSW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,095	265,668	1.3%
SAX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,762	300,447	1.4%
PCE (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	3,596	187,516	0.9%
PNW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	6,479	337,834	1.6%
PCX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	4	4,062	211,817	1.0%
APX/CNY (MOL/APL)	PDM	New World Alliance: APL, HMM, MOL	7	12	4,432	231,101	1.1%
NYX (APL/HMM/MOL)		New World Alliance: APL, HMM, MOL	7	8	4,771	248,800	1.2%
PSW1 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,583	291,103	1.4%
PSW2 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,561	289,966	1.4%
PSW3 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,602	187,839	0.9%
PS4 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,407	177,672	0.9%
PNW (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,285	275,565	1.3%
PN3 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	1,682	87,694	0.4%
SEA (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	7,500	391,071	1.9%
CLX (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	***(2)	2,264	59,026	0.3%
CEN (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,446	283,970	1.4%
PNN (C/HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	4	5,468	285,117	1.4%
PNS (C/HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	4	5,638	293,981	1.4%
PDS (HJ)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	12	4,914	256,221	1.2%
PSX (HJ)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	7,500	391,071	1.9%
CAX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	4	4,389	228,855	1.1%
AWE1/AWH (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,154	216,614	1.0%
AWE2/AWC (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	3,690	192,381	0.9%
AWE3/AWY (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	3,822	199,303	1.0%

**TP-17a Liner Services between the US and Asia  
As of October 1, 2006 (continued)**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
AWE4/AWK (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,548	237,172	1.1%
AWE5(HJ/K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	*** (6)	3,745	146,456	0.7%
WAE (EG/Hatsu/IT)	PDM	Evergreen, Italia Marittima, Hatsu Marine	7	12	5,445	283,900	1.4%
NUE (EG)	PDM	Evergreen, Italia Marittima, Hatsu Marine	7	12	4,214	219,730	1.1%
TPS (Hatsu)	ETE	Evergreen, Italia Marittima, Hatsu Marine	7	5	6,470	337,385	1.6%
HTW (EG/Hatsu/IT)	ETE	Evergreen, Italia Marittima, Hatsu Marine	7	5	6,692	348,940	1.7%
AUE (EG)	ETE	Evergreen, Italia Marittima, Hatsu Marine	7	8	4,229	220,512	1.1%
CPS (EG/IT)	ETE	Evergreen, Italia Marittima, Hatsu Marine	7	4	5,364	279,694	1.3%
CPN (IT/EG)	ETE	Evergreen, Italia Marittima, Hatsu Marine	7	5	2,868	149,546	0.7%
CUE	ETE	Evergreen, Cosco	7	7	2,851	148,672	0.7%
AAS	ETE	CSCL	7	5	7,724	402,751	1.9%
AMA	PDM	CSCL	7	10	4,658	242,876	1.2%
AMAX	RTW	CSCL	7	10	4,210	219,532	1.1%
AAC2/Yang Tse service	ETE	CSCL, CMA CGM	7	4	4,178	217,866	1.0%
ANW1/Seattle Bridge	ETE	CSCL, CMA CGM	7	5	4,787	249,629	1.2%
New Orient Express	ETE	MSC	7	5	6,713	350,025	1.7%
Transpacific Pendulum	PDM	MSC	7	9	4,921	256,572	1.2%
CSAV Norasia/Gold Star	RTW	CSAV Norasia, Gold Star	7	13	3,159	164,699	0.8%
PEX1/AECAX/AAE1	ETE	CMA CGM, ANLCL, CSCL	7	9	4,108	214,191	1.0%
PEX2/AAE2	ETE	CMA CGM, CSCL	7	*** (6)	3,345	130,820	0.6%
PEX3	ETE	CMA CGM	7	9	3,114	162,396	0.8%
MTP	ETE	Wan Hai, CSAV Norasia, Sinotrans	7	4	2,872	149,754	0.7%
PRX	ETE	CMA CGM, MSC	7	5	8,197	427,425	2.0%
ZCS	PDM	Zim	7	14	4,896	255,299	1.2%
AMP	PDM	Zim, CSAV Norasia, CSCL	7	13	3,541	184,646	0.9%
AUX	ETE	Zim, Italia Marittima	7	9	3,006	156,753	0.8%
AGX	ETE	Zim, Emirates	7	*** (8)	2,633	122,032	0.6%
Asia-Americas 1/MAX	ETE	Hapag-Lloyd, APL	7	6	4,293	223,858	1.1%
CTP1	ETE	Wan Hai	7	5	4,013	209,249	1.0%
Triangle		US Lines	7	*** (5)	1,119	36,461	0.2%
China-Long Beach Express		Matson	7	5	2,824	147,241	0.7%
Westwood	ETE	Westwood	7	8	§§	§§	
ANDEX		CSAV	7	*** (9)	2,521	118,323	0.6%
ALEX		NYK	7	10	2,002	104,369	0.5%

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### TP-17a Liner Services between the US and Asia As of October 1, 2006 (continued)

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
ASPA2/North Asia Express		Hamburg Sud, CCNI	7	9	2,177	113,498	0.5%
ASPA1/China Express		Hamburg Sud, CCNI	7	9	2,617	136,464	0.7%
Andes Express		MSC	7	10	2,673	139,378	0.7%
LACAS		Maersk Line	7	9	3,042	158,595	0.8%
Andes/CWL		K Line, MOL	7	9	2,423	126,331	0.6%
ACSA		CLANSA, Maruba, CMA CGM, CSCL	7	11	1,986	103,551	0.5%
New Margarita Express		NYK	7	9	1,481	77,200	0.4%
Indotrans		Indotrans			800	12,800	0.1%
<b>Total</b>						<b>20,880,060</b>	<b>100%</b>

\*\*\*() Services temporarily under strength, for various reasons (the number of ships in operation is given in brackets).

\*\*\*\* Includes two smaller ships working in tandem.

§§ Estimated slot allocation on these conbulklers is 1,500 TEU eastbound and 1,000 TEU westbound.

Source: Drewry Container Forecaster, Drewry Maritime Research

**TP-17b Liner Services between the US and Asia  
As of October 1, 2007**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
TP6	PDM	Maersk Line	7	12	8,067	420,619	2.0%
TP1	ETE	Maersk Line	7	5	2,824	147,251	0.7%
TP5	ETE	Maersk Line	7	5	4,062	211,804	1.0%
TP8	ETE	Maersk Line	7	5	4,300	224,214	1.1%
TP9/FM1	PDM	Maersk Line	7	10	6,576	342,912	1.6%
TP3	ETE	Maersk Line	7	8	4,591	239,368	1.1%
TP7/TA3	PDM	Maersk Line	7	12	4,905	255,761	1.2%
Asia/Caribbean AC1		Maersk Line	7	*** (7)	4,803	219,117	1.0%
Asia/Caribbean AC2		Maersk Line	7	6	7,200	375,429	1.8%
SSX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	8,063	420,428	2.0%
SCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	6,407	334,062	1.6%
PNX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	5,691	297,058	1.4%
JCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	3,007	156,783	0.7%
NWX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	5,604	292,209	1.4%
CCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	4	5,035	262,552	1.3%
NCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	*** (4)	3,959	206,421	1.0%
AEX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	9	5,686	296,507	1.4%
PAX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	19	4,753	247,823	1.2%
NCE	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	8	4,147	216,230	1.0%
SCE	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	8	4,686	244,354	1.2%
PS1 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	6	5,262	274,393	1.3%
PS2 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,108	266,346	1.3%
PS3 (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	4	4,531	236,246	1.1%
PSX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,668	295,567	1.4%
PSW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,711	297,788	1.4%
SAX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,762	300,447	1.4%
PCE (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	4,249	221,545	1.1%
PNW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	6,479	337,834	1.6%
PCX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	4	4,651	242,516	1.2%
APX/CNY (MOL/APL)	PDM	New World Alliance: APL, HMM, MOL	7	12	4,578	238,693	1.1%
NYX (APL/HMM/MOL)		New World Alliance: APL, HMM, MOL	7	8	4,771	248,800	1.2%

## Chapter 5

### TP-17b Liner Services between the US and Asia As of October 1, 2007 (continued)

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
SZX (APL/HMM/MOL)		New World Alliance: APL, HMM, MOL	7	***(7)	4,501	205,339	1.0%
PSW1 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,576	290,749	1.4%
PSW2 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,651	289,966	1.4%
PSW3 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,667	191,218	0.9%
PS4 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	****(6)	3,537	184,419	0.9%
PS5 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	1,803	94,014	0.4%
PNW (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,612	292,605	1.4%
PN3 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,979	207,476	1.0%
SEA (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,520	287,829	1.4%
CEN (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,446	283,970	1.4%
CLX (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	4	2,773	144,605	0.7%
PNN (C/HJ)	BUT	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	5,484	285,951	1.4%
PNS (C/HJ)	BUT	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	5,484	285,951	1.4%
MAP (HJ)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	12	4,388	228,785	1.1%
PSX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	7,500	391,071	1.9%
CAX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	4	5,454	284,361	1.4%
AWE1/AWH (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,300	225,785	1.1%
AWE2/AWC (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	3,783	197,263	0.9%
AWE3/AWY (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,141	215,911	1.0%
AWE4/AWK (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,800	250,286	1.2%
AWE5(HJ/K/YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,058	211,576	1.0%
SINA (K/UASC/YM/HJ)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	3,728	194,382	0.9%
UAM	PDM	Evergreen	7	12	5,445	283,900	1.4%
NUE	PDM	Evergreen	7	12	4,214	219,730	1.0%
TPS	ETE	Evergreen	7	5	5,364	279,694	1.3%
HTW	ETE	Evergreen	7	5	6,138	320,074	1.5%
AUE	ETE	Evergreen	7	8	4,229	220,512	1.1%
CPS	ETE	Evergreen	7	4	4,603	240,014	1.1%
CPN	ETE	Evergreen	7	***(4)	2,868	119,637	0.6%
CUE	ETE	Evergreen, Cosco	7	8	3,239	168,917	0.8%
AAS/AMA	PDM	CSCL	7	9	5,655	294,850	1.4%
AAC	ETE	CSCL	7	5	6,244	325,601	1.6%

**TP-17b Liner Services between the US and Asia  
As of October 1, 2007 (continued)**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
AAC2/Yang Tse service	ETE	CSCL, CMA CGM	7	4	4,538	236,611	1.1%
ANW1/Seattle Bridge	ETE	CSCL, CMA CGM	7	5	4,153	216,560	1.0%
New Orient Express	ETE	MSC	7	(6)	5,492	286,395	1.4%
Transpacific Pendulum	PDM	MSC	7	9	4,937	257,412	1.2%
PEX1/USE1/AAE1	ETE	CMA CGM, ANL, CSCL	7	8	4,041	210,703	1.0%
PEX2/AAE2	ETE	CMA CGM, CSCL	7	*** (7)	3,273	149,337	0.7%
PEX3	ETE	CMA CGM	7	8	4,886	253,714	1.2%
ESX/SAX	ETE	New World Alliance/CMA CGM: APL, HMM, MOL, CMA CGM	7	8	4,591	239,368	1.1%
MTP	ETE	Wan Hai, CSAV Norasia, Sinotrans	7	*** (3)	2,665	104,208	0.5%
PRX	ETE	CMA CGM, MSC	7	5	8,197	427,425	2.0%
ZCS	PDM	Zim	7	14	4,892	255,105	1.2%
AMP	PDM	Zim, CSCL	7	13	3,557	185,476	0.9%
AUX	ETE	Zim, Evergreen	7	8	4,489	234,050	1.1%
AGX	ETE	Zim, Emirates	7	*** (9)	2,921	137,057	0.7%
AME/MAX	ETE	Hapag-Lloyd, APL	7	6	4,292	223,815	1.1%
CTP	ETE	Wan Hai	7	5	3,580	186,651	0.9%
Triangle		US Lines, ANL	7	8	1,191	62,076	0.3%
China-Long Beach Express		Matson	7	5	2,758	143,800	0.7%
Westwood	ETE	Westwood	7	8	§§	§§	§§
PACAR		CSAV	14	5	1,730	45,104	0.2%
ANDEX		CSAV	7	*** (9)	2,849	133,699	0.6%
ALEX		NYK	7	10	2,278	118,771	0.6%
ASPA2/North Asia Express		Hamburg Sud, CCNI	7	*** (8)	2,444	113,295	0.5%
ASPA1/China Express		Hamburg Sud, CCNI	7	9	2,696	140,583	0.7%
Andes Express		MSC	7	11	2,999	156,391	0.7%
Andes/CWL		K Line, MOL	7	10	2,443	127,401	0.6%
ACSA		CLANSA, Maruba, CMA CGM, CSCL	7	11	2,208	115,122	0.5%
New Margarita Express		NYK	7	9	1,625	84,750	0.4%
Swire Shipping		Swire Shipping			800	12,800	0.1%
<b>Total</b>						<b>20,945,197</b>	<b>100.0%</b>

\*\*\*() Services temporarily under strength, for various reasons (the number of ships in operation is given in brackets).

\*\*\*\* Includes two smaller ships working in tandem.

§§ Estimated slot allocation on these conbulkers is 1,500 TEU eastbound and 1,000 TEU westbound.

Source: Drewry Container Forecaster, Drewry Maritime Research

## Chapter 5

### TP-17c Liner Services between the US and Asia As of October 1, 2008

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
TP6	PDM	Maersk Line	7	13	8,127	423,761	2.0%
TP1	ETE	Maersk Line	7	5	2,824	147,251	0.7%
TP5	ETE	Maersk Line	7	5	4,062	211,804	1.0%
TP9/FM1	PDM	Maersk Line	7	10	7,080	369,177	1.8%
Asia/Caribbean AC1		Maersk Line	7	(6)	4,904	255,691	1.2%
Asia/Caribbean AC2		Maersk Line	7	6	7,200	375,429	1.8%
TP7/TA3	PDM	Maersk Line	7	12	4,934	257,251	1.2%
TP3	ETE	Maersk Line	7	8	4,723	246,251	1.2%
SSX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	8,063	420,428	2.0%
SCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	6,407	334,062	1.6%
PNX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	5,755	300,100	1.4%
JCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	3,008	156,867	0.8%
NWX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	5,604	292,209	1.4%
CCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	8,253	430,325	2.1%
AEX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	9	5,631	293,622	1.4%
PAX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,734	246,836	1.2%
NCE	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	9	4,694	244,747	1.2%
SCE	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	8	4,874	254,144	1.2%
PS1 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	6	4,792	249,860	1.2%
PS2 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	6	5,762	300,447	1.4%
PS3 (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	5	3,212	167,504	0.8%
PSX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	5	6,350	331,107	1.6%
PSW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,711	297,788	1.4%
SAX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	6	6,570	290,418	1.4%
PCE (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,108	266,346	1.3%
PNW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	6,479	337,834	1.6%
PCX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	4,962	258,712	1.2%
APX/CNY (MOL/APL)	PDM	New World Alliance: APL, HMM, MOL	7	12	4,657	242,851	1.2%
NYX (APL/HMM/MOL)		New World Alliance: APL, HMM, MOL	7	8	4,870	253,955	1.2%
SZX (APL/HMM/MOL)		New World Alliance: APL, HMM, MOL	7	8	5,073	264,521	1.3%

**TP-17c Liner Services between the US and Asia  
As of October 1, 2008 (continued)**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
PSW1 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,576	290,749	1.4%
PSW2 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,725	194,232	0.9%
PSW3 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,508	182,917	0.9%
PS4 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,561	289,966	1.4%
PNW/AES2 (K)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	13	5,613	292,666	1.4%
PN3 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,597	187,568	0.9%
SEA (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,446	283,970	1.4%
CEN (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	6,678	348,231	1.7%
New CUE (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	7	2,743	143,013	0.7%
PNN (C/HJ)	BUT	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	5,540	288,871	1.4%
PNS (C/HJ)	BUT	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	5,540	288,871	1.4%
MAP (HJ)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	12	5,242	273,346	1.3%
PSX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	7,500	391,071	1.9%
CAX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	4	4,389	228,855	1.1%
AWE1/AWH (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,055	211,459	1.0%
AWE2/AWC (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	***(8)	4,172	193,363	0.9%
AWE3/AWY (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,386	228,686	1.1%
AWE4/AWK (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,800	250,486	1.2%
AWE5(HJ/K/YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	***(7)	4,083	186,287	0.9%
SINA (K/UASC/YM/HJ)	PDM	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	***(8)	3,841	178,010	0.9%
UAM	PDM	Evergreen	7	12	5,364	279,694	1.3%
NUE	PDM	Evergreen	7	12	4,218	219,965	1.1%
AUS	BUT	Evergreen	7	9	6,271	326,970	1.6%
HTW	ETE	Evergreen	7	5	5,309	276,837	1.3%
AUE	ETE	Evergreen	7	8	4,222	220,160	1.1%
CPN	ETE	Evergreen	7	5	2,890	150,672	0.7%
FPS	ETE	Evergreen	7	8	3,014	157,146	0.8%
AAS	ETE	CSCL	7	5	7,360	383,792	1.8%
AAC	ETE	CSCL	7	***(4)	4,869	203,128	1.0%
ANW1/Seattle Bridge	ETE	CSCL, CMA CGM	7	5	4,251	221,649	1.1%
Transpacific pendulum	PDM	MSC	7	(11)	4,781	249,281	1.2%
TP8/NOX/Bohai Rim		Maersk Line, MSC, CMA CGM VSA	7	5	8,140	424,422	2.0%

## Chapter 5

### TP-17c Liner Services between the US and Asia As of October 1, 2008 (continued)

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
TP2/Eagle/ Yang Xi		Maersk Line, MSC, CMA CGM VSA	7	5	8,272	431,347	2.1%
PEX1/AAE1	ETE	CMA CGM, CSCL	7	8	4,079	212,528	1.0%
PEX2/AAE2	ETE	CMA CGM, CSCL	7	***(7)	3,457	160,252	0.8%
PEX3	ETE	CMA CGM	7	8	5,078	264,781	1.3%
JAS	ETE	New World Alliance/ Evergreen: APL, HMM, MOL, Evergreen	7	4	3,109	162,138	0.8%
ESX/SAX	ETE	New World Alliance/CMA CGM: APL, HMM, MOL, CMA CGM	7	8	4,815	251,094	1.2%
PRX	ETE	CMA CGM, MSC	7	5	8,197	427,425	2.1%
ZCS	PDM	Zim	7	14	4,892	255,105	1.2%
AMP	PDM	Zim	7	13	3,321	173,158	0.8%
AGX	ETE	Zim	7	10	3,093	161,262	0.8%
AME1	ETE	Hapag-Lloyd	7	6	4,120	214,846	1.0%
CTP	ETE	Wan Hai, PIL	7	5	4,252	221,722	1.1%
China-Long Beach Express		Matson	7	5	2,758	143,800	0.7%
Loop1	ETE	Westwood	14	3	1,871	48,780	0.2%
Loop2	ETE	Westwood	14	4	§§	§§	
ANDEX		CSAV	8	9	2,876	131,202	0.6%
ALEX		NYK	7	10	2,481	129,366	0.6%
ASPA2/North Asia Express		Hamburg Sud, CCNI	7	9	2,515	131,157	0.6%
ASPA1/China Express		Hamburg Sud, CCNI	7	10	3,271	170,554	0.8%
Asia Andes Express		MSC	7	11	3,137	163,695	0.8%
Andes/CWL1		K Line, MOL	7	9	2,450	127,733	0.6%
ACSA		CLANSA, Maruba, CMA CGM, CSCL	7	11	2,491	129,897	0.6%
New MAREX		NYK	7	9	1,612	84,072	0.4%
Swire Shipping		Swire Shipping			800	12,800	0.1%
<b>Total</b>						<b>20,776,345</b>	<b>100%</b>

\*\*\*() Services temporarily under strength, for various reasons (the number of ships in operation is given in brackets).

\*\*\*\* Includes two smaller ships working in tandem.

§§ Estimated slot allocation on these conbulkers is 1,500 TEU eastbound and 1,000 TEU westbound.

Source: Drewry Container Forecaster, Drewry Maritime Research

**TP-17d Liner Services between the US and Asia  
As of October 1, 2009**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
TP6	PDM	Maersk Line	7	14	9,964	519,529	2.9%
TP1	ETE	Maersk Line	7	5	2,824	147,251	0.8%
TP5	ETE	Maersk Line	7	5	4,055	211,429	1.2%
Asia/Caribbean AC2		Maersk Line	7	7	7,063	268,292	1.5%
TP7/TA3	PDM	Maersk Line	7	12	4,963	258,781	1.4%
SSX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	8,063	420,428	2.3%
SCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	7	6,385	332,954	1.9%
NWX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	6,133	319,803	1.8%
CCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	5,620	293,043	1.6%
AEX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	9	5,585	291,200	1.6%
PAX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,693	244,694	1.4%
NCE	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	8	4,910	256,021	1.4%
PNX	ETE	Grand Alliance/Zim: Hapag-Lloyd, NYK, OOCL, Zim	7	6	8,342	434,993	2.4%
SCE	ETE	Grand Alliance/Zim: Hapag-Lloyd, NYK, OOCL, Zim	7	8	4,568	238,176	1.3%
PS1 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	7	5,398	281,482	1.6%
PS2 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	6	5,762	300,447	1.7%
PSX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	6	6,274	327,162	1.8%
SAX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	6	6,565	342,300	1.9%
PCE (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,108	266,346	1.5%
PS5 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	4,106	214,119	1.2%
PNW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	6,479	337,834	1.9%
PCX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	6,800	354,571	2.0%
APX/CNY (MOL/APL)	PDM	New World Alliance: APL, HMM, MOL	7	12	4,700	245,050	1.4%
NYX (APL/HMM/MOL)	ETE	New World Alliance: APL, HMM, MOL	7	9	4,795	250,013	1.4%
SZX (APL)		New World Alliance: APL, HMM, MOL	7	8	5,073	264,521	1.5%
PSW1 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,576	290,749	1.6%
PSW2 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,936	205,245	1.1%
PSW3 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	3,508	182,917	1.0%
PS4 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,551	289,445	1.6%

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### TP-17d Liner Services between the US and Asia As of October 1, 2009 (continued)

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
PNW (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	6	4,337	226,144	1.3%
SEA (C/HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,772	300,989	1.7%
CEN (C/HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,694	296,901	1.7%
PNN (C/HJ)	BUT	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	5,540	288,871	1.6%
PNS (C/HJ)	BUT	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,540	288,871	1.6%
PSX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	4	7,500	391,071	2.2%
CAX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	6	4,389	228,855	1.3%
SJX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,066	212,004	1.2%
AWE1/AWH (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	4,024	209,823	1.2%
AWE2/AWC (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	4,206	219,319	1.2%
AWE3/AWY (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,372	227,969	1.3%
AWE4/AWK (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,800	250,286	1.4%
AWE5 (HJ/K/YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	8	4,194	218,707	1.2%
UAM	PDM	Evergreen	7	13	5,691	296,749	1.7%
NUE	ETE	Evergreen	7	9	4,227	220,408	1.2%
HTW	ETE	Evergreen	7	5	8,073	420,949	2.3%
TPS	ETE	Evergreen	7	5	6,332	330,169	1.8%
AUE	ETE	Evergreen	7	8	4,429	230,980	1.3%
AAE1/AUE2	ETE	CSCL, Evergreen	7	8	4,267	222,520	1.2%
AAC	ETE	CSCL	7	5	8,530	444,779	2.5%
ANW1	ETE	CSCL	7	5	2,940	153,300	0.9%
PEX2/PACAR/AAE2	ETE	CMA CGM, CSAV, CSCL	7	10	4,224	220,251	1.2%
PEX3	RTW	CMA CGM	7	10	4,996	260,511	1.5%
PRX	ETE	CMA CGM, MSC	7	5	8,230	429,115	2.4%
TP8/NOX/Bohai Rim	ETE	Maersk Line, MSC, CMA CGM VSA	7	5	8,300	432,796	2.4%
TP2/Eagle/Yang Xi	ETE	Maersk Line, MSC, CMA CGM VSA	7	*** (3)	8,178	255,844	1.4%
TP10/Hudson/CSX	ETE	Maersk Line, CMA CGM, HMM	7	8	4,109	214,262	1.2%
Transpacific pendulum	ETE	MSC	7	12	6,035	314,700	1.8%
ZCS	PDM	Zim	7	15	4,933	257,203	1.4%
JAS	ETE	New World Alliance/ Evergreen: APL, HMM, MOL, Evergreen	7	5	2,990	155,918	0.9%
AME1	ETE	Hapag-Lloyd	7	6	4,181	217,992	1.2%
China-Long Beach Express		Matson	7	5	2,758	143,800	0.8%
Loop1	ETE	Westwood	14	3	1,871	48,780	0.3%

**TP-17d Liner Services between the US and Asia  
As of October 1, 2009 (continued)**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
Loop2	ETE	Westwood	14	4	§§	§§	
ANDEX		CSAV	7-8	10	2,897	137,335	0.8%
ALEX-NEO		NYK	7	11	2,445	127,504	0.7%
Asia Andes Exp./ASPA2/ North Asia Express		MSC, Hamburg Sud, CCNI	7	11	4,146	216,203	1.2%
ASPA1/China Express		Hamburg Sud, CCNI	7	10	4,016	209,427	1.2%
Andes/CWL		K Line, MOL	7	*** (9)	2,462	115,517	0.6%
ACSA		CLANSA, Maruba, CMA CGM, CSCL	7	11	2,559	133,457	0.7%
<b>Total</b>						<b>17,959,074</b>	<b>100%</b>

\*\*\*() Services temporarily under strength, for various reasons (the number of ships in operation is given in brackets).

\*\*\*\* Includes two smaller ships working in tandem.

§§ Estimated slot allocation on these conbulklers is 1,500 TEU eastbound and 1,000 TEU westbound.

Source: Drewry Container Forecaster, Drewry Maritime Research

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### TP-17e Liner Services between the US and Asia As of October 1, 2010

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
TP6	PDM	Maersk Line	7	14	9,685	505,011	2.4%
TP1	ETE	Maersk Line	7	5	2,824	147,251	0.7%
TP5	ETE	Maersk Line	7	5	4,240	221,065	1.0%
Asia/Caribbean AC2		Maersk Line	7	7	8,222	428,711	2.0%
Asia/Caribbean AC3		Maersk Line	7	7	4,280	223,171	1.1%
TP7 (via Panama)	ETE	Maersk Line	7	12	4,963	258,781	1.2%
SSX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	6	8,063	420,428	2.0%
SCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	8	6,508	339,359	1.6%
NWX/LPB	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	17	8,690	453,131	2.1%
CCX	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	5	6,001	312,920	1.5%
AEX (via Suez)	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	10	5,712	297,850	1.4%
PAX	PDM	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	13	4,693	244,694	1.2%
NCE (via Panama)	ETE	Grand Alliance: Hapag-Lloyd, NYK, OOCL	7	9	4,922	256,647	1.2%
PNX	ETE	Grand Alliance/Zim: Hapag-Lloyd, NYK, OOCL, Zim	7	7	8,271	431,296	2.0%
SCEC	ETE	Grand Alliance/Zim: Hapag-Lloyd, NYK, OOCL, Zim	7	8	4,667	243,331	1.2%
PS1 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	7	5,337	278,272	1.3%
PS2 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	7	5,780	301,386	1.4%
SAX (APL)	ETE	New World Alliance: APL, HMM, MOL	7	7	6,622	345,290	1.6%
PCE (APL)	ETE	New World Alliance: APL, HMM, MOL	7	6	4,591	239,405	1.1%
PS5 (APL)	ETE	New World Alliance: APL, HMM, MOL	7	5	5,108	266,346	1.3%
PSX (MOL)	ETE	New World Alliance: APL, HMM, MOL	7	7	6,292	328,098	1.6%
PNW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	6,479	337,834	1.6%
PCX (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	6,800	354,571	1.7%
PSW (HMM)	ETE	New World Alliance: APL, HMM, MOL	7	5	4,635	241,682	1.1%
APX/CNY (MOL/APL)	PDM	New World Alliance: APL, HMM, MOL	7	13	4,761	248,256	1.2%
NYX (APL/HMM) (via Panama)	ETE	New World Alliance: APL, HMM, MOL	7	9	4,649	242,389	1.1%
SZX (APL) (via Suez)	ETE	New World Alliance: APL, HMM, MOL	7	9	5,006	261,016	1.2%
PNW/PN1 (K/MOL)	ETE	K LINE, MOL joint network	7	6	5,645	294,364	1.4%

**TP-17e Liner Services between the US and Asia  
As of October 1, 2010 (continued)**

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
JAS/PS3 (MOL/K)	ETE	K LINE, MOL joint network	7	5	4,843	252,517	1.2%
AWE4/SVE (via Suez)	ETE	K LINE, MOL joint network	7	9	5,778	301,258	1.4%
PSW1 (K)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	6	4,613	240,552	1.1%
PSW2 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,556	289,706	1.4%
PS4 (YM)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,551	289,445	1.4%
SEA (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,992	312,440	1.5%
CEN (C)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	6	7,834	408,470	1.9%
PNN/PNW1 (C/HJ)		CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,631	279,527	1.3%
PNS /PNW2 (C/HJ)		CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,454	284,398	1.3%
PSX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	6	7,643	398,554	1.9%
CAX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	5	5,482	285,847	1.4%
SJX (HJ)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	6	4,354	227,039	1.1%
AWE1/AWH (HJ) (via Panama)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	4,024	209,823	1.0%
AWE2/AWC (C) (via Panama)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	4,697	244,903	1.2%
AWE3/AWY (YM) (via Panama)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	4,198	218,919	1.0%
AWE5/AWN (HJ/YM) (via Panama)	ETE	CKYH: Cosco, K Line, Yang Ming, Hanjin	7	9	4,083	212,899	1.0%
HTW	ETE	Evergreen	7	5	8,073	420,949	2.0%
TPS	ETE	Evergreen	7	6	6,447	336,182	1.6%
UAM	PDM	Evergreen	7	14	5,570	290,421	1.4%
NUE (via Panama)	ETE	Evergreen	7	9	4,324	225,477	1.1%
AUE (via Panama)	ETE	Evergreen	7	8	4,539	236,683	1.1%
AAC2/CPS2	ETE	CSCL, Evergreen	7	5	4,230	220,575	1.0%
AAE1/AUE2 (via Panama)	ETE	CSCL, Evergreen	7	8	4,266	222,459	1.1%
AAC	ETE	CSCL	7	5	8,518	444,132	2.1%
ANW1	ETE	CSCL	7	5	4,564	237,970	1.1%
PEX2/PACAR/AAE2 (ETE/RTW via Panama/CGH)	ETE	CMA CGM, CSAV, CSCL	7	11	4,383	228,528	1.1%
Far East/ECNA AMEX (via Panama)	ETE	CSAV	7	10	3,510	183,001	0.9%
ANDEX 3		CSAV	7	*** (1)	2,708	20,172	0.1%
ASIAM	PDM	CSAV Norasia	7	*** (3)	3,551	50,503	0.2%

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### TP-17e Liner Services between the US and Asia As of October 1, 2010 (continued)

Service Name	Service Type	Carriers	Frequency (in days)	No. of Ships	Average Capacity (TEUs)	Annualized Operational Capacity (TEUs)	Percent of Market
PEX3 (via Panama/Suez)	RTW	CMA CGM	7	11	5,079	264,818	1.3%
PRX	ETE	CMA CGM, MSC	7	6	8,242	429,779	2.0%
TP2/Eagle/Yang Tse	ETE	Maersk Line, MSC, CMA CGM VSA	7	6	7,043	367,225	1.7%
TP8/NOX/Bohai Rim	ETE	Maersk Line, MSC, CMA CGM VSA	7	6	8,280	431,743	2.0%
TP3-TP9/Columbus (double loop, all water segment via Suez)		Maersk Line, CMA CGM VSA	7	15	7,069	368,587	1.7%
Transpacific pendulum (via Suez)	ETE	MSC	7	12	8,264	430,935	2.0%
ZCS (via Panama)	PDM	Zim	7	15	4,900	255,524	1.2%
CTP	ETE	PIL	7	6	1,641	85,556	0.4%
Great Dragon	ETE	TCC	7	5	2,889	150,641	0.7%
AME1/MAX	ETE	Hapag-Lloyd, APL	7	6	4,585	239,084	1.1%
CLB1	ETE	Matson	7	5	2,758	143,800	0.7%
CLB2	ETE	Matson	7	*** (3)	3,659	114,485	0.5%
CAE	ETE	Hainan Pan Ocean Shipping	7	5	3,054	159,244	0.8%
Loop1	ETE	Westwood	14	3	1,871	48,780	0.2%
Loop2	ETE	Westwood	14	4	§§	§§	
ANDEX Loop A		CSAV	7	11	4,232	220,659	1.0%
ANDEX Loop B		CSAV	7	9	3,023	157,645	0.7%
ALX1/ANDES1/WL1		NYK, K Line, MOL	7	*** (9)	4,028	189,039	0.9%
ALX2/ANDES2/WL2		NYK, K Line, MOL	7	9	2,636	137,454	0.7%
Asia Andes Express		MSC	7	10	5,611	265,981	1.3%
ASPA1/China Express		Hamburg Sud, CCNI	7	11	4,333	225,959	1.1%
ASPA2/North Asia Express		Hamburg Sud, CCNI	7	10	2,725	142,094	0.7%
ACSA		CMA CGM, CSCL	7	12	2,544	132,625	0.6%
ACSA2		CMA CGM, HMM	7	*** (3)	2,862	44,775	0.2%
<b>Total</b>						<b>21,102,336</b>	<b>100%</b>

\*\*\*() Services temporarily under strength, for various reasons (the number of ships in operation is given in brackets).

\*\*\*\* Includes two smaller ships working in tandem.

§§ Estimated slot allocation on these conbulkers is 1,500 TEU eastbound and 1,000 TEU westbound.

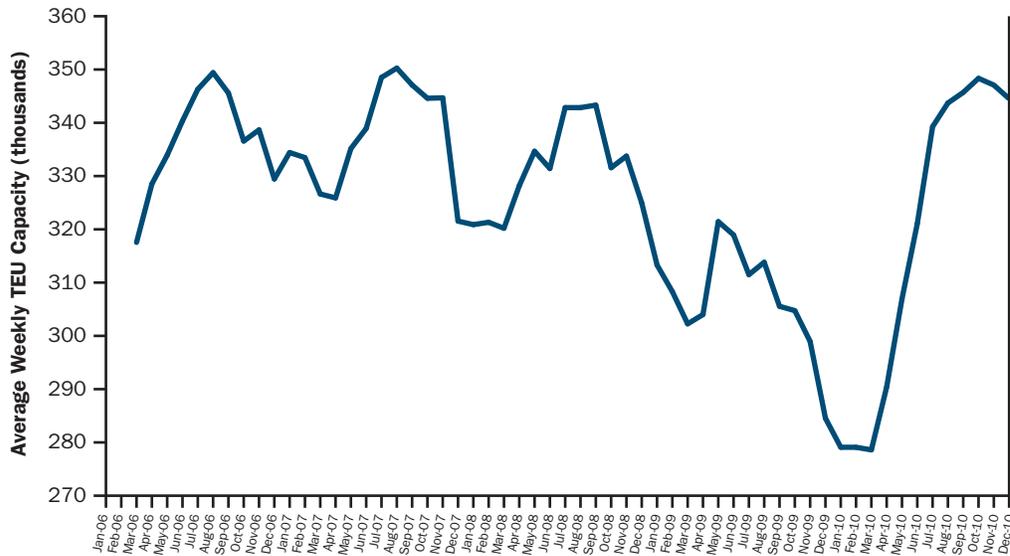
Source: Drewry Container Forecaster, Drewry Maritime Research

## Charts TP-18a-b Changes in Annual Capacity in the Transpacific Trade

The charts provide trend lines showing the levels of average weekly vessel capacity supplied in each trade direction per month for the review period from 2006 through 2010. Chart TP-18a shows the trend line of average weekly capacity in the eastbound trade direction over the entire review period. The horizontal axis gives the series of time in months from 2006 through 2010, and the vertical axis measures the average weekly amount of vessel capacity supplied for each month in TEUs. Chart TP-18b compares the level of average weekly capacity supplied for each year per month. The horizontal axis gives the series of time as the 12 months of a single year, and the vertical axis measures the average weekly amount of vessel capacity supplied for each month in TEUs. The source of the data is Drewry Maritime Research.

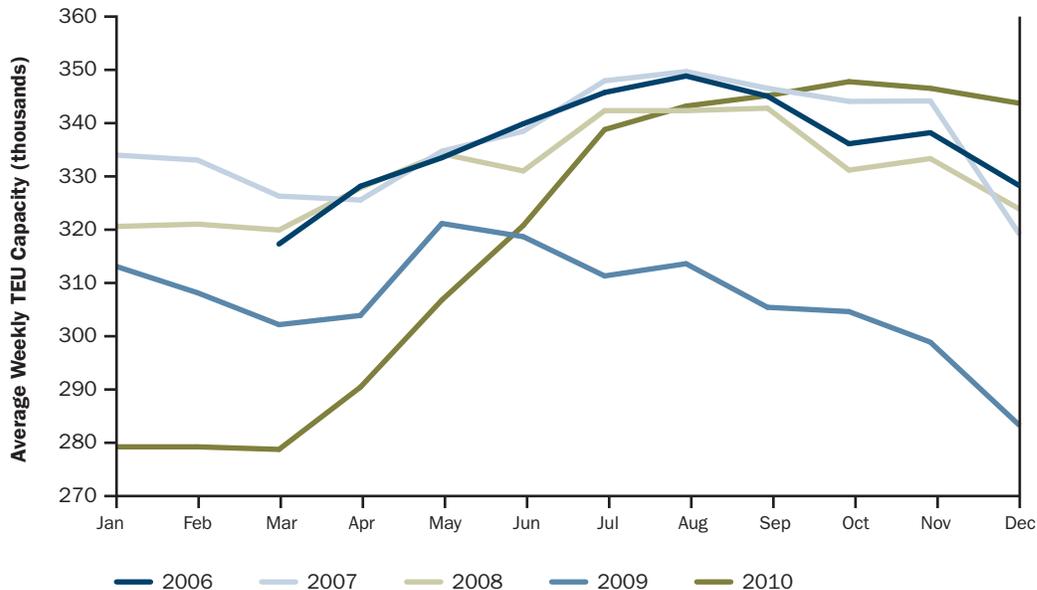
**TP-18a Asia to US Capacity (Monthly)**

Source: Drewry Maritime Research



**TP-18b Asia to US Capacity by Year**

Source: Drewry Maritime Research



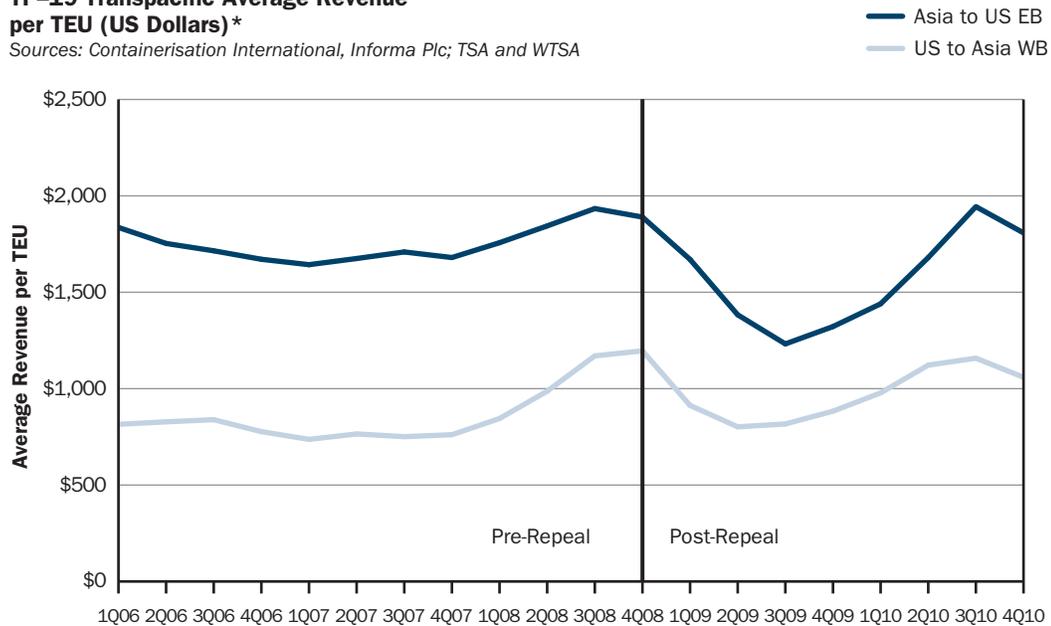
## Transpacific Economic Performance

Chart TP-19 Quarterly Average Revenue per TEU, Inbound and Outbound

The chart provides trend lines of time series data showing the levels of average revenue per TEU earned by shipping lines in the inbound and outbound directions of the US/Asia trade for each quarter of the review period from 2006 through 2010. The horizontal axis of the chart gives the time series in calendar quarters over the review period, and the vertical axis measures the average revenue per TEU in US dollars. The average revenue figures are inclusive of ocean freight, accessorial charges, and any charges for inland haulage. The trend throughout the review period shows the quarterly change in the average revenue earnings of the shipping lines in each trade direction. The level of average revenue and the change over time are a function of the corresponding supply and demand conditions in the trade as affected by market and regulatory factors. The data sources are Containerisation International, Informa Plc; TSA and WTSA.

**TP-19 Transpacific Average Revenue per TEU (US Dollars)\***

Sources: Containerisation International, Informa Plc; TSA and WTSA



\* Fluctuations in the average revenue per container data obtained from Containerisation International ("CI") tracks closely similar data that the Commission receives from TSA on a confidential basis. Fluctuations in the China (export-only) Containerized Freight Index ("CCFI") published by the Shanghai Shipping Exchange, that tracks movements in average container rates from China to the US west and east coasts, also follow closely the fluctuations in average revenue from CI and TSA. It is not known, however, exactly how closely the underlying CCFI average rate information mirrors the CI and TSA average revenue data because the CCFI is publicly available in index form only. (The Shanghai Shipping Exchange generously contributed CCFI weekly data dating back to January 6, 2006 for use in this Study.)

**Table TP-20 Capacity Utilization between the US and Asia**

For each quarter of the review period from 2006 through 2010, the table gives the percentage levels of the utilization of vessel capacity for each direction of the US/Asia trade. The percentage levels are derived by dividing the amount of container cargo moved in each trade direction by the amount of container vessel capacity supplied in each trade direction and multiplying the quotient by 100. The container cargo and vessel capacity are measured in TEUs. The trend in the percentage levels of utilization shows how the supply of, and demand for, vessel space are aligned in each trade lane and the change in utilization over the review period as affected by market conditions and other factors. A higher percentage of utilization indicates that supply and demand are more closely aligned, whereas a lower utilization percentage shows a period of greater excess vessel capacity in the market. The degree to which supply and demand are aligned impacts on the level of freight rates. It would be expected that the trend in rate levels correlates to the trend in utilization levels. Further, the utilization of vessel space provides a general indication of service quality by showing whether shipping lines are deploying sufficient vessel space in relation to demand in the marketplace. The source of data is Drewry Maritime Research.

**TP-20 US/Asia Trade  
Quarterly Capacity Utilization**

	Asia to US	US to Asia
1Q06	80%	42%
2Q06	91%	40%
3Q06	90%	37%
4Q06	83%	37%
1Q07	81%	42%
2Q07	91%	48%
3Q07	92%	44%
4Q07	81%	48%
1Q08	78%	54%
2Q08	84%	56%
3Q08	86%	51%
4Q08	73%	37%
1Q09	63%	43%
2Q09	74%	55%
3Q09	80%	53%
4Q09	79%	54%
1Q10	79%	54%
2Q10	100%	65%
3Q10	86%	55%
4Q10	74%	52%

Source: Drewry Maritime Research

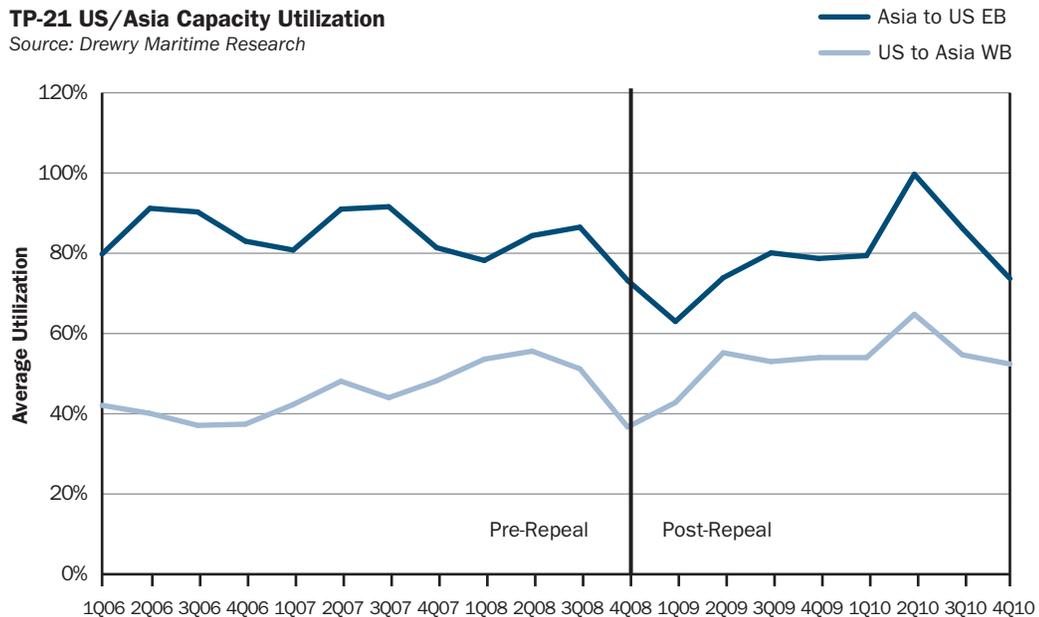
## Chapter 5

### Chart TP-21 Capacity Utilization between the US and Asia

For each quarter of the review period from 2006 through 2010, the chart provides trend lines of time series data showing the percentage levels of the utilization of vessel capacity for each direction of the US/Asia trade. The horizontal axis gives the series of time in quarters over the review period, and the vertical axis measures the level of vessel capacity utilization as a percentage. The percentage levels are derived by dividing the amount of container cargo moved in each trade direction by the amount of container vessel capacity supplied in each trade direction and multiplying the quotient by 100. The container cargo and vessel capacity are measured in TEUs. The trend line over the time series shows the change in vessel capacity utilization as affected by the change in the market conditions of supply and demand in each trade lane. A higher percentage level of utilization indicates that supply and demand are more closely aligned, whereas a lower percentage level of utilization shows a period of greater excess vessel capacity in the market. A utilization level that exceeds 100 percent indicates a period of time when the demand for vessel space exceeded the supply of vessel space. The degree to which supply and demand are aligned impacts on the level of freight rates. It would be expected that the trend in rate levels correlates to the trend in utilization levels. Further, the utilization of vessel space provides a general indication of service quality by showing whether shipping lines are deploying sufficient vessel space in relation to demand in the marketplace. The source of data is Drewry Maritime Research.

#### TP-21 US/Asia Capacity Utilization

Source: Drewry Maritime Research



**Table TP-22 Market Share Instability Index (MSII)**

The table gives, in the form of a market share instability index (MSII), the total change in market share of the participating shipping lines in the US/Asia trade quarterly for the review period from 2006 through 2010. The MSII is the sum of the absolute values of the change in percentages of market share of the individual shipping lines that occurred from one quarter to the next. A high value of MSII indicates that a high portion of the market shifted among the shipping lines in the trade for a given time. The source of the data is PIERS.

**TP-22 US/Asia Trade  
Market Share Instability Index**

		Asia to US	US to Asia
2006	1st Quarter	5.8%	7.8%
	2nd Quarter	8.0%	5.4%
	3rd Quarter	6.3%	7.6%
	4th Quarter	6.2%	12.4%
2007	1st Quarter	5.9%	7.7%
	2nd Quarter	5.6%	12.5%
	3rd Quarter	6.3%	9.3%
	4th Quarter	6.0%	10.2%
2008	1st Quarter	6.3%	7.0%
	2nd Quarter	7.8%	5.5%
	3rd Quarter	5.9%	10.4%
	4th Quarter	5.6%	11.3%
2009	1st Quarter	7.4%	14.2%
	2nd Quarter	9.5%	9.3%
	3rd Quarter	8.3%	7.9%
	4th Quarter	7.6%	7.9%
2010	1st Quarter	5.5%	8.9%
	2nd Quarter	6.6%	9.3%
	3rd Quarter	8.4%	11.4%
	4th Quarter	8.9%	10.7%

Source: Federal Maritime Commission, PIERS Interactive

## Chapter 6:

# Difference-in-Differences Analyses

### Methodology

This study was undertaken to examine the impact of the removal of the block exemption on the US liner trades. The initial approach was to look at the US/North Europe trade and examine characteristics of that market before the removal of the exemption and again after the removal of the exemption. The intent was to identify changes following the removal of the block exemption in a single market. Assuming the absence of any other significant influences, this single market analysis exercise presumably would have shown the impact of the repeal of the block exemption because one could assume that changes were the result of the repeal's "intervention effect." That initial approach, however, proved insufficient.

The severity of the global recession in late 2008 through 2009 completely undermined that approach. The recession's dramatic dampening impact on rates and service presented a particular problem: How could one isolate the impact of the repeal from the impact of the recession? In other words, how would it be possible to isolate the recession's impact on the market in a way that allowed an examination of the impact of the block exemption? The relatively simple econometric device of difference-in-differences estimate ("DD") is designed to address this very problem and is, in fact, commonly used to measure the effect or impact of a new policy, law, or medical treatment intervention.

The ingenuity of the DD method is to not look at only one market but to look at two and compare the differences in the two markets over time. In selecting markets to compare, ideally, one would choose as the first market one in which the impact of some policy being assessed or condition would occur. The second market would be one in which the condition or policy did not occur but shared the overriding influence (in this case the global recession) that masks the impact of the policy or condition being studied in the first market. In our case, one might expect the first market to be the North Europe/US trade. However, the DD method is only as reliable as the assumption on which it is built, namely, that the relationships over time between the two trades being compared are constant (i.e., that they move together but for the policy difference in one trade that is absent in the other – in our case, the removal of the block exemption).<sup>1</sup> Clearly, the greater the similarity between the trades being compared, the better the chance that the assumption on which the DD estimation depends will not be breached. In the present case, the second market would be a trade as similar as possible to the North Atlantic but one that was never exposed to the block exemption. However, there are no non EU-based, US trades that provide a suitably close comparison to the North Europe/US trade.

The next best option was to compare differences between two closely comparable trades – one unaffected by the removal of the block exemption and the other affected by it. The best candidate trades available for such an analysis are the Far East/US and Far East/Europe trades, respectively. These two trades are not only closely comparable along several

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<sup>1</sup> Refer to Appendix IX for a more detailed explanation of the difference-in-differences methodology being used in this chapter.

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prominent dimensions,<sup>2</sup> but also they are the largest and most important trades globally; and developments in both trades were seriously affected by the global recession at about the time the repeal took effect.<sup>3</sup>

The DD estimates are obtained by comparing the two markets before the repeal of the block exemption and the same two markets again after the repeal. In our case, this means comparing characteristics of the Far East/US trade with the Far East/Europe trade before the removal of the block exemption. Those characteristics include rate levels and volatility, capacity utilization and several other outcome variables from January 2006 to September 2008. The same comparison of characteristics is done after the repeal (October 2008 through December 2010). This latter step would identify the difference in rate levels and volatility, capacity utilization, and other outcome variables between the two trades after the repeal of the block exemption. The next step is to compare the difference in the two trades (in rate levels and volatility, capacity utilization, and other outcome variables) before the repeal of the block exemption with the difference in those same characteristics after the repeal.

All things equal one would assume that the two trades would change in the same way and move together (i.e., they would still be different but the difference would remain constant) unless something happened in one trade that did not happen in the other (the repeal of the block exemption). More specifically, one would assume that the relationship between the two trades would stay the same during the time period being examined (in our case 2006 through 2010). That is, they would move together except for the repeal that one trade experienced but the other did not. The idea is that the global recession affected both trades and would influence both trades in a similar enough way not to change the previous relationship between the two trades. If there were a change in the relationship between the two trades (i.e., if the differences in the two trades were to change after the repeal), in theory, it would not be attributable to the global recession because both trades had that in common. Rather, it would be attributable to the repeal.

In the present study two difference-in-differences analyses were conducted to give the best possible assurance on the legitimacy of the results. A DD was conducted on the headhaul directions of the Far East to Europe and Far East to US trades and a separate DD was conducted on the backhaul directions of both Far East trades. A fuller and more technical explanation of the DD methodology used and results obtained is contained in Appendix IX.

### Analyzing the Impact of the Repeal

A simple difference-in-differences analysis of the repeal of the block exemption is described in this section.

Quite soon after the repeal became effective, the Korea Maritime Institute (“KMI”) published an empirical analysis of the EU’s action abolishing the liner block exemption that relied on a DD estimation model.<sup>4</sup> The “treatment” group in that analysis consisted of the Far East to Europe trade and the “control” group was the Far East to North America trade.

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<sup>2</sup> The US and EU economies were affected to a similar degree by the global recession and both trades involve the same trading partners at the other end of the trade route. Other close similarities include: container volumes of similar magnitude; historical growth patterns; large ships deployed over relative long distance; seasonal variations in trade volumes; similar commodity mixes and values; trade imbalances (with the export leg from Asia being very dominant); shipper characteristics; and the market participants.

<sup>3</sup> Consideration was given to comparing differences in the North Europe/US trade (affected by the repeal) with the Far East/US trade (unaffected by the repeal); however, initial exploratory work showed that the former trade did not appear to react to the global recession in the same manner as the latter, suggesting that the results of a DD analysis would be unreliable.

<sup>4</sup> Korea Maritime Institute, “International Regulation Trends of Concerted Action of Liner Shipping Companies and Korea’s Policy Measures,” 2010. Details of the method used are contained in Appendix X.

## Difference-in-Differences Analyses

The study reported that the more meaningful results belonged to comparisons involving the headhaul directions in both trades (i.e., comparing *differences* between both trades before and after repeal in the westbound Far East to Europe trade to differences observed in the eastbound Far East to North America trade). In their analysis, the pre-repeal period consisted of six quarters, from the second quarter of 2007 through the third quarter of 2008, while the post-repeal period consisted of just three quarters from the fourth quarter of 2008 through the second quarter of 2009.<sup>5</sup> The study generated DD estimates for the volatility of ocean rates, trade lane concentration as measured by the concentration ratio for the top five carriers (“CR5”) and the Herfindahl-Hirschman Index (“HHI”), load factor, and revenue. In each case, the pre- and post-repeal values of the aforementioned variables were computed as means utilizing all the fiscal quarters in each period (pre-repeal and post-repeal).<sup>6</sup>

The analysis described below adopted a similar approach to that used in the KMI study, though data was collected over longer pre-repeal and post-repeal time periods.<sup>7</sup> For the reasons stated in the previous section, the relative performance of two reasonably comparable trades was compared using the DD method. In the analysis that follows, the Far East to Europe trade forms the “treatment” group because carriers operating in this trade from the fourth quarter of 2008 onward did so without benefit of antitrust immunity. The Far East to US trade, operating wholly under OSRA and lying beyond the reach of the EU’s repeal, acts as the “control” group. Because of the key assumption that underpins simple DD analysis (discussed above), the comparison trades should be as similar as possible. For this reason, no attempt was made to compare the relative performance of the North Europe/US trade (another possible “treatment” group) to the Far East to US control group. As explained earlier, the headhaul direction of the North Europe/US trade switched direction at about the same time as the global financial crisis as a result of the US dollar strengthening appreciably against the Euro and other European currencies. The trend in this foreign exchange relationship shifted abruptly with deeply felt effects on the trade. Because most Asian currencies are pegged in some fashion to the US dollar no similar shift occurred in the comparison group, the Far East to US trade.

The focus of the analysis presented below rests on the headhaul directions of the Far East to Europe and Far East to US trades, i.e., the westbound and eastbound direction, respectively, of each trade. Given the heavy imbalances in cargo volume and revenue earned, carrier conduct and economic performance overwhelmingly are conditioned by circumstances and events in the headhaul direction of these trades.<sup>8</sup>

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5 It should be noted that this short post-repeal period coincided with a fast and steep decline in trade volumes, capacity utilization, average revenues and mounting losses in both liner trades – the worst in recent memory. The recovery phases in those trades did not materialize until late 2009, well beyond the KMI study’s post-repeal period.

6 DD analysis traditionally relies on single point-in-time observations before and after an intervention has occurred. Usually, this single value encompasses the average of outcomes for an entire year, but need not do so. Averaging outcomes over several time points may have value in situations where outcomes are subject to seasonal or other timing effects (e.g. cyclicity) because averaging may smooth out outcomes disrupted by these effects. Alternatively, such effects might be captured more effectively using dummy variables or other controls.

7 The present study’s pre-repeal period covers 11 fiscal quarters from the first quarter of 2006 through the third quarter of 2008, and 9 fiscal quarters in the post-repeal period from the fourth quarter of 2008 through the fourth quarter of 2010.

8 For the sake of completeness, DD estimates based on the backhaul directions of the Far East to Europe and Far East to US trades are presented in Appendix IX.

### Steps Involved in DD Analysis

Three steps are involved in calculating difference-in-differences. The first step involves identifying outcome variables of interest.<sup>9</sup> Borrowing from the structure-conduct-performance analytic framework applied earlier, this study has compiled data for several intermediate and final outcome variables that relate to market structure, carrier conduct and economic performance – average revenue or rate levels, rate volatility, market concentration, average capacity utilization, and market share stability. The DD results for each of these variables are presented and discussed in the section that follows.<sup>10</sup> Data for an important outcome variable – profitability – was not available on a trade lane basis, and no convincing quantitative trade-wide data was available for another important outcome measure – service quality.

The second step consists of defining an appropriate time dimension. In this study, the two periods being compared are the period from January 2006 through September 2008 and the period from October 2008 through December 2010. The first period ends just before the block exemption was repealed in October 2008 and the second period ends in December 2010 so as to allow sufficient time for data to become available, finalized and analyzed in time to produce a final report in late 2011. The two periods were selected to cover about the same amount of time. Although this latter point is not a requirement for DD analysis, it is important that the choice of periods clearly distinguishes the “before repeal” period from the “after repeal” period.

The last step consists of computing averages for the selected variables of interest in each trade lane (Far East to Europe and Far East to the US) in each time period (before and after the repeal) and displaying those values in tabular form. The example tabulated below shows the DD estimate of the impact of the repeal on average revenue per TEU. The trade lanes being compared are shown on the rows of the table, while the pre-repeal and post-repeal time periods are shown in the columns. The simple differences in average revenue levels between the two trade lanes and between the two time periods are shown in the margins of the columns and rows, respectively. The difference-in-differences (DD) estimate is shown in the bottom right-hand corner of the table. The DD estimate in that cell is the difference-in-differences between the two rows or between the two columns. In either case, the DD result is always the same. In each DD results table that follows, as explained earlier, the westbound direction of the trade from the Far East to Europe is compared to the eastbound direction of the trade from the Far East to the US.

**Table 6.1: DD Estimate of the Impact of Repeal on Average Revenue**

Trade Lane	Average Revenue per TEU		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Far East to Europe (subject to the repeal)	\$1,730	\$1,589	(\$141)
Far East to US (not subject to the repeal)	\$1,747	\$1,597	(\$150)
Difference between the trades	(\$17)	(\$8)	\$9 DD Estimate

The results in table 6.1 can be read in two ways. By reading the columns, one sees the differences between the two trades. It turns out, for example, that during the pre-repeal period, from January 2006 through September 2008, revenue per TEU averaged about the same in both the Far East to Europe trade and the Far East to US trade, i.e., just less

<sup>9</sup> A DD analysis can be conducted on as many outcome variables for which there are data.

<sup>10</sup> DD analysis also can be used to explore the mechanisms underlying the main outcome variables. In this context, we have produced DD estimates for some outcomes, such as market concentration and capacity that are intermediate outcome measures, respectively, of market structure and carrier conduct rather than final outcome measures.

## Difference-in-Differences Analyses

than \$1,750. Even in the period after the repeal was enacted, from October 2008 through December 2010, average revenue per TEU also was about the same in both trade lanes, but at a noticeably lower level of just less than \$1,600. The DD estimate is the difference between an almost zero (i.e., average revenue at the same level) pre-repeal difference and an almost zero (i.e., average revenue again at the same level) post-repeal difference, leading to an almost zero DD estimate. Thus, the repeal of the block exemption itself seems not to have impacted average revenue levels in the Far East to Europe trade when viewed against the trending of average revenue in the Far East to US trade.

Double differencing can also be understood by reading the results in table 6.1 by using the rows. Reading the first row of results in isolation would suggest that the repeal had a quite substantial effect in the Far East to Europe trade by reducing average revenue by \$141 per TEU (or by 8 percent of pre-repeal average revenue). However, on the second row of results, it will be noticed that the Far East to US trade fared just as well or badly (depending on one's perspective), with average revenue falling by \$150 per TEU (or by just over 8 percent of pre-repeal average revenue). The DD estimate is obviously the same as before (i.e., essentially zero - actually \$9 in favor of the Far East to US trade), which suggests that the average reduction in rate levels of \$140 to \$150 per TEU experienced in both trade lanes in the post-repeal period likely was due to factors other than the repeal (such as excess capacity caused by the global recession, for example).

### DD Estimates of the Impact of Repeal on Other Variables of Interest

DD estimates of the impact of repeal on other variables of interest to the study, including market concentration, rate volatility, market share stability, and capacity utilization, are reported below.

**Table 6.2: DD Estimate of the Impact of Repeal on Market Concentration (“HHI”)**

Trade Lane	Herfindahl-Hirschman Index		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Far East to Europe (subject to the repeal)	856	917	61
Far East to US (not subject to the repeal)	633	665	32
Difference between the trades	223	252	29 DD Estimate

Concentration appears to have increased slightly in both trades, but not significantly. The DD estimate is very small in relation to overall HHI. Although the HHI indicates that the market structure is not concentrated in both trade lanes, the Far East to US trade retained noticeably lower HHI scores than the Far East to Europe trade in both periods.

**Table 6.3: DD Estimate of the Impact of Repeal on Rate Volatility (as measured by dispersion about mean average revenue – one standard deviation)**

Trade Lane	Standard deviation of average revenue		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Far East to Europe (subject to the repeal)	\$260	\$510	\$250
Far East to US (not subject to the repeal)	\$90	\$260	\$170
Difference between the trades	\$170	\$250	\$80 DD Estimate

Rate volatility is measured in table 6.3 in the periods before and after the repeal in terms of the standard deviation of average revenue per TEU about the mean average revenue. Given that average revenue per TEU was more or less at the same absolute level in both

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trades, a larger standard deviation indicates a greater spread of average revenue about the mean, suggesting greater rate volatility. While rate volatility appears to have increased in both trades, the DD estimate suggests that removal of the block exemption resulted in greater rate volatility in the Far East to Europe trade compared to the Far East to US trade.

Table 6.4 measures rate volatility in relative rather than absolute terms by expressing the standard deviation of average revenue as a percentage of the mean average revenue in both periods. This measure provides a more valid comparison of volatility when the trades being compared have noticeably different levels of average revenue (which is not the case in our comparison). The basic DD result in this table leads to the same conclusion as in the previous table; namely, while rate volatility has increased in both trade lanes (most likely as a result of the global recession), greater volatility occurred in the Far East to Europe trade.

**Table 6.4: DD Estimate of the Impact of Repeal on Rate Volatility  
(as measured by standard deviation of revenue divided by average revenue)**

Trade Lane	Standard deviation as a percentage of average revenue		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Far East to Europe (subject to the repeal)	15%	32%	17%
Far East to US (not subject to the repeal)	5%	16%	11%
Difference between the trades	10%	16%	6% DD Estimate

One way rate volatility could have increased more in one trade compared to the other over time, all other factors being equal, would be if the intensity of competition had increased in that trade. Using market share data to compute an index of market share instability as suggested by Sys, the DD results in table 6.5 seem to indicate that shifts in market shares intensified in the Far East to Europe trade in the post-repeal period, albeit modestly, and diminished modestly in the Far East to US trade.<sup>11</sup> Also, the results indicate that in the period prior to the repeal market share instability was relatively greater in the Far East to US trade compared to the Far East to Europe trade, but that situation seemed to reverse itself in the post-repeal period.<sup>12</sup>

**Table 6.5: DD Estimate of the Impact of Repeal on Market Share Stability**

Trade Lane	Market Share Stability Index		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Far East to Europe (subject to the repeal)	6.4%	8.4%	2.0%
Far East to US (not subject to the repeal)	9.6%	7.6%	-2.0%
Difference between the trades	-3.2%	0.8%	4.0% DD Estimate

The final outcome variable for which DD estimates are available is capacity utilization. The results are displayed in table 6.6. Average capacity utilization, or load factor, fell in both trades in the post-repeal period. However, in the Far East to Europe trade average capacity

11 Christa Sys, "Is the container shipping industry an oligopoly?" *Transport Policy*, 16 (2009) 259-270.

12 The market share stability index is an indicator of the magnitude of shifts in market shares over time. According to Sys, market share instability is a measure of the shift in the relative position of firms within an industry or market. The index is considered to be an indicator of the intensity of competition. The measure used here was provided by Hymer & Pashigan (*Turnover of firms as a measure of market behavior*, Review of Economics & Statistics, 44, 1962, 82-87). This index, which they call an instability index, sums the absolute value of the change between two points in time in the market share of each firm. The value of the index varies from zero to one. An index value close to zero indicates market shares are relatively stable. An index value close to one indicates market shares are relatively unstable. The higher is the index, the greater is the implied level of competition.

## Difference-in-Differences Analyses

utilization fell by just under two percentage points compared to a reduction of over seven percentage points in the Far East to US trade.

**Table 6.6: DD Estimate of the Impact of Repeal on Capacity Utilization (Quarterly Load Factor)**

Trade Lane	Average Load Factor		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Far East to Europe (subject to the repeal)	86.9%	85.0%	-1.9%
Far East to U.S. (not subject to the repeal)	86.1%	78.7%	-7.4%
Difference between the trades	0.8%	6.3%	5.5% DD Estimate

A summary appears below of the DD estimates discussed above. In each case, the estimated impact of the repeal on the variable of interest in the Far East to Europe trade, the treatment group, was measured relative to what happened in the Far East to US trade lane (i.e., the control group).

**Table 6.7: Summary of the Impacts of the Repeal**

Variables of Interest	Estimated Impact of the Repeal in the Far East to Europe Trade
Average revenue per TEU	No or minimal impact on revenue levels
Rate volatility	Greater rate volatility (i.e., instability of average revenue)
Market concentration	No or minimal impact on market concentration
Market Share Stability	Greater market share instability
Capacity utilization	Improved capacity utilization

The findings discussed above all relate to the headhaul directions of the Far East trade to Europe and the US. A DD analysis conducted on the backhaul directions of these two trades reveal a similar set of findings. The results of that analysis are to be found in Appendix IX.

### General Observations on the DD Results

The basic DD analysis conducted above indicates that average revenue per TEU declined to the same degree in the Far East to Europe and the Far East to US trade lanes, suggesting that the repeal of the block exemption for liner conferences had little or no effect on average revenue levels. Rate volatility was seen to have increased in both trades in the post-repeal period, but noticeably more so in the Far East to Europe trade. In reaction to the global recession, average revenue in the Far East to Europe trade fell more swiftly and to deeper depths than in the Far East to US trade, but it also recovered more quickly and to greater heights. Market concentration was broadly similar across the two trade lanes as well as between the pre- and post-repeal periods. However, market share instability worsened in the Far East to Europe trade in the post-repeal period (contrasting against an improvement in the Far East to US trade). The roiling of market shares in the former trade possibly could be a primary cause of the greater rate volatility experienced in that trade. Rate actions are used not only to gain or protect market share, but also to help fill ships with excess capacity and, in fact, the Far East to Europe trade did secure higher utilization rates relative to the Far East to US trade in the post-repeal period.

In the US trades, discussion agreements may help facilitate maintenance of the status quo of their members' market shares. The ability to regularly discuss trade conditions disappeared in the European trades after repeal of the block exemption. So, it is perhaps not surprising that our DD results indicate more market share instability in the Far East to Europe trade compared to the Far East to US trade where the Transpacific Stabilization Agreement

members regularly meet to discuss trade conditions and agree on voluntary guidelines with respect to pricing and other terms of service. However, market share instability in the Far East to Europe trade may well have translated into greater rate volatility – at levels over and above those that may have been evoked by the global recession itself. However, an important research question remains to be answered: Is the apparent instability of market share in the Europe trade, and the rate volatility that seems to go with it, an ephemeral effect of the repeal of the block exemption (i.e., a relatively short-term adjustment) or an effect that will endure over the long-term?

### **KMI Study DD Estimates Compared**

The KMI Study, described earlier, reported that rate volatility in the Far East to Europe trade after implementation of the EU repeal increased relative to that found in the Far East to North America trade. That study also found that concentration in the Far East to Europe trade relative to the Far East to North America trade had decreased, implying that the “EU’s policy has enhanced competition” among liner operators in the Far East to Europe trade. The KMI Study asserted that this enhanced competition has resulted in more efficient utilization of vessel space. Finally, a significant reduction in total revenue in the Far East to Europe trade was established relative to the Far East to North America trade.

The findings of this Study, based on observations taken over a longer stretch of time, partly support and partly contradict those reported in the KMI Study. The present study found no appreciable difference in average revenue levels between the two trades ascribable to the repeal. However, the findings reported here do support the conclusion in the KMI Study that rate volatility in the Far East to Europe trade is greater relative to the Far East to US trade. Notwithstanding the fact that rate volatility appears to have increased appreciably in both trades, the DD estimate for rate volatility in this Study is substantially lower than the estimate reported by KMI, suggesting perhaps that operators in the Far East to Europe trade may be adjusting to their new regulatory environment.

The KMI Study asserted that competition was enhanced in the Far East to Europe trade because concentration decreased relative to the Far East to North America trade. Results in this Study are unable to support this finding. The present study found only modest increases in concentration and no appreciable difference in those increases when comparing one trade to the other. However, this Study examined changes in market shares as a possible indicator of competition and, on that basis, found some evidence of very modest increases in market share turnover in the Far East to Europe trade relative to the Far East to US trade. This Study’s results appear to support the KMI Study’s claim that the former trade achieved relatively better capacity utilization of vessels (which that study ascribed to enhanced competition).<sup>13</sup>

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<sup>13</sup> The KMI Study estimated that average capacity utilization of vessels in the Far East to Europe trade was improved by 5 percentage points relative to the Far East to North America trade; the Study estimates this figure to be 5.5 percentage points.

## Chapter 7:

# Findings

The primary issue addressed in the Study is: *What impact has the repeal of the liner conference block exemption in Europe had on US liner trades?* That concern was originally raised by US shippers in comments to the Antitrust Modernization Commission in 2006. It was raised again in a Congressional Research Service report in 2008. More specifically, the concern was whether (a) shippers in EU countries might gain a commercial advantage over their US competitors in third markets (for example, Asia) due to post-repeal freight rate decreases in EU trades, or (b) carriers might raise rates in US trades to offset any rate reductions experienced in the EU trades following repeal of the block exemption. Both versions were premised on an expectation that the EU repeal of the liner conference block exemption would produce rate reductions in EU liner trades relative to US liner trades.

### Complicating Factors

As indicated previously in Chapter 3, Some Complicating Factors, and Chapter 6, Difference-in-Differences Analyses, of the Study, there are two factors that, when taken together, produce a substantial challenge to reaching clear and persuasive findings:

1. The occurrence, nearly simultaneously with the repeal's implementation, of a massive exogenous shock – a global recession that produced the largest decline in trade volumes in liner history; and
2. The fact that any impacts from the repeal were likely to be relatively modest (that is, have a small intervention impact) because the market power of the carrier agreements being terminated had already been severely limited by earlier regulatory reforms and legal interventions.

### Primary Finding

Based on the analysis of available information, albeit over a relatively short period of time, the Study found that no significant repeal-driven relative change in rate levels occurred. This result suggests that the repeal likely did not (independent of the global recession's impact) produce changes in average rate levels in EU trades relative to US trades, or conversely, that discussion agreements like TSA (an agreement with rate authority, but no capacity management authority) have not typically been able to raise average rate levels in spite of the member lines' ability to discuss and agree upon voluntary rate actions.

The findings indicate that the repeal of the block exemption appears to have produced no commercial disadvantages to US shippers. Changes in differences in average revenue per TEU (as a proxy for all-in freight rates) between the eastbound Far East/US trade and the westbound Far East/North Europe trade during the pre- and post-repeal periods appear to have been minor. Average revenue per TEU declined to the same degree in the two trades, suggesting that the repeal of the block exemption had little or no effect on average revenue (and freight rate) levels.

In a September 25, 2006 press release concerning the Competitiveness Council's decision to repeal Regulation 4056/86, the EC addressed this question: *What are the expected economic effects of the repeal of the block exemption?* Those expectations were summarized as follows:

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The [European] Commission has concluded that a repeal of the block exemption will bring about substantial benefits to EU industry and consumers, in particular as regards transport prices, reliability of liner shipping services, competitiveness of the EU liner shipping industry and small EU liner carriers. The repeal of the block exemption will therefore also contribute to the Lisbon objectives.

The European Commission's main expectations of the economic impact of repealing the conference block exemption were:

- transport prices for liner shipping services will decline;
- service reliability on deep sea and short sea trades is expected to improve;
- service quality will either be unaffected or will improve;
- the competitiveness of EU liner shipping firms will be positively impacted, if impacted at all;
- small liner shipping carriers will not experience particular problems, and
- EU ports, employment, trade and/or developing countries will experience no negative impact and possibly a positive impact.<sup>1</sup>

Given DG Comp's findings that liner conferences in EU-based trades harmed shippers by reducing shippers' bargaining power, and listing surcharges and ancillary charges in conference tariffs, it is clear that the primary expected benefit was a repeal-driven price decrease in EU trades.

Did the anticipated repeal-generated moderate decline in prices, including ancillary charges and surcharges, occur? Based on this Study's data, the findings of the DG Comp-sponsored analysis of terminal handling charges,<sup>2</sup> and a review of FMC service contract surcharge data,<sup>3</sup> the repeal does not appear to have caused a decline in freight rates or other charges. Rates certainly did decline due to the dramatic impact of the global recession on international trade volumes and vessel utilization levels; but the difference-in-differences analysis indicates that the post-repeal fall in freight rates was not attributable to the repeal of the liner conference block exemption.

That finding may, in itself, raise questions about whether the value to carriers of the previous block exemption, or the alleged harm to shippers of the carriers' activities conducted under the exemption, may have been less substantial than previously believed. A number of the Study NOI responses indicated that there was no appreciable impact on the carriers' commercial activities – a point reported in the trade press at the time.<sup>4</sup>

As for ancillary charges, of which terminal handling charges ("THCs") received significant attention in the DG Comp review, expectations of post-repeal reductions in charges do not seem to have been fulfilled. For example, initial indications are that, on the whole, THC's in EU-trades *increased* rather than declined – after having remained virtually unchanged for

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1 Memo/06/344, Brussels, 25<sup>th</sup> September 2006, "Competition: Repeal of Block Exemption for Liner Shipping Conferences – frequently asked questions."

2 Ben Hackett, "Terminal Handling Charges During and After the Liner Conference Era," October 6, 2009.

3 See a review of "Service Contract Rate Profiles for the Major East-West Trades," at Appendix VIII.

4 "Block Exemption Working," Chris Dupin, American Shipper, March 2011. The article, reviewing the public comments of NOI responders (mostly carriers), included this observation by NITL executive VP Peter Gatti: "[S]everal of the European carriers see little impact on their operations because they weren't using the immunity anyway."

## Findings

nearly 15 years in Europe.<sup>5</sup> In addition, significant differences in THC pricing among carriers are said to have developed, creating a situation in which stable, standardized trade-lane-based THCs (apparently related to the CENSA 80/20 formula) were replaced by a variety of individual THCs that lines adopted based on different elements and cost levels. This development, while perhaps more economically efficient, has apparently resulted in *higher* average THCs for shippers.

As for liner service reliability and quality, the Commission had originally hoped that shipper input, for example in response to the Study's November 1, 2010 Notice of Inquiry, might provide useful insights into shippers' perceptions of how liner service might have changed from 2006 through 2010. Unfortunately, that input was not forthcoming. As a result, service reliability and quality had to be addressed by proxy. Capacity utilization and port-to-port transit times served as useful, albeit limited, proxies for service reliability.

To the extent that excess capacity existed in a trade, it could be argued that the available capacity on offer likely was sufficient to meet shippers' demand for liner service. During periods when capacity was extremely tight – for example, when utilization levels reached or exceeded 100 percent – the presumption was that service reliability likely was inadequate. Measurements of available capacity and capacity utilization rates served to identify periods and trade lanes in which service reliability may have been problematic.

Port-to-port transit times as a second proxy for service reliability may not capture the many dimensions to which the term *service reliability* might appropriately be applied. It should, however, cover the carriers' introduction of various degrees of slow (and extra-slow) steaming<sup>6</sup> – as a cost reduction measure (albeit one with environmental benefits as well). Changes in transit times due to slow steaming are more likely to have been recession-driven rather than due to the repeal of the block exemption.

To the extent that data on capacity utilization and on transit times can serve as useful proxies for service quality, there was no persuasive evidence that the repeal of the liner conference block exemption either improved or hurt service quality. The main explanation for change appears to be the effects of (and responses by the lines to) the global recession – that is, declining cargo volume and the need to reduce operational costs.

### Secondary Findings

The Study's primary finding, that US liner trades did not experience any negative consequences from the EU's repeal of the block exemption, can be supplemented by several additional findings from the difference-in-differences analyses undertaken. Those secondary findings are presented below.

**The impact of the repeal on rate stability appears to have been an increase in volatility** – A result that suggests that the existence of a discussion agreement in a trade (or, at least, in the Far East trades) may have some dampening effect on rate volatility. Rate volatility was seen to have increased in both trades in the post-repeal period, but noticeably more so in the Far East/Europe trade. In reaction to the global recession, average revenue in the Far East/Europe trade fell more swiftly and to deeper depths than in the Far East/US trade, but also recovered more quickly and to greater heights. However, given the lack of impact of the repeal on average revenue per container (as a proxy for all-in rates), a discussion agreement's

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<sup>5</sup> “The terminal handling charges in European ports virtually all increased from their conference levels.” Ben Hackett, page 21. “The carriers took the opportunity of change to introduce terminal handling charges in ports where they had not charged before such as in Klaipeda (where the THC was part of the ocean freight for both the shipper and the carrier) and Piraeus and Istanbul where some carriers had a free in/free out policy before.” Ben Hackett, page 22.

<sup>6</sup> See Appendix XII for details on slow steaming and changes in transit times.

potential impact on rate volatility may have more to do with the member lines sharing information and discussing market conditions rather than with their joint pricing proposals (such as GRIs).

**The impact of the repeal on market concentration appears to be increased**

**concentration** – A result that suggests that, in the absence of a forum for carrier discussions and information sharing, market concentration may increase slightly more rapidly. Although market concentration was broadly similar across the two trades in the pre- and post-repeal periods, there was a somewhat greater post-repeal increase in concentration in the Far East/Europe trade. However, given the absence of concentration (industry-wide and in the major East/West trades), as measured by HHI and CR4, such modest increases are unlikely to present a problem.

**The impact of the repeal on market share stability could be related to rate volatility and market concentration** – Market share stability noticeably declined in the Far East/North Europe trade in the post-repeal period in contrast to increased market share stability in the Far East/US trade. However, to understand the effects of increased market share instability, one needs to assess the situation at a disaggregated level. Are the shifts in market share among lines more-or-less random, or do they display a particular trend?

Given the difference-in-differences results with respect to rate volatility (a relative increase in the Far East/Europe trade) and market concentration (a relative increase in the Far East/Europe trade), it seems possible that post-repeal market share instability and increased rate volatility may be associated with some of the larger carriers expanding their market share – resulting in increased concentration.<sup>7</sup> A key research question that remains to be answered is whether the apparent market share instability, and any associated rate volatility, is an ephemeral effect of the repeal or one that may have long-term consequences.

**The impact of the repeal on capacity utilization is unclear** – The numbers suggest that, following the repeal, lines in the Far East/Europe trade were better able to maintain relatively higher utilization levels than were TSA lines (which, it must be noted, lacked capacity management authority). The outcome also may be related to different typical contract lengths (3-month versus annual), earlier and greater use of slow steaming, differences in new entry during the research period, or other factors.

**The impact of the repeal on average capacity deployed appears to have resulted in relatively less capacity being removed from the Far East/Europe trade** – A result that suggests that, in the absence of a discussion agreement in the trade that is able to exchange more-or-less real time information on anticipated demand and available capacity, lines tend to maintain more capacity than they might when a trade-lane-based discussion forum exists. The fact that the Far East/Europe trade experienced higher levels of capacity utilization might provide some explanation why less capacity was removed relative to the US/Far East trade. The fact that the trade uses very large vessels that cannot be economically redeployed in other trades is also a likely factor.

Taken together, the secondary findings suggest a number of interesting further questions. For example: What difference, if any, does it make to carriers or shippers if a block exemption

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<sup>7</sup> Data on market shares in the westbound Far East/Europe trade (Asian exports to Europe) indicate that two of the three largest carriers (CMA CGM and MSC) significantly increased their market shares in the post-repeal period, and the largest (Maersk) retained its 20% plus market share.

## Findings

or antitrust immunity is granted or withheld?<sup>8</sup> Does discussion and information sharing among carrier discussion agreement members have a separate and distinct utility apart from the success or failure of the lines' common pricing proposals (GRIs and additional charges)?

One possible and reasonable hypothesis worthy of examination and development is that a carrier discussion agreement like TSA (that is, one with pricing authority but no capacity management authority) may be ineffective in improving member lines' average revenue per container in a market characterized by pricing under confidential, one-to-one contracts, but effective in helping to reduce rate volatility.

Should such a hypothesis be confirmed, and given the considerable conflict that exists between shippers and carriers over the legislative authority for lines to collectively propose voluntary rate actions, there may be some value in revisiting ELAA's idea of information exchange systems.<sup>9</sup>

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<sup>8</sup> There are certainly *legal* consequences that flow from exemptions/immunities such as limitations on exposure to law suits, triple damages, etc., that doubtless matter to ocean carriers. Those are not considered in this discussion.

<sup>9</sup> The option of replacing trade-lane-based carrier agreements that have authority to agree on rate actions (and perhaps capacity management activities) with potentially less anticompetitive agreements that would be limited to discussions and information exchange on market conditions was initially raised by ELAA in the early stages of the DG Comp review.

## Appendix I

# Notice of Inquiry

On November 1, 2010, the Commission issued a formal Notice of Inquiry (“NOI”), *An Analysis of the European Union Repeal of the Liner Conference Block Exemption*. The NOI presented questions requesting information and comments from the public on the effects of the repeal by the European Union (“EU”) of its block exemption regulations for liner shipping conferences, Regulation 4056/86. The repeal became effective on October 18, 2008. Information provided in response to the NOI assisted the Commission in its analysis of any consequences affecting the US liner trades that could be associated with the EU’s policy decision to repeal Regulation 4056/86. Where applicable, the Commission incorporated information from the NOI in this Study.

The NOI contained questions divided into the following six sections: (a) general questions for any interested party, (b) questions pertaining to the trade between the US and North Europe, (c) questions concerning the trade between the US and the Far East, (d) questions about the trade between the Far East and Europe, (e) comparisons among the foregoing trades, and (f) additional questions for carriers.

Fifteen vessel-operating common carriers,<sup>1</sup> two groups of shipowners,<sup>2</sup> and one logistics and transportation consultant<sup>3</sup> responded to the notice. There were no responses to the NOI from shippers or groups representing the interest of shippers. Many of the carriers provided a public version and a confidential version of their responses to the NOI questions. The proceeding section presents a list of the NOI questions and a summary of the responses provided for public disclosure.

## NOI Questions and Responses

### Section A: General Questions

1. *Based on your experience since September 2006 (when the EU announced its decision to terminate the block exemption for liner conferences to take effect October 2008), what impacts, if any, have you identified on your company’s commercial activities, in any trade lane, that you would attribute to the termination of the EU conference block exemption? Please explain. If you believe there have been such impacts, please indicate when that impact first occurred.*

Most carriers listed (1) higher relative rate volatility, (2) more surcharge complexity and higher surcharge levels, and (3) reduced service (relative to US transpacific trade). Several carriers said impacts were minimal or they could not identify any – and one carrier in this group added that the repeal had provided no shipper benefits.

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1 APL Co. PTE Ltd.; Atlantic Container Line AB; CMA CGM, S.A.; COSCO Container Lines North America, Inc. (on behalf of COSCO Container Lines Company); Evergreen Line; Hamburg-Sud; Hanjin Shipping Company, Ltd.; Hapag-Lloyd AG; Hyundai Merchant Marine Co., Ltd.; K Line America, Inc. (on behalf of Kawasaki Kisen Kaisha, Ltd.); A.P. Moller Maersk A/S; NYK Line (North America) Inc. (on behalf of Nippon Yusen Kaisha); Orient Overseas Container Line Ltd.; Yang Ming Transport Corp.; and Zim Integrated Shipping Services Ltd.

2 The Asian Shipowners’ Forum and the Japanese Shipowners’ Association.

3 Global Logistics & Transport Consulting.

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2. *Based on your experience since October 2008 (when the EU exemption for liner conferences was terminated) has any class of shipper or class of vessel-operating common carrier received a competitive advantage or been put at a competitive disadvantage as a result of the EU decision to terminate the exemption? If so, please explain.*

A substantial majority said it was too difficult to tell or that they saw no particular advantages or disadvantages created. Of the respondents that identified advantages or disadvantages: rate volatility was said to be harder on small carriers, and the complex pricing environment was also called a problem. One carrier opined that there had been increased concentration, mainly by growth of the three largest carriers, in EU trades relative to the transpacific.

3. *Based on your experience since October 2008 (when the EU exemption for liner conferences was terminated), have differences between the US and EU liner shipping competition regulations created any problems for your company? If so, please explain.*

A substantial majority said either “no” or indicated that, in general, it would be more convenient for carriers if there was one common set of rules. There was, however, no mention of particular problems. One carrier noted that the EU repeal highlighted the waste created by requirements to file tariffs and service contracts. Several carriers used the question to reinforce their views on rate volatility and non-uniform surcharges as problems with the EU approach.

4. *Does your company view cooperation among ocean carriers in operational agreements (e.g., vessel sharing agreements, alliances, consortia, etc.) as generally having a positive, neutral, or negative impact on the availability or cost of liner shipping services? Please explain. Does the EU market share threshold of 30 percent for such operational agreements have any effect with respect to that impact? If so, please explain.*

Uniformly, operational agreements are viewed positively. On the question of a 30 percent market share cap, one carrier mentioned it as a way to prevent the formation of monopolies. Several others raised questions about the cap’s effects on formations of new VSAs and possible impacts with respect to service at new ports or in niche markets. Most lines, however, mentioned that they had no actual problems staying below the 30 percent cap.

### Section B: Questions about the North Atlantic Trade (North Europe/US)

5. *Approximately what percent of your company’s freight earnings (lines, OTIs) or shipping expenses (shippers) involves international shipping in the North Europe/US trade? Does your company’s business involve US imports (westbound service) only, US exports (eastbound service) only, or both? Please explain briefly.*

There were eleven carriers that requested confidentiality on their earnings in the trade. Among the public disclosures, ACL indicated that 98 percent of its earnings originated from the trade; however, unlike most carriers, the services of ACL are primarily dedicated to the North Atlantic. Other carriers disclosed that their earnings in the trade ranged from 2.5 to 10.3 percent. Global Logistics stated that 12 percent of its clients’ business was devoted to the trade. The respondents disclosed that they service both trade directions.

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6. *How, and to what extent, did the recent economic recession (2008-2009) affect your company's liner shipping-related business in the North Europe/US trade? Please explain.*

There were seven carriers requesting confidentiality of their responses to question 6. Based on public information, the respondents indicated that the recession caused cargo volume (demand), capacity utilization levels, freight rates, and revenues in the trade to decline substantially, which resulted in financial losses. Yang Ming cited 60 percent declines in cargo volume and revenue, and Global Logistics stated that its business in the trade was down by more than 30 percent. In response to these conditions, carriers said that they acted to remove excess capacity by terminating services, deploying smaller vessels in service strings, and forming new vessel sharing and slot chartering agreements with each other. A carrier explained that as of the date of this submission, capacity had not been restored to the trade because the market, in terms of demand and rates, had not improved sufficiently. NYK also noted that the extensive amount of debt, and cost of servicing debt, assumed by carriers due to the recession will continue to be a financial burden in the future.

7. *Based on your experience prior to July 2008, when the Trans-Atlantic Conference Agreement (TACA) disbanded, did the existence of TACA have any impact on your liner shipping-related business in the North Europe/US trade? If so, please explain.*

Both former conference and non-conference carriers claimed that in the latter years of the conference, the main impact of TACA on business in the trade was its common tariff surcharges and ancillary charges, and to a degree, it provided market indicators with its rate announcements. In addition, since TACA disbanded, many carriers observed that pricing has become more volatile in the trade, particularly with respect to such major surcharges as bunker and terminal handling charges.

8. *Based on your experience in the period from October 2008 to the present (i.e., since the EU block exemption was terminated), has there been any significant change(s) in liner services in the North Europe/US trade that you attribute to the EU terminating the block exemption? For example, changes in:*

*The level of freight rates and surcharges;*

Most carriers complained of greater volatility in rates and surcharges due to the repeal and also the recession. Some carriers observed a trend toward all-in rates and stated that rate fluctuations were exacerbated by the loss of carrier discussions.

*The frequency with which rates or surcharges are adjusted up or downward (volatility);*

Most carriers observed greater volatility in rates and surcharges after the repeal when TACA carriers were no longer able to engage in discussions and began setting rates and charges individually.

*The assessment of surcharges;*

Most carriers observed that after the repeal the levels of surcharges began to vary on an individual basis by carrier, resulting in complaints from shippers. CMA CGM noticed that bunker charges in particular began to be reviewed and changed on a monthly basis. ACL explained that shippers' complaints over the variance in surcharges in the trade led them to discontinue most of their surcharges.

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*The level of competition among carriers;*

Some carriers observed an increase in competition after the repeal, while others found competition to be equally as “intense” as before the repeal. Zim noted that market concentration among the top three competing carriers has increased since the repeal. Global Logistics related competition in the trade to market conditions and not the repeal.

*The service contracting practices or terms offered by ocean carriers;*

Most respondents found no change in service contracting after the repeal.

*The availability of vessel capacity and container equipment; or*

Most respondents did not attribute changes in the availability of vessel capacity and container equipment to the repeal. Carriers attributed the withdrawal of vessel capacity in the trade to the recession and market demand.

*The level or quality of liner services (including customer service, billing accuracy, etc.)*

Most respondents indicated that liner services were not affected due to the repeal. Zim, however, made the following points regarding service and the repeal: greater volatility in service, in terms of number, capacity, port calls, resulted from greater volatility in rates; there is less incentive to invest in a trade where rates are declining; and there is no organization in the trade where carriers can address important issues. Global Logistics complained that unexpected changes in service create planning problems for its clients, and customer service and documentation by carriers are inconsistent.

9. *For CY 2010 to date, please estimate the percentage of your annual business (by volume) in the North Europe/US liner trade that moved under (a) annual (or longer) service contracts, (b) shorter-term freight agreements, (c) spot rates, and (d) other (please specify). Has that changed significantly since October 2008? If so, please explain.*

There were eleven carriers requesting confidentiality of their responses to question 9. Based on public information, the respondents indicated that the duration and method of pricing in the trade had not changed since October 2008. Most of the cargo in the trade was shipped under service contracts with durations of a year or more. However, ACL and Hamburg Sud indicated that major portions of the cargo they handled were shipped under freight agreements of less than a year in one or both directions of the trade.

10. *Following repeal of the EU block exemption, ocean carriers created a global information system under Container Trade Statistics, Ltd. (CTS) in which a majority of ocean carriers serving the North Europe/US trade participate. CTS provides certain data free on its web site, including indices of the carriers' aggregated average revenue per TEU per month. CTS also sells other data. To what extent, if at all, does your company access and use CTS Europe/US trade data, and, if it does so, for what purpose(s)?*

Most respondents indicated that they use CTS data to evaluate market trends and pricing in the trade relative to their own market positions. Several of the carriers explained that CTS data is useful for investment and decision making or market strategy purposes. Global Logistics uses the data in general terms to assess its contract rates against the trade. Many respondents noted that they also use other

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commercial sources of data in addition to CTS data, including PIERIS, Drewry, and Department of Commerce.

### Section C: Questions about the Transpacific Trade (Far East/US)

11. *Approximately what percent of your company's freight earnings (lines, OTIs) or shipping expenses (shippers) involve international shipping in the Far East/US trade? Does your company's business involve US imports (eastbound service) only, US exports (westbound service) only, or both?*

There were eleven carriers requesting confidentiality of their responses to question 11. ACL and Hamburg Sud noted that the questions in Sections C, D, and E were not applicable to their operations in part or full because neither carrier operated services in the specified Far East trades. CMA CGM and OOCL disclosed that, respectively, 13 and 35 percent of their earnings were generated from their operations in both directions of the Far East/US trade. Global Logistics indicated that nearly 70 percent of its business on behalf of its clients was dedicated to the trade and involved both imports and exports.

12. *How, and to what extent, did the economic recession (2008-2009) affect your company's liner shipping related business in the Far East/US trade? Please explain.*

Eight carriers requested confidentiality of their responses to question 12. Based on the information made public, respondents complained of a substantial decline in cargo volume and loss of revenue in the trade due to the economic recession in 2009. Specifically, OOCL and Yang Ming revealed that in 2009 compared to 2008, cargo volume declined in both directions of the trade by 13 to 20 percent, and the level of freight rates fell by 24 to 30 percent. Global Logistics stated that its business in the trade declined by 31 percent in 2009. To deal with these conditions, carriers stated that measures were taken to remove excess capacity in the trade by reconfiguring services, reducing vessel deployments, and increasing service coordination among carriers through various forms of operational agreements.

13. *Based on your experience from January 2006 to the present, have the activities of the Transpacific Stabilization Agreement (TSA) or the Westbound Transpacific Stabilization Agreement (WTSA) had any significant impact on your company's liner shipping related businesses in the Far East/US trades? If so, please explain.*

In general, carriers expressed the view that TSA and WTSA have a positive impact on the trade. The carriers cited the promotion of rate stability in the trade as a positive attribute of the discussion agreements. Another positive feature of the agreements expressed by the carriers is the provision for shipper advisory boards, which the carriers explained permits them to meet with shippers to discuss, among other things, market trends, shipper priorities, equipment availability, shipper and carrier concerns, and anticipated changes in rates. Carriers also noted that TSA allows its members to discuss environmental issues with the intent of reducing pollution caused by liner shipping operations. Global Logistics maintained that market forces predominately influenced freight rates and conditions in the trade rather than the activities of carriers in TSA and WTSA; however, it stated that the recovery of rates in the inbound trade direction in 2010 was likely escalated by

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TSA.

14. *Based on your experience in the period from October 2008 to the present, have there been any significant characteristics of ocean liner services in Far East/US trades that you attribute to actions taken by TSA or WTSA member lines acting collectively? For example, significant characteristics in: The level of freight rates and surcharges;*

Carriers reiterated the view that discussions and information exchange under TSA and WTSA promote and provide a degree of stability and predictability in rates and surcharges, but ultimately, market forces drive rate and surcharge levels. Global Logistics pointed to the significant rate increases obtained in 2010 as evidence of TSA's influence.

*The frequency with which rates or surcharges are adjusted upward or downward (rate volatility);*

Again, carriers maintained that the ability to assess and discuss trade conditions under TSA and WTSA results in less frequent changes in rates and surcharges that are more closely in line with changes in the market, but rate volatility is essentially a function of the supply and demand equation in the trade.

*The assessment of surcharges;*

Carriers explained that the assessments of surcharges are based on costs and that the surcharges set under discussion agreements, such as the BAF formula under TSA, provide transparency and predictability, which are qualities requested by shippers. Carriers stressed, however, that the assessment of any surcharge is an individual decision on the part of a carrier and subject to negotiation with shippers. Global Logistics found it difficult to negotiate a fixed charge for fuel costs with carriers, noting that carriers prefer a floating charge that varies based on fuel prices.

*The level of competition among ocean carriers;*

Carriers asserted that discussion agreements do not impede or limit competition in the trade, noting that in the inbound trade direction, competition between members of TSA is intense, as well as with carriers that are not members of TSA.

*The service contracting practices or terms offered by ocean carriers;*

Carriers did not attribute the practices and terms of service contracts to the collective actions of carriers in discussion agreements, explaining that service contracts are negotiated on a confidential and individual basis subject to market conditions and the leverage of shippers. Global Logistics stated that it requires intense negotiations with carriers on behalf of its clients to insert any specific or unique terms or language into service contracts.

*The availability of vessel capacity and container equipment; and*

Carriers asserted that such operational matters as the deployment of vessel capacity and equipment are not within the authority or collective control of the discussion agreements but are decisions made on an individual basis by each carrier. K Line agreed that such matters are decided by the individual carrier but added that the exchange of information under the discussion agreements did result in an increase in the availability of capacity to shippers.

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*The level of quality of liner services (including customer service, billing accuracy, etc.).*

Again, carriers commented that service matters are based on the decisions of individual carriers and are not matters addressed collectively under or influenced by discussion agreements. Global Logistics complained of a deterioration of service in the trade starting in 2008 and noted that it is difficult for its clients to plan for the future because of frequent service changes on short notice.

15. *For CY 2010 to date, please estimate the percentage of your annual business (by volume) in the Far East/US liner trade that moves under (a) annual (or longer) service contracts, (b) shorter-term freight agreements, (c) spot rates, and (d) other (please specify)? Has that changed significantly since October 2008? If so, please explain.*

There were eleven carriers requesting confidentiality of their responses to question 15. Based on public information, OOCL revealed that upwards of 95 percent or more of its cargo moves under contracts with an annual duration or longer. K Line also disclosed that the majority of its cargo moved under annual contracts, but it explained that the rates are subject to change based on market fluctuations. Global Logistics reported that close to 80 percent of its clients' cargo moves under annual contracts. Respondents did not report any significant changes since 2008.

### Section D: Questions about the Europe-Asia trade (Far East/Europe)

16. *Approximately what percent of your company's freight earnings (lines, OTIs) or shipping expenses (shippers) involve international shipping in the Far East/Europe trade? Does your company's business involve European imports (westbound service) only, European exports (eastbound service) only, or both? Please explain briefly.*

Ten carriers requested that their responses to question 16 be confidential. The carriers providing public information disclosed that between 12 to 28 percent of their earnings were generated from their operations in the trade. Global Logistics stated that 12 percent of its clients' business was devoted to the trade. The respondents disclosed that they service both trade directions.

17. *How, and to what extent, did the recent economic recession (2008-2009) affect your company's liner shipping-related business in the Far East/Europe trade? Please explain.*

Six carrier responses to question 17 are confidential. Among the public disclosures, Yang Ming reported declines of 20 percent in cargo volume and 50 percent in rates due to the effects of the recession on the trade. Similarly, APL reported a 20 percent decline in its cargo volume in the trade, and Hyundai stated that freight rates fell by 43 percent in 2009. Global Logistics experienced a 35 percent decline in business due to the recession. K Line noted that during the recession rate levels dropped below the charter hire cost of vessels. With some of the largest containerships deployed in this particular trade, carriers explained that the recession created a huge amount of excess vessel capacity from the drop in demand. As such, carriers withdrew and/or rationalized services and vessel capacity, began (or increased) the slow steaming of vessels, and formed new vessel sharing and slot chartering agreements to cope with the trade imbalance and financial losses.

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18. *Based on your experience prior to October 2008 (i.e., before the Far Eastern Freight Conference disbanded), did the existence of FEFC have any impact on your liner shipping-related business in the Far East/Europe trade? Please explain.*

Among the former members of the conference, the general consensus is that FEFC was an invaluable platform for carriers to discuss and address industry related matters on infrastructure, market conditions, and environmental initiatives. Carriers also commented that FEFC provided a forum of communication with shippers on matters of common interest, which promoted greater stability in the trade. Carriers explained that voluntary guidelines on rates and surcharges set under FEFC enhanced transparency and stability in the trade by providing reliable benchmarks for contract negotiations between shippers and carriers. As such, carriers stressed that voluntary guidelines were useful in preventing wild and unpredictable swings in rate levels, which benefited both shippers and carriers. They added that rates and surcharges in trades without antitrust immunity tend to be more volatile.

19. *Based on your experience in the period from October 2008 to the present (i.e., since the EU block exemption was terminated), has there been any significant change(s) in liner services in the Far East/Europe trade that you attribute to the EU's ending of the block exemption? For example, changes in:*

*The level of freight rates and surcharges;*

Most carriers claimed that before and after the repeal of the block exemption, freight rates remained subject to intense market competition. The guidelines proposed by the FEFC provided a baseline for carriers to evaluate their freight rates and a starting point in negotiations with shippers. Most carriers believe that the lack of such a baseline has increased the volatility in both rates and services in the trade. As for surcharges, before the abolishment of the conference, carriers were free to follow the FEFC's tariffs or come up with their own. After FEFC, carriers now determine the levels and terms of their surcharges on an individual basis. As a result, surcharge levels and their application vary from carrier to carrier based on the individual carrier's operating costs and commercial decisions.

*The frequency with which rates or surcharges are adjusted upward or downward (rate volatility);*

Most carriers stated that since the termination of the block exemption, freight rates and surcharges have been adjusted more frequently than what was traditionally the case before, and attribute this to the repeal of the block exemption and the loss of FEFC as well as the economic recession.

*The assessment of surcharges;*

After termination of the EU block exemption, carriers claimed they were required to develop their own unique versions of surcharges and the dates of their implementation based on operating costs, commercial decisions, and to a great extent customer feedback. As a result, surcharge levels and their application varied from carrier to carrier. A few carriers mentioned that this led to confusion and dissatisfaction among shippers who complained that the varying surcharges made it more difficult to evaluate and compare offers from different carriers. One carrier added that there is now a push by certain shippers on carriers to eliminate the separate application of surcharges and offer, instead, "all in" rates.

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### *The level of competition among ocean carriers;*

Carriers claimed that before and after the repeal, freight rates, surcharges, and services in the Far East/Europe trade were subject to market competition and that this competition was and still is substantial. Zim further noted that the Far East/Europe trade is more concentrated than the other trades with three major carriers increasing their combined market share to about 45 percent over the last three years. Evergreen believes that lack of the stabilizing influence of FEFC during the economic downturn led to destructive pricing wars that threaten the survival of small, low-cost carriers and warns that the net result would be less competition rather than more competition in the trade.

### *The service contracting practices or terms offered by ocean carriers;*

Some carriers reported that their service contracting practices and terms offered became more complicated because of the variety of rate structures of the other carriers in the market. Other carriers stated there was no change.

### *The availability of vessel capacity and container equipment; and*

Most carriers stated that there was no change to the availability of vessel capacity and container equipment attributable to the repeal; instead, it was the global recession that forced carriers to rationalize services and slow steam vessels as cost cutting measures. Evergreen believes, however, that the lack of a common view on market outlook that carriers had under FEFC postponed the reactivation of idle vessels and precluded carriers from long-term investments, including orders of new vessels and container equipment.

### *The level or quality of liner services (including customer service, billing accuracy, etc.).*

Most carriers stated that there was no change to the level or quality of their liner services since the repeal of the EU block exemption. A few carriers, however, mentioned that customers were confused and dissatisfied because of the lack of uniformity of the surcharges among different carriers making it difficult to compare offers. Zim noted that, before the repeal, FEFC promoted dialogue with customers to obtain their views and recommendations on better practices, which assisted the lines in adapting their individual operations. Hanjin and Evergreen stated that increased volatility of rates and surcharges, and rationalization of services, which they blame in part on the abolishment of FEFC, resulted in huge losses across the container shipping industry. The view was expressed that with carriers struggling for survival and making every effort in cost-cutting programs, there was little left for service improvements and that the level and quality of liner services could be affected over time.

20. *For CY 2010 to date, please estimate the percentage of your business (by volume) in the Far East/Europe liner trade that moved under (a) annual (or longer) service contracts, (b) shorter-term freight agreements, (c) spot rates, and (d) other, please specify? Has that changed significantly since October 2008? If so, please explain*

There were eleven carriers that requested their responses to question 20 be confidential. The responses varied from the respondents that provided public information. APL stated that the majority of its cargo in the trade moved under three month agreements. OOCL reported that the majority of its cargo in the

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trade moved under spot rates, and Global Logistics revealed that 72 percent of the cargo of its clients moved under annual contracts.

21. *Following repeal of the EU block exemption, ocean carriers created a global information system under the Container Trade Statistics, Ltd. (CTS), in which a majority of ocean carriers serving the Far East/Europe trade participate. CTS makes certain data free on its web site, including indices of the carriers' aggregated average revenue per TEU by month. CTS also sells other data. To what extent, if at all, does your company access and use Far East/Europe trade data, and (if it does so) for what purpose?*

Most of the respondents indicated that they use the CTS and other trade data to monitor market shares, cargo volumes, and freight rate trends to help their service planning and marketing activities. However, NYK reported that they resigned from the agreement and have never used CTS data for any purpose.

### Section E: Comparisons among Trades

22. *Based on your experience since October 2008 (since the E.U. block exemption was terminated) are there differences in the characteristics of the Far East/US trade versus the Far East/Europe or North Europe/US trades that you attribute to differences between US and European liner competition regulations? For example, differences in:*

The level of freight rates and surcharges;

Zim stated that in the trades with no conferences or voluntary discussion agreements, there is greater rate and service volatility. K Line explained that after the removal of the block exemption, the timing and quantum of rate increases and surcharges varied, which caused confusion and inconvenience because of the frequency. Evergreen stated that the existence of TSA and WTSA has a helpful effect on the volatility aspect. Likewise, OOCL stated that the freight rates tend to fluctuate more frequently in the Far East/Europe and US/Europe trades. Other respondents reported there were no obvious differences since the level of freight rates are subject to the supply and demand conditions of their respective markets. Likewise surcharges are adjusted to reflect relative operating costs.

*The frequency with which rates or surcharges are adjusted upward or downward (rate volatility);*

Hapag-Lloyd stated that discussion agreements bring stability to the trade, and noted that rate levels during the recession did not fluctuate as drastically in the transpacific trade as they did in the Far East/Europe trade. K Line reported that, while rates fluctuate based on supply and demand, the magnitude of such adjustments to the carriers' profit and loss is more frequent in the Far East/Europe trade. Zim stated that rates and charges are revised less frequently in trades where conferences or voluntary discussion agreements exist than in trades where such agreements are not present. Evergreen believes that, because of the existence of TSA and WTSA, the frequency of changes in rates and surcharges has not been as extreme in the Transpacific-US trades as in the Far East to Europe trade lanes. Further, the respondents explained that because the majority of US-related trades are under long-term service contracts, rates and surcharges are adjusted less frequently than in the Far East/Europe trade, which has fewer contracts and more spot rates that generally change quarterly.

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### *The assessment of surcharges;*

Carriers indicated that for the most part there are no differences between the trades because surcharges are adjusted to reflect the change of operating costs. However, carriers added that TSA and WTSA give more transparency and consistency to these charges, whereas in the Far East/Europe trade, the surcharges vary more. Zim explained that while there is competition on surcharges, conferences and discussion agreements establish voluntary guidelines and fact-based formulas that provide transparency on the elements of specific surcharges, and offer shippers more predictability as they have requested.

### *The level of competition among ocean carriers;*

Carriers asserted that they strongly compete with one another in all of these markets. In the view of Zim, the transpacific market is less concentrated in comparison to the Far East/Europe and US/Europe markets. Zim stated that the major three carriers have more dominance in the Far East/Europe trade, which could be attributed to the removal of the block exemption.

### *The service contracting practices or terms offered by ocean carriers;*

Most all of the respondents indicated that there is no difference between the trades because each carrier negotiates contracts individually and confidentially with its customers.

### *The availability of vessel capacity and container equipment; and*

The respondents indicated there is no difference since decisions on these issues are made by the lines individually outside of conferences or discussion agreements. Evergreen pointed out that the container shipping industry is a highly capital intensive industry and it takes sustainable freight rates to maintain the service network.

### *The level or quality of liner services (including customer service, billing accuracy, etc.)*

Most respondents commented that there are no differences between the trades because customer service is handled individually by carriers, and conferences and discussion agreements are not involved in such matters. Zim noted that in general, conferences and discussion agreements provide a forum for dialogue with shippers to obtain their views and recommendations on service quality and improvements.

23. *Please identify any significant similarities and dissimilarities (for example, cargo volumes, scope or scale of operations, shipper mix, geography, market concentration levels, contracting practices, legal requirements, etc.) that existed in liner shipping markets in (1) the Far East/US trade and (2) the Far East/Europe trade during the period 2006-2010. In your opinion, how (if at all) would those similarities and dissimilarities likely impact a comparison of liner pricing and service behavior across those two trades?*

Respondents described a number of similarities that exist between the two trades including: cargo volume and cargo growth rates, commodity mix, container cargo from China dominates both trades, the same VOCCs and NVOCCs operate in both trades, security rules on filing advanced manifest are similar in the US and Europe.

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In terms of dissimilarities between the two trades, respondents cited the following: ports in Europe are more modern, efficient, and larger than US ports; labor practices are more costly and less productive at US ports; vessel calls in the US require more port time; Europe is more of a port-to-port trade than the US; the Suez canal to Europe can handle larger vessels than the Panama canal to the US Atlantic coast; Europe has more feeder and barge services than the US; NVOCCs ship more cargo in Europe than in the US; Europe no longer allows carriers to participate in price fixing agreements; the US trade is subject to greater regulations including tariff and service contract requirements; freight rates are less contractual for a shorter duration in Europe than the US; rates and surcharges vary more in Europe due to the repeal of the block exemption; services are more customized with all inclusive fixed contractual rates in the US than in Europe.

### Section F: Additional Questions for Vessel-Operating Common Carriers

24. *Please estimate the percentage of your liner revenues (globally) that were earned in each of the following trade lanes during CY 2010 to date: (a) North Europe/US liner trade; (b) Far East/US Liner trade; (c) Far East/Europe liner trade; (d) all other liner trades; and (e) Total (all liner trades combined).*

Eleven carriers requested confidentiality of their responses to question 24. The respondents providing public information indicated, aside from ACL, that 50 percent or more of their earnings were generated from other liner trades than those specified in (a) through (c) of question 24.

25. *In each of the three major East-West trades, please estimate the percentage of cargo your company carried for beneficial cargo owners (BCO) accounts, (b) OTI accounts, (c) other accounts (if any, please explain) during CY 2010 to date.*

Eleven carriers requested confidentiality of their responses to question 25. Based on the public information that was provided, ACL and Hamburg Sud only served the North Europe/US trade; ACL primarily carried BCO cargo (90 percent) in the trade, whereas the majority of cargo carried by Hamburg Sud was for OTIs (70 percent inbound and 55 percent outbound). OOCL reported that in the Europe trades, the majority of the cargo that it carried was for OTIs, while in the Far East/US trade, the majority of the cargo that it carried was for BCOs.

26. *In each if the three major East-West trade lanes, please indicate which lanes have tended to be the relatively most profitable and which was the relatively least profitable for each year between 2006 and 2010 (inclusive).*

Ten carriers requested confidentiality of their responses to question 26, and other respondents did not answer the question. OOCL was the only respondent to provide public information to question 26. In 2006, OOCL identified the Far East/US trade lane as the relatively most profitable and the Far East/Europe trade lane as the relatively least profitable. Thereafter, from 2007 through 2010, OOCL identified the Far East/Europe trade as the relatively most profitable and the North Europe/US trade lane as the relatively least profitable.

## Notice of Inquiry

27. *Based on your experience during the period from January 2006 to the present, have there been any significant changes in the nature of your business in the North Europe/US liner shipping market related to changes in:*

*Seasonality of cargo movements;*

Most respondents indicated that there was no change in cargo seasonality. Yang Ming noted that the trade is highly matured and not subject to such changes.

*Commodity values;*

Most respondents indicated that there was no change in commodity values, and Hanjin claimed that commodity value has no direct relationship with the revenue earnings of carriers.

*Directional cargo imbalances (imports vs. exports);*

Respondents indicated that currency exchange rates affected the cargo imbalance. As the US dollar declined in value against European currencies, US export cargo grew as European import cargo declined or remained unchanged. Consequently, toward the latter part of the review period, the directional balance of cargo volume stabilized.

*Number of carriers serving the trade; or*

Respondents did not observe any major changes in the number of carriers serving the trade; however, it was noted that carriers acted to reduce capacity and services over the review period.

*Minimum scale (number and size of vessels) needed to serve the trade efficiently.*

Respondents provided a variety of answers. CMA estimated the minimum size of vessels at 2,500 to 3,000 TEUs with five to six vessels per string. Hanjin estimated efficient vessel size at between 3,000 and 4,500 TEUs; K Line estimated average vessel size at 4,500 TEUs; and Hyundai commented that the trade has vessels of less than 5,000 TEUs in capacity. Hamburg Sud explained that the trade has a slim profit margin and it is critical to match supply and demand closely to reduce exposure to losses due to rate volatility. It added that rate volatility drives capacity and service down.

28. *Based on your company's experiences in the North Europe/US trade, please identify any substantial changes that occurred in your liner business (operations, marketing, pricing, etc.) in the two years following repeal of the EU liner conference exemption (CY 2009 and 2010) as compared with the two years preceding the repeal (2006-2007)? If any, please explain.*

Respondents identified rate volatility and the trend toward all-in rates as substantial changes in the trade in the latter half of the review period after the repeal. Hamburg Sud commented that shorter term contracts with lower volume commitments increased rate volatility in the trade. Hyundai noted that as the trade began to recover in 2010, the implementation of individual GRIs and surcharges created confusion in the market, and some shippers expressed a desire to discuss rate matters with carriers as a group. K Line stated that prior to the repeal, vessel capacity increased by 20 percent as new deliveries in other trades dumped more tonnage into the transatlantic, but when demand dropped in the post-repeal period, capacity was withdrawn from the trade, which has not been added back to

## Appendix I

date because of the weak outlook in demand. Yang Ming believes that the market changes in the latter half of the review period were due to the recession and said the repeal and loss of TACA had no impact on its business.

29. *Based on your experience during the period from January 2006 to present, have there been any significant changes in the nature of your business in the Far East/US liner shipping market related to changes in:*

*Seasonality of cargo movements;*

Carriers reported that the inbound peak season is shifting or expanding. Some carriers found that last year's inbound peak season began early and ended early. Other carriers reported that traditionally the inbound peak season began in July and continued through October, but now begins in June and runs through November. Outbound volumes are seasonal throughout the year mainly due to the harvesting and shipping of agricultural products.

*Commodity values;*

Some carriers commented that the value of US agricultural exports rose toward the end of the review period because of an increase in the demand in Far East nations for US products of corn, wheat, soybeans, and cotton.

*Directional cargo imbalances (imports vs. exports);*

Carriers acknowledged that the cargo imbalance poses challenges for them and that container imports from the Far East are overwhelmingly higher than US export containers. Also, US export cargo is much heavier than imports, so fewer loaded containers can be shipped westbound. Further, agricultural exports are unpredictable due to crop failures and the variance in harvest times. Some carriers expressed the view that the imbalance between imports and exports is improving.

*Number of carriers serving the trade;*

Carriers reported that service and capacity in the trade were reduced during the economic recession in 2009 and, as conditions improved in 2010, a few new carriers entered the trade, but their services and capacity are not comparable to the major carriers.

*Minimum scale (number and size of vessels) needed to serve the trade efficiently.*

Carriers indicated that the minimum scale of service in the trade is around five to six vessels with a capacity of 5,000 to 7,000 TEUs per vessel for the Far East/US Pacific Coast, and nine to ten vessels with a capacity of 4,000 to 5,000 TEUs per vessel for the Far East/US Atlantic Coast. Carriers noted that larger vessels with a capacity of 8,000 TEUs and greater are now more commonly deployed in the trade.

30. *Based on your experience during the period from January 2006 to the present, have there been any significant changes in the nature of your business in the Far East/EU liner shipping market related to changes in:*

*Seasonality of cargo movements;*

Most carriers said there was no change. However, Yang Ming stated the seasonal effect of the Chinese holidays has become more significant.

## Notice of Inquiry

### *Commodity values;*

Most carriers said there was no change in commodity values. Hyundai, however, said it has noticed that some high value cargo has transferred from air transport to ocean transport such as laptop computers. Evergreen said that the volume of solar panels and electronic goods is increasing.

### *Directional cargo imbalances (imports vs. exports);*

K Line submitted data prepared by Drewry Maritime Research, which shows that the imbalance ratio of imports vs. exports in the European trade with the Far East was 2.3 to 1 in 2006, and peaked in 2007 at 2.6 to 1. The ratio was at its lowest at 2.1 to 1 in 2009. Other carriers agreed with this assessment and attributed the reduction of the imbalance to growing exports from Europe due to the increased demand and purchasing power of China.

### *Number of carriers serving the trade;*

Carriers expressed the view that entry and exit in the trade depends on market conditions. If rates are high and profits are being made, new carriers often enter the trade in relatively limited scope. When supply and demand are out of balance, carriers exit the trade.

### *Minimum scale (number and size of vessels) needed to serve the trade efficiently.*

Since 2006, carriers reported that larger size ships are being deployed to achieve economies of scale. The minimum scale was eight or nine 5,000-7,000 TEU vessels for Far East/Europe services. As the trade grew and fuel prices rose, the minimum scale of service increased. The Far East/Europe services now require nine or ten 8,000-10,000 TEU vessels to be efficient and cost competitive. Carriers noted that it has become increasingly difficult for carriers to survive in this market without obtaining lower operating costs per container with larger vessels.

## Appendix II

# Rate Volatility Measures

In this appendix, the volatility of freight rates in both directions of the transatlantic and the headhaul directions of the Asia to US and Asia to Europe trades are examined. A summary of the NOI responses that deal specifically with rate volatility also is provided. Three rate volatility measures were examined: the Historical Volatility Index, Korea Maritime Institute Volatility Index, and the Erasmus Volatility Index. All were developed using the quarterly freight rates as shown in the table below.<sup>1</sup> While the measures indicate the magnitude by which volatility has changed up or down, none of the measures are capable of distinguishing what caused the change(s) – the repeal or the great recession.

**Table II.A Quarterly Freight Rates (US\$ per TEU)**

Period	Europe to Asia EB	Asia to Europe WB	Asia to US EB	US to Asia WB	US to Europe EB	Europe to US WB
1Q06	793	1454	1836	815	995	1829
2Q06	804	1408	1753	828	1010	1829
3Q06	806	1494	1715	839	1041	1854
4Q06	792	1545	1671	777	1066	1762
1Q07	755	1549	1643	737	1032	1692
2Q07	744	1658	1675	765	1067	1653
3Q07	792	2014	1709	751	1144	1667
4Q07	959	2109	1680	761	1175	1707
1Q08	1064	2030	1757	845	1261	1637
2Q08	1104	1937	1844	987	1381	1610
3Q08	1141	1837	1934	1170	1644	1600
4Q08	1109	1619	1890	1196	1731	1600
1Q09	853	1023	1670	913	1481	1325
2Q09	742	897	1383	802	1431	1168
3Q09	787	1061	1232	817	1424	1133
4Q09	920	1422	1322	883	1527	1250
1Q10	1090	2060	1440	978	1369	1115
2Q10	1263	2146	1680	1122	1539	1252
3Q10	1226	2177	1944	1158	1615	1359
4Q10	1116	1899	1808	1059	1615	1391

### The Historical Volatility Index

The steps taken to create the Historical Volatility Index (“HVI”) are similar to how stock traders express the annualized price volatility of a stock except that quarterly data, rather than daily data, are used. First, the percent change is calculated as the natural log of the ratio of the freight rate from each quarter to its previous quarter. The annualized HVI is calculated as the standard deviation of the percentage changes for the last four quarters and then multiplied by two using the “square root of time rule.”<sup>2</sup> The HVI measures how far rate swings over a

<sup>1</sup> The data sources are CI-Online, ELAA/CTS, TSA, and WTSA.

<sup>2</sup> In general, to get the volatility of a particular time span with the volatility calculated from certain periodic data, where the time span has K periods, one needs to multiply the volatility by the square root of K. Since the data is quarterly, the volatility is annualized by multiplying it by the square root of four, the number of quarters in a year.

## Appendix II

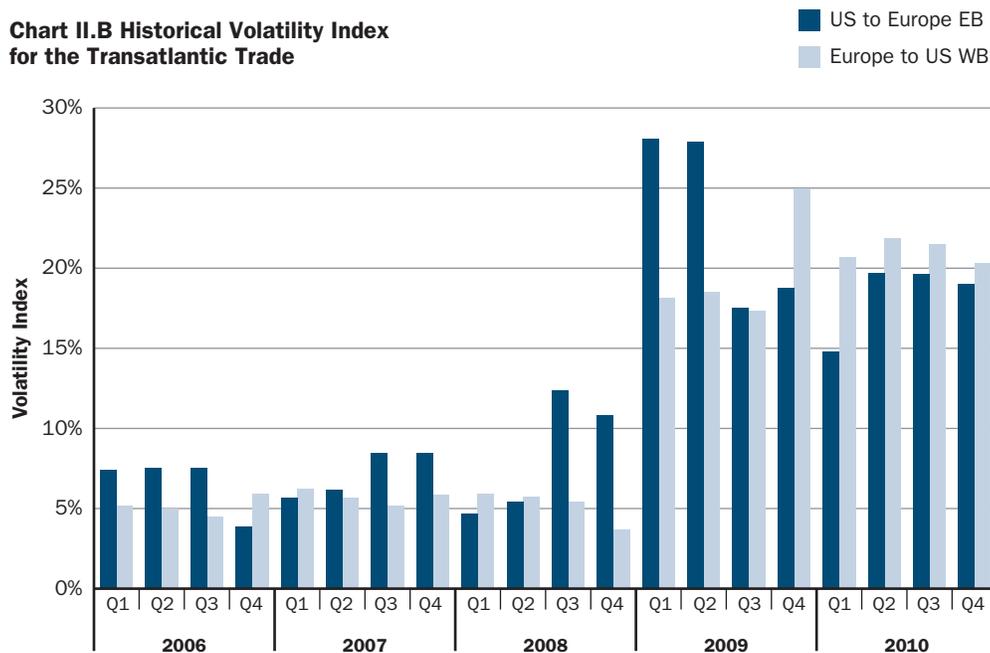
given period tend to stray from the average freight rate of the previous four quarters. Higher volatility means freight rates could change dramatically over a short period of time in either direction. Lower volatility means freight rates do not fluctuate so dramatically, but rather change in value at a more predictable pace over time.

### The Transatlantic Trade

The chart below shows the historical volatility of the freight rates in the trade between the US and Europe in both directions. The Historical Volatility Index remained relatively low at about seven percent until the third quarter of 2008 coinciding with the shock of the global economic recession and the repeal of the European Commission's repeal of the conference block exemption. For the US/Europe eastbound direction, the HVI reached its highest levels in the first half of 2009 at about 28 percent. For the Europe/US westbound direction, the HVI reached its highest level of 25 percent in the fourth quarter of 2009. By the end of 2010, the HVI for both directions had leveled off at about 20 percent or about three times higher than before the third quarter of 2008.

It is also interesting to note that before repeal of the block exemption, the freight rate volatility for cargo moving from the US to Europe eastbound direction was slightly more volatile at seven percent compared to the volatility of the freight rate for cargo moving from Europe to the US westbound at five percent. Since the fourth quarter of 2009, the westbound direction has become more volatile at 21 percent compared to 18 percent in the eastbound direction.

**Chart II.B Historical Volatility Index for the Transatlantic Trade**

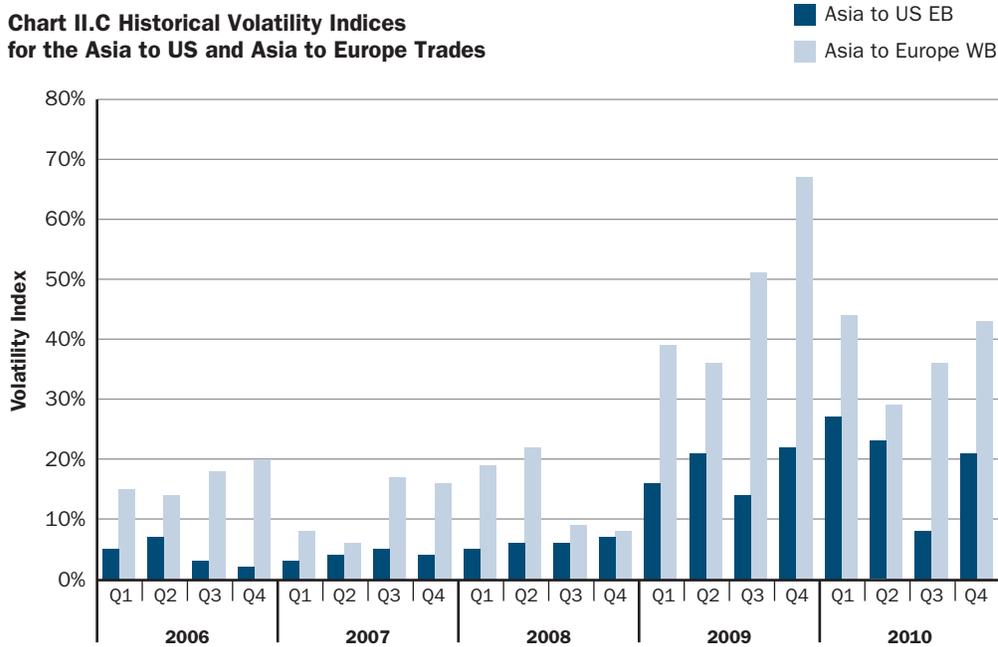


### Comparison between the Asia/US and Asia/Europe Trades

The chart below compares the historical volatility of the freight rates of cargo moving in the headhaul directions of trade between Asia and the US and Asia and Europe. In the period before repeal, the HVI in the Asia to Europe trade averaged 15 percent compared to five percent in the Asia to US trade, and after repeal, rate volatility increased to 39 percent in the Asia to Europe trade and to 18 percent in the Asia to US trade.

## Rate Volatility Measures

**Chart II.C Historical Volatility Indices for the Asia to US and Asia to Europe Trades**



### The KMI Volatility Index

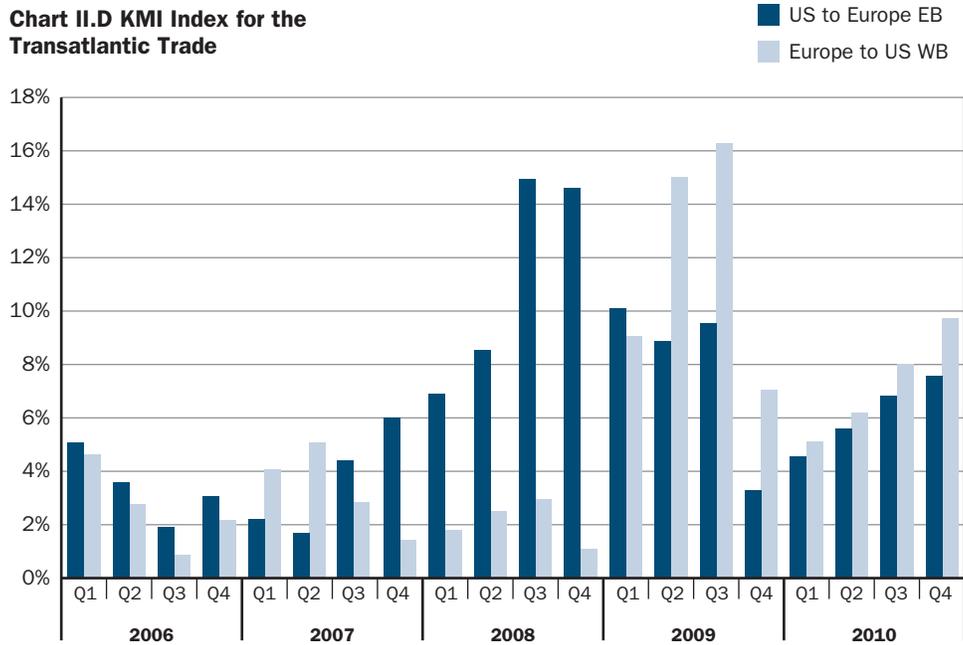
The KMI Volatility Index (“KVI”) is calculated as the standard deviation of the freight rates of the last four quarters divided by their average. This approach is similar to what was used in the Korea Maritime Institute paper (Appendix X) except that instead of just pre- and post-repeal calculations, the index is calculated as a quarterly series. The KVI measures how far rate swings over a given period tend to stray from the average freight rate of the previous four quarters.

### The Transatlantic Trade

The chart below shows the KMI Volatility Index of the freight rates between the US and Europe in both directions. The KVI averaged five percent and three percent in the period of time before repeal of the block exemption in the eastbound and westbound directions, respectively. After repeal, the KVI increased to eight percent in the eastbound direction and to nine percent westbound. By this measure, volatility was at its greatest during the third quarter of 2008 for the eastbound direction and during the third quarter of 2009 for the westbound direction. This measure also shows that freight rate volatility was higher in the eastbound direction before repeal and higher in the westbound direction after repeal.

## Appendix II

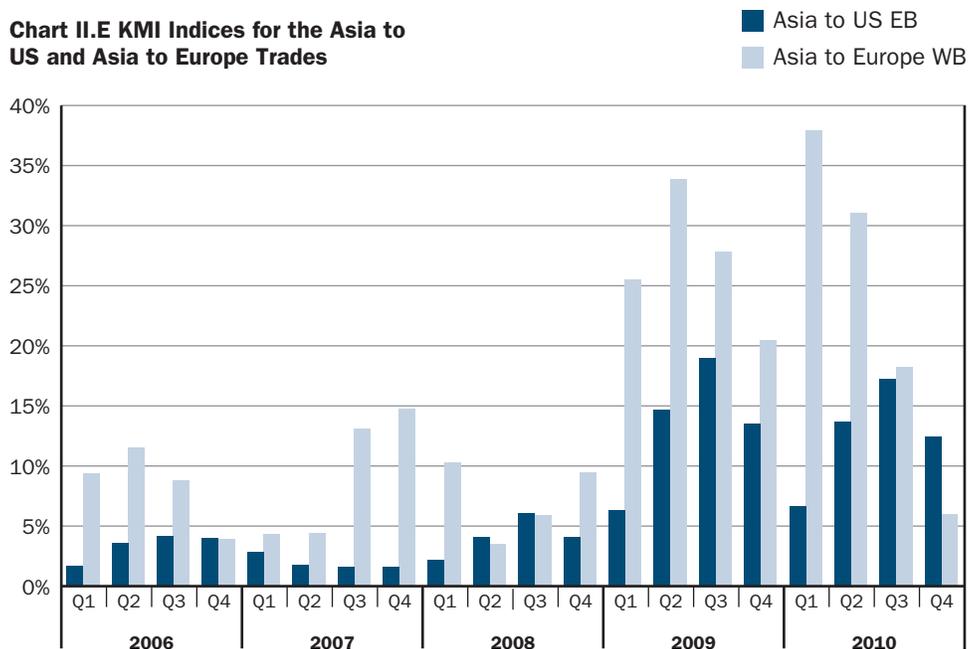
**Chart II.D KMI Index for the Transatlantic Trade**



### Comparison between the Asia/US and Asia/Europe Trades

The chart below compares the KVI of the freight rates of cargo moving in the headhaul directions of trade between Asia and the US and Asia and Europe. In the period before repeal of the block exemption, the KVI in the Asia to Europe trade averaged eight percent compared to three percent in the Asia to US trade, and after repeal, rate volatility increased to 23 percent in the Asia to Europe trade and to 12 percent in the Asia to US trade. According to this measure, the average freight volatility in both trades is four times greater after the repeal of the block exemption than before.

**Chart II.E KMI Indices for the Asia to US and Asia to Europe Trades**



## Rate Volatility Measures

### The Erasmus Volatility Index

The first two measures of rate volatility simply observe absolute variations in freight rates over time and ignore the fact that liner shipping is part of an economic system, where fluctuations in rates may have more than one reason, such as increases or decreases in demand for transportation or increases in the cost of transportation. For this reason, a third measure of rate volatility is presented where quarterly changes in freight rates are compared to the US GDP deflator with a base year of 2005=100 as a benchmark.

This approach was first outlined in the Statistical Analysis on Freight Rate Stability Appendix of the Erasmus Report<sup>3</sup> and suggests that a change in period-to-period freight rates should not deviate from changes in the overall level of prices in the economy. The Erasmus Volatility Index (“EVI”) is calculated as the ratio of the percentage change in the freight rate to the percentage change in the GDP deflator. When the EVI is positive, freight rates and the deflator are moving in the same direction (both moving up or both moving down). When the EVI is negative, freight rates and the deflator are moving in opposite directions. The greater the magnitude of this measure in either direction indicates greater deviation or volatility away from the US GDP deflator as a benchmark for price movements in the overall economy. A value of +1 indicates perfect co-movement. There is no upper or lower boundary.

The table below provides the US GDP Deflator data used to develop this measure.<sup>4</sup> US GDP in the fourth quarters of 2008 and 2009 shrank from the quarter before them.

**Table II.F US GDP Deflator with Base Year 2005=100**

Year\Qtr	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2006	102.07	102.97	103.76	104.22
2007	105.35	106.17	106.71	106.94
2008	107.42	108.33	109.54	109.22
2009	109.48	109.56	109.75	109.67
2010	109.95	110.49	111.04	111.15

Source: US Department of Commerce, Bureau of Economic Analysis

### The Transatlantic Trade

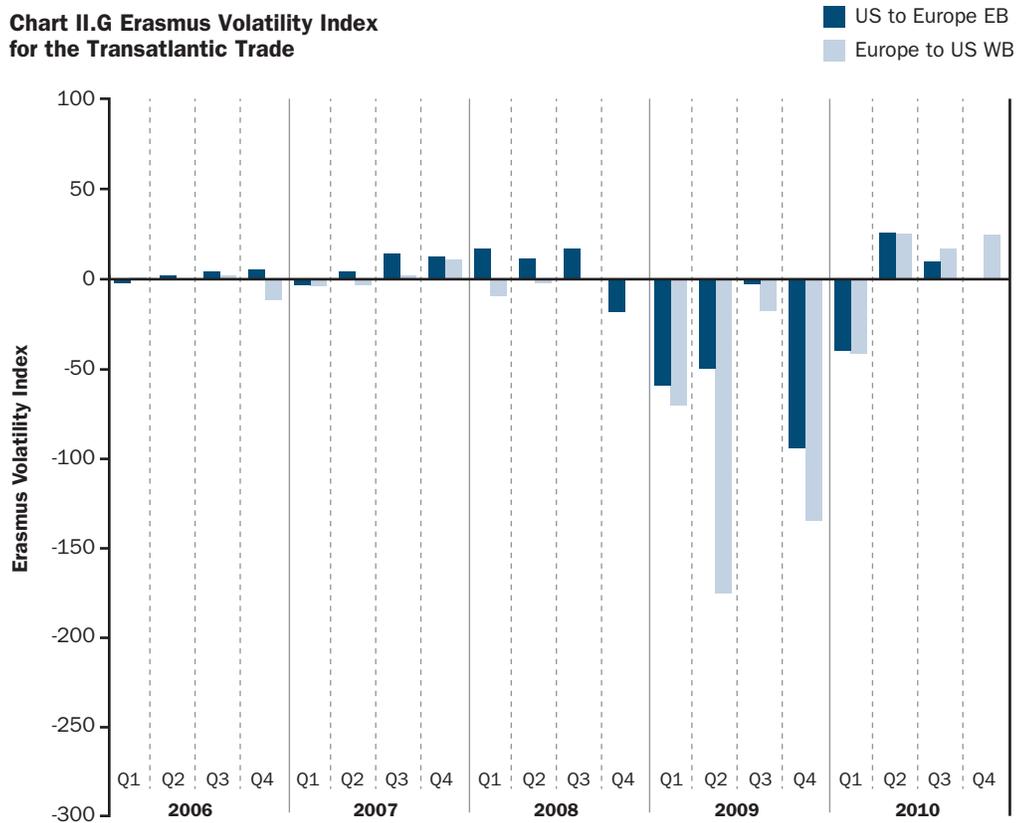
The chart below shows the EVI of the freight rates between the US and Europe trade in both directions. The EVI remained relatively stable until the third quarter of 2008 coinciding with the shock of the global economic recession and repeal of the conference block exemption when freight rates began a steep decline. It was not until the second quarter of 2010 that freight rates began to improve. This measure also shows that freight rate volatility was higher in the eastbound direction before repeal and higher in the westbound direction after repeal. Before the third quarter of 2008, the EVI averaged six points above unity (perfect co-movement) in the eastbound direction and two points below in the westbound direction. After the repeal, the EVI averaged 26 points and 42 points below unity in the eastbound and westbound directions, respectively.

<sup>3</sup> The report can be found on the European Commission’s official website at [http://ec.europa.eu/competition/consultations/2003\\_reg\\_4056\\_86/final\\_report\\_erasmus.pdf](http://ec.europa.eu/competition/consultations/2003_reg_4056_86/final_report_erasmus.pdf)

<sup>4</sup> The US GDP data are published by the US Department of Commerce, Bureau of Economic Analysis, at <http://www.bea.gov/national/>. The US GDP deflator is calculated as the Nominal GDP (current market prices) divided by the “Real” GDP (chained 2005 dollars) times 100.

## Appendix II

**Chart II.G Erasmus Volatility Index for the Transatlantic Trade**

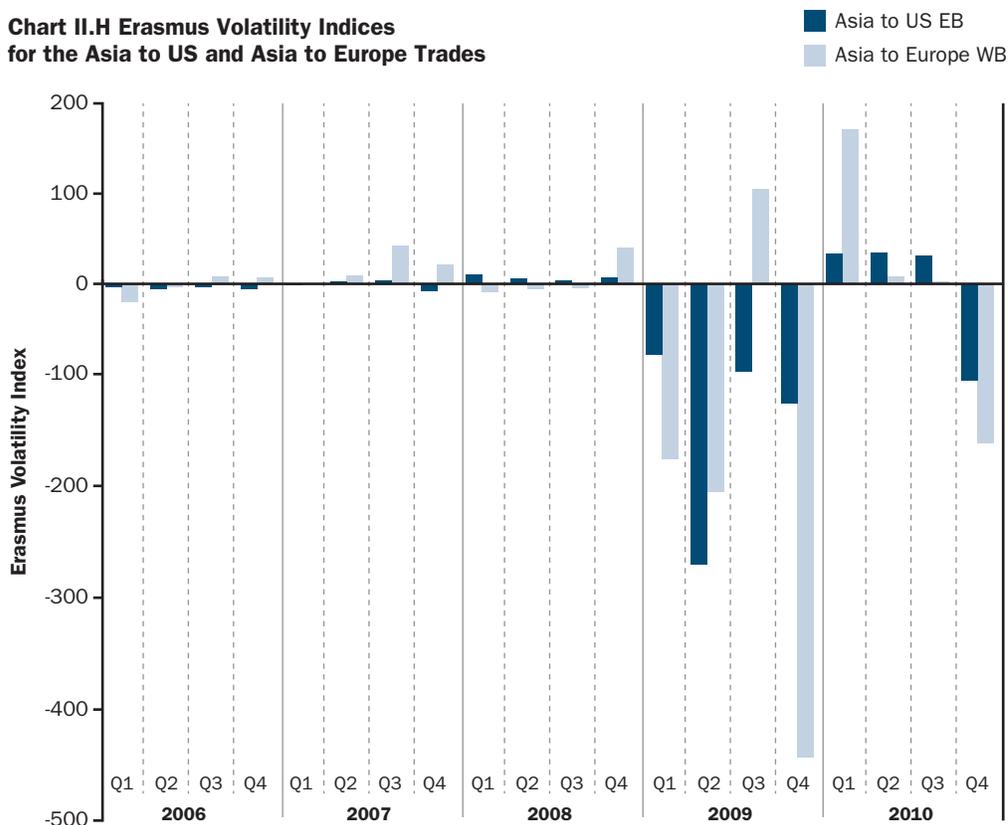


### Comparison between the Asia/US and Asia/Europe Trades

The chart below compares the EVI of the freight rates of cargo moving in the headhaul directions of trade between Asia and the US and Asia and Europe. In the period before repeal of the block exemption, the freight rates in both trades remained relatively stable when compared against the US GDP as the benchmark. The Asia to Europe trade was slightly more volatile with the EVI averaging 11 points above unity compared to less than one point below for the Asia to US trade. After the repeal, the average EVI for the Asia to Europe trade dropped to 65 points below unity and to 48 points below in the Asia to US trade.

## Rate Volatility Measures

**Chart II.H Erasmus Volatility Indices  
for the Asia to US and Asia to Europe Trades**



### Summary of NOI Responses Regarding Rate Volatility

This section summarizes responses that deal with rate volatility to the FMC's Notice of Inquiry. Fifteen liner carriers, two ship owners' associations, and one logistics consulting firm provided responses.

Most carriers stated that since the termination of the block exemption, freight rates and surcharges have been adjusted more frequently than what was traditionally the case before, and most attribute this to the abolishment of the FEFC. One carrier attributed the rate volatility to OSRA and said the repeal had no effect in this regard, and a few suggested that it may not be possible to determine whether this volatility is attributed to the global recession and gradual recovery or to regulatory issues.

The Asian Shipowners' Forum (ASF) stated that the lack of antitrust immunity in the European trades has had several negative impacts including greater rate volatility in the Asia-Europe trades than in comparable US trades.

As an example, they compared freight rate data from CI Online and ELAA/CTS to show that before the EU policy change the standard deviation of rates (their measure of volatility) in the Asia-Europe trade was just 1.2 times that of the transpacific trade, and that afterwards, rate volatility for the Asia-Europe trade increased to 2.5 times the deviation of rates in the transpacific.

## Appendix II

**Figure 1: Rate Stability Before EU Policy Change**  
Standard deviation of AET WB rate is 1.2 times higher than TPT EB  
Source: CI Quarterly Rate Index Data



Finally, some carriers concluded that rate volatility is greater in the European trades than in the US trades because the majority of US-related trades are under long term service contracts. Rates and surcharges adjust less frequently than in the Far East/Europe trade, which has fewer contracts and more spot rates that change frequently.

## Appendix III

# Observations on THC and BAF Surcharge Trends

### A Review of SERVCON's Surcharge Data in the Three Study Trades

Using the FMC's service contract filing system ("SERVCON"), selected service contract data over the five-year study period in the three headhaul trades were compiled for this brief study of Terminal Handling Charge ("THC") and Bunker Adjustment Factor ("BAF") trends – North Europe to the US, Far East to Europe, and Far East to the US. Contracts were selected for major shippers who moved products in each of the trades. Additionally, the Study examined the service contract data of a number of shippers of the major moving commodities, as identified by PIERS data, moving in the North Europe/US trade. This appendix reviews the behavior of surcharges contained in those service contracts over the five-year study period. The THC and BAF are discussed below. Specifically, the Study sought to answer the following three questions in describing the trends. First, does the data show a movement to 'all inclusive' pricing of service contracts? Second, is there a degree of uniformity among the various carriers' surcharges? Lastly, has the level of the surcharges changed in any descriptive manner?

Origin THCs ("OTHCs") in the westbound North Europe to US trade showed a slight movement away from all inclusive, or all-in, rates with 71.4 percent of the service contracts in this time series moving under all-in rates at the beginning of the study period and 70.0 percent at the end. Conversely, destination THCs ("DTHCs") showed a slight movement towards all-in rates with 71.4 percent of service contracts being all-in at the beginning of the study period, increasing to 81 percent in fourth quarter 2009 through April 2010, and then slightly ebbing to end the study period at 75 percent. (See Table III.A). In answering the second question in this trade, both the origin and the destination terminal handling charges were examined. It appeared that there was significantly less uniformity in the origin terminal handling charges than the destination terminal handling charges. The level of both the origin and destination terminal handling charges fluctuated throughout the study period, with the average OTHC increasing by approximately 25 percent, while the DTHC decreased by approximately 10 percent.<sup>1</sup>

The story of the BAF in the westbound Europe to US trade is one of increasing use and, thus, a move away from rates being 'all inclusive' of all surcharges. (See Table III.A). The proportion of service contracts containing no separate BAF appears to have peaked in late 2007, approximately one year prior to the repeal, at 76 percent. By the end of the study period, 60 percent of service contracts had a separately stated BAF. With respect to the degree of uniformity, BAFs did not appear to be uniformly assessed throughout the period. The degree of dissimilarity increased over the study period as the number of service contracts having separately stated BAFs increased.<sup>2</sup> The average BAF increased steadily through September 2008, but since that time it has been on a downward trajectory with its lowest level occurring in the second quarter of 2009, at a level representing just 49 percent of the level at the start of the study period.<sup>3</sup>

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1 Although the average decreased by this amount, with the exception of one major carrier, the destination THC remained the same.

2 In the pre-repeal period, when TACA was operating, there was considerable uniformity in the level of BAF, not only among TACA members but also among independent carriers.

3 These changes in BAF closely mirrored movements in the market price of bunker fuel that reached an all-time high in July 2008 and a low in mid-2009, when the full force of the global recession was being felt.

## Appendix III

In terms of emergency BAF (“EBAF”), there did not appear to be any change toward assessing a separate EBAF throughout the study period. The same number of contracts (2) had a separately stated EBAF throughout most of the period. The average level of the EBAF increased 43 percent from the beginning of the study period to the time of repeal. For several months post-repeal, no service contracts in this sample contained separate EBAFs. However, in August 2009, those contracts returned to a separately stated EBAF, but at levels significantly lower than in the pre-repeal period.

As mentioned above, for the North Europe to US westbound trade only, surcharge data based on the service contract data of shippers of major moving commodities was reviewed. (See Table III.B). These data show a marked increase in the percentage of service contracts that were ‘all inclusive’ of surcharges, both THC and BAF. The trend towards all inclusive rates was, as expected, more robust in terms of THCs. The degree of uniformity of surcharges appeared to be more pronounced in the instant time series, especially during the time in which a rate conference existed in the trade (i.e., prior to repeal). With respect to levels of average surcharges, the major moving commodity shippers’ contract data shows the impact of the conference pricing on the destination THC, where the average DTHC remained the same until late 2008. With respect to BAF, the major moving commodity shippers’ contracts appear to have contained much higher average charges. The EBAF was generally eschewed until just prior to the repeal, and again from February 2009 through July 2009.

In the westbound Far East to Europe trade, the percentage of service contracts all inclusive of THCs nearly doubled throughout the study period, with most of that increase coming after October 2008 in the post-repeal period. (See Table III.C). The degree of uniformity of the THCs became less consistent throughout the study period, with a marked increase in variation after October 2008. The average THC level has increased by 34 percent, with most of that increase occurring after the repeal of the block exemption.

In terms of the application of BAF in this trade, there does not appear to have been a large conversion to all inclusive contracts. At the start of 2006, approximately 36 percent of the contracts did not contain a separately stated BAF. Throughout the period, the percentage fluctuated between a maximum of 47.4 percent and a minimum of 21.1 percent and ended the period at the maximum level again. In this trade, there did not appear to be a high degree of uniformity of BAF levels between carriers. The average BAF more than doubled from the beginning of the study period through the fourth quarter of 2008, then diminished slightly, but still remained well above its starting point at the end of the study period. In this sample of service contracts in the trade, EBAFs were not separately stated until early 2010.

In the Far East to US trade, the percentage of contracts with all inclusive service contract rates increased steadily through the first quarter of 2010, when it peaked at 55 percent. (See Table III.D). Since that time, there has been a slight decrease with approximately 50 percent of the contracts in this cross-section being all inclusive at the end of the study period. In this trade, there was an unusually high degree of uniformity in the THC levels throughout the study period. Any variation appeared to be a function of the origin port, for example, with all contracts originating from Hong Kong being assessed the same THC amount. The average level of OTHC assessed has decreased over the study period, and remains at a much lower level than OTHCs in the other trades examined in this study.

The percentage of service contracts inclusive of BAF decreased significantly in the Far East to US trade. At the end of the study period, the vast majority of service contracts specified a BAF. The average BAF level increased significantly through 2008, but since then has returned to a level similar to that of early 2006.

## Observations on THC and BAF Surcharge Trends

**Table III.A**  
**North Europe to the US Westbound Trade**  
**THCs and BAFs (Per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
Jan-06	14	10	71.4%	\$191	10	71.4%	\$500	10	71.4%	\$404	12	85.7%	\$846
Feb-06	15	11	73.3%	\$191	11	73.3%	\$500	10	66.7%	\$539	13	86.7%	\$846
Mar-06	16	12	75.0%	\$191	12	75.0%	\$500	11	68.8%	\$539	14	87.5%	\$846
Apr-06	16	12	75.0%	\$191	12	75.0%	\$500	11	68.8%	\$547	14	87.5%	\$846
May-06	19	13	68.4%	\$231	15	78.9%	\$427	13	68.4%	\$558	17	89.5%	\$846
Jun-06	19	13	68.4%	\$231	15	78.9%	\$427	13	68.4%	\$551	17	89.5%	\$846
Jul-06	20	13	65.0%	\$222	15	75.0%	\$441	13	65.0%	\$631	18	90.0%	\$890
Aug-06	20	13	65.0%	\$222	15	75.0%	\$441	13	65.0%	\$639	18	90.0%	\$890
Sep-06	20	13	65.0%	\$222	15	75.0%	\$441	13	65.0%	\$639	18	90.0%	\$890
Oct-06	20	13	65.0%	\$222	15	75.0%	\$441	13	65.0%	\$639	18	90.0%	\$890
Nov-06	20	13	65.0%	\$222	15	75.0%	\$441	13	65.0%	\$639	18	90.0%	\$890
Dec-06	20	13	65.0%	\$222	15	75.0%	\$441	13	65.0%	\$639	18	90.0%	\$890
Jan-07	21	14	66.7%	\$239	15	71.4%	\$441	14	66.7%	\$576	19	90.5%	\$818
Feb-07	21	14	66.7%	\$239	15	71.4%	\$441	14	66.7%	\$568	19	90.5%	\$818
Mar-07	21	14	66.7%	\$239	15	71.4%	\$441	14	66.7%	\$568	19	90.5%	\$818
Apr-07	21	14	66.7%	\$239	15	71.4%	\$441	14	66.7%	\$568	19	90.5%	\$818
May-07	21	14	66.7%	\$194	16	76.2%	\$484	15	71.4%	\$531	19	90.5%	\$818
Jun-07	21	14	66.7%	\$194	16	76.2%	\$484	15	71.4%	\$531	19	90.5%	\$818
Jul-07	21	14	66.7%	\$194	16	76.2%	\$484	15	71.4%	\$646	19	90.5%	\$917
Aug-07	21	14	66.7%	\$194	16	76.2%	\$484	15	71.4%	\$646	19	90.5%	\$917
Sep-07	21	14	66.7%	\$194	16	76.2%	\$484	15	71.4%	\$663	19	90.5%	\$917
Oct-07	21	15	71.4%	\$198	17	81.0%	\$480	16	76.2%	\$711	19	90.5%	\$1,030
Nov-07	21	15	71.4%	\$198	17	81.0%	\$480	15	71.4%	\$613	19	90.5%	\$1,030
Dec-07	21	15	71.4%	\$198	17	81.0%	\$480	14	66.7%	\$699	19	90.5%	\$1,030
Jan-08	21	16	76.2%	\$214	17	81.0%	\$480	14	66.7%	\$699	19	90.5%	\$1,030
Feb-08	21	16	76.2%	\$214	17	81.0%	\$480	14	66.7%	\$716	19	90.5%	\$1,030

Appendix III

**Table III.A (continued)**  
**North Europe to the US Westbound Trade**  
**THCs and BAFs (Per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
Mar-08	21	16	76.2%	\$214	17	81.0%	\$480	14	66.7%	\$716	19	90.5%	\$1,030
Apr-08	21	16	76.2%	\$214	17	81.0%	\$480	14	66.7%	\$716	19	90.5%	\$1,030
May-08	21	15	71.4%	\$220	16	76.2%	\$484	14	66.7%	\$872	20	95.2%	\$1,214
Jun-08	21	15	71.4%	\$220	16	76.2%	\$484	14	66.7%	\$879	20	95.2%	\$1,214
Jul-08	21	15	71.4%	\$235	16	76.2%	\$484	13	61.9%	\$879	20	95.2%	\$1,214
Aug-08	21	15	71.4%	\$235	16	76.2%	\$484	11	52.4%	\$728	20	95.2%	\$1,214
Sep-08	21	15	71.4%	\$235	16	76.2%	\$484	11	52.4%	\$830	20	95.2%	\$1,214
Oct-08	21	15	71.4%	\$248	16	76.2%	\$484	11	52.4%	\$729	21	100.0%	N.A.
Nov-08	21	15	71.4%	\$248	16	76.2%	\$484	10	47.6%	\$697	21	100.0%	N.A.
Dec-08	21	15	71.4%	\$248	16	76.2%	\$484	10	47.6%	\$685	21	100.0%	N.A.
Jan-09	21	15	71.4%	\$222	16	76.2%	\$484	8	38.1%	\$524	21	100.0%	N.A.
Feb-09	21	15	71.4%	\$222	16	76.2%	\$462	8	38.1%	\$341	21	100.0%	N.A.
Mar-09	21	15	71.4%	\$222	16	76.2%	\$462	8	38.1%	\$344	21	100.0%	N.A.
Apr-09	21	15	71.4%	\$222	16	76.2%	\$462	6	28.6%	\$320	21	100.0%	N.A.
May-09	21	15	71.4%	\$230	16	76.2%	\$462	9	42.9%	\$284	21	100.0%	N.A.
Jun-09	21	15	71.4%	\$230	16	76.2%	\$440	9	42.9%	\$199	21	100.0%	N.A.
Jul-09	21	15	71.4%	\$230	16	76.2%	\$440	9	42.9%	\$218	20	95.2%	\$320
Aug-09	21	15	71.4%	\$230	16	76.2%	\$440	8	38.1%	\$220	20	95.2%	\$370
Sep-09	21	15	71.4%	\$230	17	81.0%	\$445	8	38.1%	\$242	20	95.2%	\$370
Oct-09	21	15	71.4%	\$230	17	81.0%	\$445	8	38.1%	\$273	20	95.2%	\$420
Nov-09	21	15	71.4%	\$230	17	81.0%	\$445	7	33.3%	\$273	20	95.2%	\$420
Dec-09	21	15	71.4%	\$230	17	81.0%	\$445	7	33.3%	\$258	20	95.2%	\$420
Jan-10	21	14	66.7%	\$280	17	81.0%	\$445	7	33.3%	\$285	20	95.2%	\$440
Feb-10	21	14	66.7%	\$280	17	81.0%	\$433	7	33.3%	\$286	20	95.2%	\$450
Mar-10	21	14	66.7%	\$280	17	81.0%	\$433	7	33.3%	\$286	20	95.2%	\$440
Apr-10	21	14	66.7%	\$280	17	81.0%	\$433	7	33.3%	\$289	20	95.2%	\$450

## Observations on THC and BAF Surcharge Trends

**Table III.A (continued)**  
**North Europe to the US Westbound Trade**  
**THCs and BAFs (Per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
May-10	21	15	71.4%	\$248	16	76.2%	\$446	8	38.1%	\$299	19	90.5%	\$460
Jun-10	21	15	71.4%	\$239	16	76.2%	\$446	8	38.1%	\$304	19	90.5%	\$430
Jul-10	20	14	70.0%	\$239	15	75.0%	\$446	8	40.0%	\$297	18	90.0%	\$420
Aug-10	20	14	70.0%	\$239	15	75.0%	\$446	9	45.0%	\$303	18	90.0%	\$430
Sep-10	20	14	70.0%	\$239	15	75.0%	\$446	9	45.0%	\$304	18	90.0%	\$430
Oct-10	20	14	70.0%	\$239	15	75.0%	\$446	9	45.0%	\$303	18	90.0%	\$430
Nov-10	20	14	70.0%	\$239	15	75.0%	\$446	8	40.0%	\$304	18	90.0%	\$430
Dec-10	20	14	70.0%	\$239	15	75.0%	\$446	8	40.0%	\$309	18	90.0%	\$460

Appendix III

**Table III.B**  
**North Europe to the US Westbound Trade**  
**THCs and BAFs (Per FEU)**  
**Major Moving Commodity Shippers' Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
Jan-06	32	9	28.1%	\$190	10	31.3%	\$500	12	37.5%	\$747	32	100.0%	N.A.
Feb-06	33	9	27.3%	\$191	9	27.3%	\$500	12	36.4%	\$758	33	100.0%	N.A.
Mar-06	33	9	27.3%	\$191	9	27.3%	\$500	12	36.4%	\$762	33	100.0%	N.A.
Apr-06	32	9	28.1%	\$190	9	28.1%	\$500	12	37.5%	\$758	32	100.0%	N.A.
May-06	33	9	27.3%	\$194	9	27.3%	\$500	11	33.3%	\$770	33	100.0%	N.A.
Jun-06	33	9	27.3%	\$194	9	27.3%	\$500	11	33.3%	\$808	33	100.0%	N.A.
Jul-06	35	10	28.6%	\$194	10	28.6%	\$500	12	34.3%	\$825	35	100.0%	N.A.
Aug-06	35	10	28.6%	\$189	11	31.4%	\$500	11	31.4%	\$813	35	100.0%	N.A.
Sep-06	35	10	28.6%	\$189	11	31.4%	\$500	11	31.4%	\$813	35	100.0%	N.A.
Oct-06	35	10	28.6%	\$189	11	31.4%	\$500	11	31.4%	\$824	35	100.0%	N.A.
Nov-06	35	10	28.6%	\$189	11	31.4%	\$500	11	31.4%	\$758	35	100.0%	N.A.
Dec-06	35	10	28.6%	\$189	11	31.4%	\$500	11	31.4%	\$754	35	100.0%	N.A.
Jan-07	35	10	28.6%	\$209	10	28.6%	\$500	11	31.4%	\$712	35	100.0%	N.A.
Feb-07	36	10	27.8%	\$209	10	27.8%	\$500	11	30.6%	\$698	36	100.0%	N.A.
Mar-07	36	10	27.8%	\$210	10	27.8%	\$500	11	30.6%	\$703	36	100.0%	N.A.
Apr-07	36	10	27.8%	\$210	10	27.8%	\$500	11	30.6%	\$703	36	100.0%	N.A.
May-07	36	10	27.8%	\$210	10	27.8%	\$500	11	30.6%	\$721	36	100.0%	N.A.
Jun-07	36	10	27.8%	\$210	10	27.8%	\$500	11	30.6%	\$824	36	100.0%	N.A.
Jul-07	36	10	27.8%	\$210	10	27.8%	\$500	11	30.6%	\$843	36	100.0%	N.A.
Aug-07	36	10	27.8%	\$210	10	27.8%	\$500	11	30.6%	\$852	36	100.0%	N.A.
Sep-07	36	10	27.8%	\$210	10	27.8%	\$500	11	30.6%	\$970	36	100.0%	N.A.
Oct-07	36	10	27.8%	\$210	10	27.8%	\$500	12	33.3%	\$1,006	36	100.0%	N.A.
Nov-07	36	9	25.0%	\$208	10	27.8%	\$500	12	33.3%	\$997	36	100.0%	N.A.
Dec-07	36	9	25.0%	\$208	10	27.8%	\$500	12	33.3%	\$1,030	36	100.0%	N.A.
Jan-08	36	10	27.8%	\$220	11	30.6%	\$500	12	33.3%	\$1,018	36	100.0%	N.A.
Feb-08	36	9	25.0%	\$222	10	27.8%	\$500	12	33.3%	\$1,056	36	100.0%	N.A.

## Observations on THC and BAF Surcharge Trends

**Table III.B (continued)**  
**North Europe to the US Westbound Trade**  
**THCs and BAFs (Per FEU)**  
**Major Moving Commodity Shippers' Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
Mar-08	36	9	25.0%	\$222	10	27.8%	\$500	14	38.9%	\$1,023	36	100.0%	N.A.
Apr-08	36	9	25.0%	\$222	10	27.8%	\$500	15	41.7%	\$1,008	36	100.0%	N.A.
May-08	34	9	26.5%	\$223	9	26.5%	\$500	15	44.1%	\$964	34	100.0%	N.A.
Jun-08	36	10	27.8%	\$224	10	27.8%	\$500	15	41.7%	\$943	36	100.0%	N.A.
Jul-08	36	11	30.6%	\$232	11	30.6%	\$500	16	44.4%	\$739	36	100.0%	N.A.
Aug-08	36	11	30.6%	\$232	11	30.6%	\$500	16	44.4%	\$771	36	100.0%	N.A.
Sep-08	36	11	30.6%	\$232	11	30.6%	\$500	15	41.7%	\$804	36	100.0%	N.A.
Oct-08	36	11	30.6%	\$230	11	30.6%	\$500	16	44.4%	\$732	35	97.2%	\$754
Nov-08	36	11	30.6%	\$230	11	30.6%	\$500	17	47.2%	\$749	35	97.2%	\$668
Dec-08	35	13	37.1%	\$236	13	37.1%	\$500	20	57.1%	\$763	34	97.1%	\$570
Jan-09	33	13	39.4%	\$229	13	39.4%	\$489	18	54.5%	\$589	32	97.0%	\$428
Feb-09	32	14	43.8%	\$239	14	43.8%	\$488	17	53.1%	\$330	32	100.0%	N.A.
Mar-09	32	17	53.1%	\$244	17	53.1%	\$478	19	59.4%	\$275	32	100.0%	N.A.
Apr-09	31	18	58.1%	\$247	18	58.1%	\$475	19	61.3%	\$221	31	100.0%	N.A.
May-09	29	18	62.1%	\$238	18	62.1%	\$470	18	62.1%	\$219	29	100.0%	N.A.
Jun-09	29	18	62.1%	\$238	18	62.1%	\$470	18	62.1%	\$221	29	100.0%	N.A.
Jul-09	30	19	63.3%	\$238	19	63.3%	\$470	18	60.0%	\$233	30	100.0%	N.A.
Aug-09	30	19	63.3%	\$239	19	63.3%	\$470	18	60.0%	\$260	29	96.7%	\$100
Sep-09	30	19	63.3%	\$239	19	63.3%	\$470	18	60.0%	\$310	28	93.3%	\$129
Oct-09	31	20	64.5%	\$240	20	64.5%	\$470	19	61.3%	\$375	28	90.3%	\$167
Nov-09	31	20	64.5%	\$240	20	64.5%	\$470	19	61.3%	\$380	28	90.3%	\$164
Dec-09	32	21	65.6%	\$243	21	65.6%	\$450	19	59.4%	\$372	28	87.5%	\$269
Jan-10	31	21	67.7%	\$238	21	67.7%	\$445	18	58.1%	\$394	28	90.3%	\$184
Feb-10	30	21	70.0%	\$237	21	70.0%	\$427	18	60.0%	\$390	27	90.0%	\$179
Mar-10	31	20	64.5%	\$236	21	67.7%	\$434	18	58.1%	\$401	28	90.3%	\$189
Apr-10	31	19	61.3%	\$236	20	64.5%	\$431	18	58.1%	\$398	30	96.8%	\$254

## Appendix III

**Table III.B (continued)**  
**North Europe to the US Westbound Trade**  
**THCs and BAFs (Per FEU)**  
**Major Moving Commodity Shippers' Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
May-10	30	19	63.3%	\$229	20	66.7%	\$424	18	60.0%	\$396	29	96.7%	\$266
Jun-10	30	19	63.3%	\$228	20	66.7%	\$424	18	60.0%	\$399	29	96.7%	\$246
Jul-10	30	20	66.7%	\$236	20	66.7%	\$424	17	56.7%	\$399	28	93.3%	\$398
Aug-10	30	20	66.7%	\$236	20	66.7%	\$424	17	56.7%	\$392	28	93.3%	\$374
Sep-10	30	20	66.7%	\$236	20	66.7%	\$424	17	56.7%	\$392	28	93.3%	\$374
Oct-10	28	18	64.3%	\$238	18	64.3%	\$424	16	57.1%	\$415	26	92.9%	\$384
Nov-10	28	18	64.3%	\$238	18	64.3%	\$424	16	57.1%	\$413	26	92.9%	\$372
Dec-10	29	19	65.5%	\$237	19	65.5%	\$424	17	58.6%	\$418	27	93.1%	\$386

## Observations on THC and BAF Surcharge Trends

**Table III.C**  
**Far East-Europe Westbound Trade**  
**THCs and BAFs (per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
Jan-06	14	3	21.4%	\$176	3	21.4%	\$160	5	35.7%	\$394	14	100.0%	N.A.
Feb-06	15	4	26.7%	\$176	4	26.7%	\$160	6	40.0%	\$391	15	100.0%	N.A.
Mar-06	15	4	26.7%	\$176	4	26.7%	\$160	6	40.0%	\$402	15	100.0%	N.A.
Apr-06	16	4	25.0%	\$184	4	25.0%	\$175	6	37.5%	\$423	16	100.0%	N.A.
May-06	19	7	36.8%	\$200	5	26.3%	\$201	7	36.8%	\$426	19	100.0%	N.A.
Jun-06	19	7	36.8%	\$200	5	26.3%	\$201	7	36.8%	\$440	19	100.0%	N.A.
Jul-06	19	7	36.8%	\$200	5	26.3%	\$201	7	36.8%	\$442	19	100.0%	N.A.
Aug-06	19	7	36.8%	\$200	5	26.3%	\$203	7	36.8%	\$439	19	100.0%	N.A.
Sep-06	19	7	36.8%	\$200	5	26.3%	\$203	7	36.8%	\$441	19	100.0%	N.A.
Oct-06	19	7	36.8%	\$200	5	26.3%	\$203	7	36.8%	\$444	19	100.0%	N.A.
Nov-06	19	7	36.8%	\$200	5	26.3%	\$203	7	36.8%	\$438	19	100.0%	N.A.
Dec-06	19	7	36.8%	\$200	5	26.3%	\$203	7	36.8%	\$436	19	100.0%	N.A.
Jan-07	19	7	36.8%	\$210	5	26.3%	\$205	7	36.8%	\$443	19	100.0%	N.A.
Feb-07	19	8	42.1%	\$205	6	31.6%	\$192	8	42.1%	\$426	19	100.0%	N.A.
Mar-07	19	8	42.1%	\$205	6	31.6%	\$192	8	42.1%	\$424	19	100.0%	N.A.
Apr-07	19	8	42.1%	\$205	6	31.6%	\$192	8	42.1%	\$428	19	100.0%	N.A.
May-07	19	9	47.4%	\$199	6	31.6%	\$192	8	42.1%	\$431	19	100.0%	N.A.
Jun-07	19	9	47.4%	\$199	6	31.6%	\$192	8	42.1%	\$398	19	100.0%	N.A.
Jul-07	19	9	47.4%	\$199	6	31.6%	\$192	8	42.1%	\$408	19	100.0%	N.A.
Aug-07	19	9	47.4%	\$199	6	31.6%	\$192	8	42.1%	\$409	19	100.0%	N.A.
Sep-07	19	9	47.4%	\$199	6	31.6%	\$192	8	42.1%	\$414	19	100.0%	N.A.
Oct-07	19	9	47.4%	\$199	6	31.6%	\$192	8	42.1%	\$418	19	100.0%	N.A.
Nov-07	19	9	47.4%	\$199	6	31.6%	\$192	7	36.8%	\$398	19	100.0%	N.A.
Dec-07	19	9	47.4%	\$199	6	31.6%	\$192	7	36.8%	\$404	19	100.0%	N.A.
Jan-08	19	9	47.4%	\$201	6	31.6%	\$214	6	31.6%	\$428	19	100.0%	N.A.
Feb-08	19	9	47.4%	\$201	6	31.6%	\$214	6	31.6%	\$424	19	100.0%	N.A.

Appendix III

**Table III.C (continued)**  
**Far East-Europe Westbound Trade**  
**THCs and BAFs (per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
Mar-08	19	9	47.4%	\$201	6	31.6%	\$214	5	26.3%	\$444	19	100.0%	N.A.
Apr-08	19	9	47.4%	\$201	6	31.6%	\$214	5	26.3%	\$470	19	100.0%	N.A.
May-08	18	8	44.4%	\$219	6	33.3%	\$196	5	27.8%	\$661	18	100.0%	N.A.
Jun-08	19	8	42.1%	\$233	6	31.6%	\$230	5	26.3%	\$740	19	100.0%	N.A.
Jul-08	19	8	42.1%	\$233	6	31.6%	\$230	5	26.3%	\$766	19	100.0%	N.A.
Aug-08	19	7	36.8%	\$223	7	36.8%	\$212	4	21.1%	\$809	19	100.0%	N.A.
Sep-08	19	7	36.8%	\$223	7	36.8%	\$212	4	21.1%	\$830	19	100.0%	N.A.
Oct-08	18	7	38.9%	\$211	7	38.9%	\$196	4	22.2%	\$880	18	100.0%	N.A.
Nov-08	18	7	38.9%	\$211	7	38.9%	\$196	4	22.2%	\$876	18	100.0%	N.A.
Dec-08	18	7	38.9%	\$211	7	38.9%	\$196	4	22.2%	\$829	18	100.0%	N.A.
Jan-09	18	8	44.4%	\$229	8	44.4%	\$185	4	22.2%	\$717	18	100.0%	N.A.
Feb-09	19	8	42.1%	\$240	8	42.1%	\$208	4	21.1%	\$680	19	100.0%	N.A.
Mar-09	19	8	42.1%	\$240	8	42.1%	\$208	4	21.1%	\$647	19	100.0%	N.A.
Apr-09	19	8	42.1%	\$240	8	42.1%	\$208	5	26.3%	\$644	19	100.0%	N.A.
May-09	19	7	36.8%	\$254	9	47.4%	\$182	7	36.8%	\$559	19	100.0%	N.A.
Jun-09	19	7	36.8%	\$254	10	52.6%	\$156	8	42.1%	\$514	19	100.0%	N.A.
Jul-09	19	8	42.1%	\$252	9	47.4%	\$166	8	42.1%	\$545	19	100.0%	N.A.
Aug-09	19	8	42.1%	\$252	9	47.4%	\$166	8	42.1%	\$599	19	100.0%	N.A.
Sep-09	19	8	42.1%	\$252	9	47.4%	\$166	8	42.1%	\$628	19	100.0%	N.A.
Oct-09	19	8	42.1%	\$252	9	47.4%	\$166	8	42.1%	\$685	19	100.0%	N.A.
Nov-09	19	8	42.1%	\$252	9	47.4%	\$166	7	36.8%	\$711	19	100.0%	N.A.
Dec-09	19	8	42.1%	\$252	9	47.4%	\$166	7	36.8%	\$705	19	100.0%	N.A.
Jan-10	19	8	42.1%	\$240	9	47.4%	\$182	8	42.1%	\$792	17	89.5%	\$125
Feb-10	19	8	42.1%	\$240	9	47.4%	\$182	8	42.1%	\$796	17	89.5%	\$125
Mar-10	19	8	42.1%	\$240	9	47.4%	\$182	8	42.1%	\$796	17	89.5%	\$125
Apr-10	19	8	42.1%	\$240	9	47.4%	\$182	8	42.1%	\$807	17	89.5%	\$125

## Observations on THC and BAF Surcharge Trends

**Table III.C (continued)**  
**Far East-Europe Westbound Trade**  
**THCs and BAFs (per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
May-10	19	8	42.1%	\$245	8	42.1%	\$215	8	42.1%	\$833	18	94.7%	\$150
Jun-10	18	8	44.4%	\$261	8	44.4%	\$201	8	44.4%	\$837	17	94.4%	\$150
Jul-10	18	8	44.4%	\$261	8	44.4%	\$201	7	38.9%	\$852	17	94.4%	\$150
Aug-10	19	9	47.4%	\$261	8	42.1%	\$214	8	42.1%	\$837	18	94.7%	\$150
Sep-10	18	9	50.0%	\$250	8	44.4%	\$193	8	44.4%	\$833	17	94.4%	\$150
Oct-10	19	9	47.4%	\$261	8	42.1%	\$214	8	42.1%	\$840	18	94.7%	\$150
Nov-10	19	9	47.4%	\$261	8	42.1%	\$214	9	47.4%	\$811	18	94.7%	\$150
Dec-10	19	9	47.4%	\$261	8	42.1%	\$214	9	47.4%	\$825	18	94.7%	\$150

## Appendix III

**Table III.D**  
**Far East-US Eastbound Trade**  
**THCs and BAFs (per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
Jan-06	16	5	31.3%	\$162	16	100.0%	N.A.	12	75.0%	\$363	16	100.0%	N.A.
Feb-06	17	6	35.3%	\$162	17	100.0%	N.A.	13	76.5%	\$361	17	100.0%	N.A.
Mar-06	17	6	35.3%	\$162	17	100.0%	N.A.	13	76.5%	\$361	17	100.0%	N.A.
Apr-06	17	6	35.3%	\$162	17	100.0%	N.A.	13	76.5%	\$373	17	100.0%	N.A.
May-06	19	8	42.1%	\$162	19	100.0%	N.A.	11	57.9%	\$391	19	100.0%	N.A.
Jun-06	19	8	42.1%	\$162	19	100.0%	N.A.	11	57.9%	\$385	19	100.0%	N.A.
Jul-06	19	8	42.1%	\$162	19	100.0%	N.A.	11	57.9%	\$385	19	100.0%	N.A.
Aug-06	19	8	42.1%	\$162	19	100.0%	N.A.	11	57.9%	\$394	19	100.0%	N.A.
Sep-06	19	8	42.1%	\$162	19	100.0%	N.A.	11	57.9%	\$394	19	100.0%	N.A.
Oct-06	19	8	42.1%	\$162	19	100.0%	N.A.	11	57.9%	\$406	19	100.0%	N.A.
Nov-06	19	8	42.1%	\$162	19	100.0%	N.A.	11	57.9%	\$406	19	100.0%	N.A.
Dec-06	19	8	42.1%	\$162	19	100.0%	N.A.	11	57.9%	\$402	19	100.0%	N.A.
Jan-07	20	9	45.0%	\$162	20	100.0%	N.A.	10	50.0%	\$379	20	100.0%	N.A.
Feb-07	20	10	50.0%	\$162	20	100.0%	N.A.	10	50.0%	\$371	20	100.0%	N.A.
Mar-07	20	10	50.0%	\$162	20	100.0%	N.A.	10	50.0%	\$371	20	100.0%	N.A.
Apr-07	20	9	45.0%	\$162	20	100.0%	N.A.	10	50.0%	\$389	20	100.0%	N.A.
May-07	20	9	45.0%	\$162	20	100.0%	N.A.	11	55.0%	\$477	20	100.0%	N.A.
Jun-07	20	9	45.0%	\$162	20	100.0%	N.A.	11	55.0%	\$477	20	100.0%	N.A.
Jul-07	20	9	45.0%	\$162	20	100.0%	N.A.	11	55.0%	\$485	20	100.0%	N.A.
Aug-07	20	9	45.0%	\$162	20	100.0%	N.A.	11	55.0%	\$485	20	100.0%	N.A.
Sep-07	20	9	45.0%	\$162	20	100.0%	N.A.	11	55.0%	\$510	20	100.0%	N.A.
Oct-07	20	9	45.0%	\$162	20	100.0%	N.A.	11	55.0%	\$514	20	100.0%	N.A.
Nov-07	19	8	42.1%	\$162	19	100.0%	N.A.	10	52.6%	\$484	19	100.0%	N.A.
Dec-07	20	9	45.0%	\$162	20	100.0%	N.A.	10	50.0%	\$462	20	100.0%	N.A.
Jan-08	20	10	50.0%	\$162	20	100.0%	N.A.	9	45.0%	\$408	20	100.0%	N.A.
Feb-08	20	10	50.0%	\$162	20	100.0%	N.A.	9	45.0%	\$420	20	100.0%	N.A.

## Observations on THC and BAF Surcharge Trends

**Table III.D (continued)**  
**Far East-US Eastbound Trade**  
**THCs and BAFs (per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
Mar-08	20	10	50.0%	\$162	20	100.0%	N.A.	9	45.0%	\$420	20	100.0%	N.A.
Apr-08	20	10	50.0%	\$162	20	100.0%	N.A.	9	45.0%	\$431	20	100.0%	N.A.
May-08	20	9	45.0%	\$162	20	100.0%	N.A.	8	40.0%	\$479	20	100.0%	N.A.
Jun-08	20	9	45.0%	\$162	20	100.0%	N.A.	8	40.0%	\$488	20	100.0%	N.A.
Jul-08	20	9	45.0%	\$162	20	100.0%	N.A.	7	35.0%	\$574	20	100.0%	N.A.
Aug-08	20	9	45.0%	\$162	20	100.0%	N.A.	6	30.0%	\$565	20	100.0%	N.A.
Sep-08	20	9	45.0%	\$162	20	100.0%	N.A.	6	30.0%	\$614	20	100.0%	N.A.
Oct-08	20	9	45.0%	\$162	20	100.0%	N.A.	5	25.0%	\$646	20	100.0%	N.A.
Nov-08	20	9	45.0%	\$162	20	100.0%	N.A.	5	25.0%	\$652	20	100.0%	N.A.
Dec-08	20	9	45.0%	\$162	20	100.0%	N.A.	5	25.0%	\$620	20	100.0%	N.A.
Jan-09	20	9	45.0%	\$162	20	100.0%	N.A.	4	20.0%	\$326	20	100.0%	N.A.
Feb-09	20	10	50.0%	\$162	20	100.0%	N.A.	5	25.0%	\$226	20	100.0%	N.A.
Mar-09	20	10	50.0%	\$162	20	100.0%	N.A.	5	25.0%	\$229	20	100.0%	N.A.
Apr-09	20	11	55.0%	\$162	20	100.0%	N.A.	6	30.0%	\$194	20	100.0%	N.A.
May-09	20	11	55.0%	\$162	20	100.0%	N.A.	8	40.0%	\$197	20	100.0%	N.A.
Jun-09	20	11	55.0%	\$162	20	100.0%	N.A.	7	35.0%	\$178	20	100.0%	N.A.
Jul-09	20	11	55.0%	\$162	20	100.0%	N.A.	6	30.0%	\$187	20	100.0%	N.A.
Aug-09	20	11	55.0%	\$162	20	100.0%	N.A.	5	25.0%	\$214	20	100.0%	N.A.
Sep-09	20	11	55.0%	\$162	20	100.0%	N.A.	5	25.0%	\$224	20	100.0%	N.A.
Oct-09	20	11	55.0%	\$162	20	100.0%	N.A.	5	25.0%	\$254	20	100.0%	N.A.
Nov-09	20	11	55.0%	\$162	20	100.0%	N.A.	5	25.0%	\$271	20	100.0%	N.A.
Dec-09	20	11	55.0%	\$162	20	100.0%	N.A.	5	25.0%	\$284	20	100.0%	N.A.
Jan-10	20	11	55.0%	\$162	20	100.0%	N.A.	6	30.0%	\$271	20	100.0%	N.A.
Feb-10	20	11	55.0%	\$162	20	100.0%	N.A.	6	30.0%	\$262	20	100.0%	N.A.
Mar-10	20	11	55.0%	\$162	20	100.0%	N.A.	6	30.0%	\$262	20	100.0%	N.A.
Apr-10	20	11	55.0%	\$162	20	100.0%	N.A.	6	30.0%	\$269	20	100.0%	N.A.

## Appendix III

**Table III.D (continued)**  
**Far East-US Eastbound Trade**  
**THCs and BAFs (per FEU)**  
**Major Shipper Servcon Data**

Month	Total Contracts	# of All-In OTHC	Percent All-In OTHC	Average OTHC	# of All-In DTHC	Percent All-In DTHC	Average DTHC	# of All-In BAF	Percent All-In BAF	Average BAF	# of All-In EBAF	Percent All-In EBAF	Average EBAF
May-10	20	10	50.0%	\$162	20	100.0%	N.A.	7	35.0%	\$338	20	100.0%	N.A.
Jun-10	20	10	50.0%	\$162	20	100.0%	N.A.	7	35.0%	\$359	20	100.0%	N.A.
Jul-10	20	10	50.0%	\$162	20	100.0%	N.A.	7	35.0%	\$356	20	100.0%	N.A.
Aug-10	20	10	50.0%	\$162	20	100.0%	N.A.	6	30.0%	\$352	20	100.0%	N.A.
Sep-10	20	10	50.0%	\$162	20	100.0%	N.A.	6	30.0%	\$352	20	100.0%	N.A.
Oct-10	20	10	50.0%	\$162	20	100.0%	N.A.	6	30.0%	\$352	20	100.0%	N.A.
Nov-10	20	10	50.0%	\$162	20	100.0%	N.A.	6	30.0%	\$353	20	100.0%	N.A.
Dec-10	20	10	50.0%	\$162	20	100.0%	N.A.	6	30.0%	\$356	20	100.0%	N.A.

## Appendix IV

# Liner Recession and Recovery, 2008-2010

On September 15, 2008, the US investment bank Lehman Brothers went bankrupt. The following day, insurance firm AIG was rescued by \$85 billion in US federal assistance.<sup>1</sup> The turmoil that brought the American financial system to its knees was part of a larger crisis: A US housing market bubble popped in 2007, precipitating paralysis in credit markets. Banks were heavily invested in toxic assets, devastating the financial sector on a global scale. The deep economic downturn, dubbed the Great Recession, saw credit markets shrink, liquidity evaporate, and foreign trade diminish.

Amidst such a hostile economic climate, the liner shipping industry was hit particularly hard. The industry, “both the greatest beneficiary and hammering pulse” of globalization, became its victim.<sup>2</sup> Carriers battled over market share, undercut each other’s rates, and drove liner industry revenues to unprecedented lows. Yet no major carrier went bankrupt. The liner shipping industry appears to have weathered the worst of the recession. In 2010, trade volumes increased and carriers reported record profits.

The depth of the contraction in liner shipping from late 2008 through 2009, and the extent of the recovery in 2010 can best be understood by considering the recent trends in the world economy and liner shipping. During the past decade, liner shipping enjoyed growth rates far above world output growth and increasingly relied on a burgeoning fleet. In turn, the liner shipping industry suffered more than the overall economy during the recent recession. The 2008–2009 downturn also accelerated ongoing shifts in global trade patterns that may shape carriers’ business strategies in coming years.

### Global Economic Expansion

The global economy grew impressively over the past decade. Despite political and economic turbulence in 2009 and 2010 among the world’s advanced countries, global Gross Domestic Product (“GDP”) continued to expand.

Much of the growth occurred in the world’s most populous countries. China, India, Brazil and Indonesia, which together account for 40% of the world’s population, were among the economic powerhouses driving the world’s GDP growth.<sup>3</sup> For example, while developed countries averaged a moderate 1.7% GDP growth rate during the past decade (2000–2010), emerging economies grew steadily by 6.1% per year.<sup>4</sup> China alone *averaged* 10.2% GDP growth per year in the 2000s, up from 6.6% per year during the 1990s. At such an extraordinary and sustained growth rate, Chinese living standards doubled roughly every seven years. China’s economy has enjoyed a decade of rapid export-led economic growth.

The Great Recession has accelerated a structural change in the global economy. Economies such as China have ‘emerged’ to take their places as drivers of global growth. The International Monetary Fund (“IMF”) notes that developing economies weathered the recession better than developed nations. Increasing intra- and inter-developing country trade

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1 A timeline of the crisis can be found at <http://news.bbc.co.uk/2/hi/business/8242825.stm>

2 Alexander Jung. “Shipping Industry Fights for Survival.” Bloomberg Businessweek, 11 Aug 2009.

3 Tyler Cowen. “Fruitful Decade for Many in the World.” New York Times, 2 Jan 2010.

4 The Conference Board Total Economy Database, January 2010, <http://www.conference-board.org/economics/database.cfm>.

## Appendix IV

has weakened the dominance of developed countries, possibly signifying a shift in global trade patterns.<sup>5</sup>

### Trends in the Liner Shipping Industry

#### Demand

The liner shipping industry rode the wave of economic growth for much of the past decade. In fact, world container trade grew three to four times faster than GDP growth. Between 2003 and 2007, global port handling of containers grew by an average of 12.4% per year, compared to global GDP growth of 3.6% per year.<sup>6</sup> Regions such as the Far East, Middle East, and South Asia were exceptional performers. By a different metric, global demand as a function of net cargo TEU moves grew by an average of 13% per year between 2002 and 2007.<sup>7</sup> (See Chart IV.A)



Across all regions, liner shipping demand flourished from 2000 to 2007. Even with real GDP growth in the United States of just 1.9% per year, container imports and exports grew by 6.9%.<sup>8</sup> The rapid increase in trade volume is best exemplified by data concerning one of the world's largest trade routes, the transpacific. Container imports from China to the US West Coast nearly tripled from 2000-2007, and peaked in 2007 when US imports approached seven million TEUs.

If China was an economic powerhouse in the past decade, its growth in liner shipping trade was no less remarkable. According to the World Shipping Council, in 2007 China accounted for 31.9 million TEUs of exports, making it the world's leading exporter by volume with 26.5% of global market share.<sup>9</sup> China's ascent was rapid. As recently as 1995, only four of

5 Adam Lockstein. "The New Emerging Order." Swiss Style 2010.

6 Drewry Quarterly Container Forecaster. Table 2.1 "Quarterly Container Growth by Region."

7 Drewry Quarterly Container Forecaster. Table 4.1 "Estimated Development of the Container market Supply/Demand Balance."

8 PIER'S Trade Data. US TEU Liftings (Export & Import), 2000-2007.

9 World Shipping Council – Liner Trade Statistics. < <http://www.worldshipping.org/about-the-industry/global-trade/trade-statistics>>.

## Liner Recession and Recovery, 2008-2010

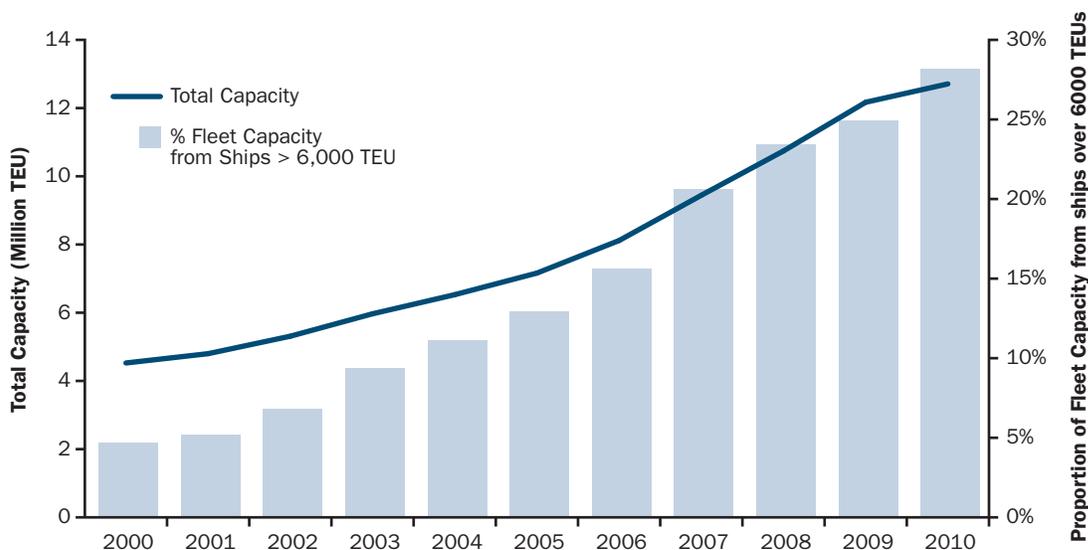
40 transpacific strings called at Chinese ports. By 2006, 73 of 78 transpacific strings called at Chinese ports. Port calls had increased tenfold and the average ship size had nearly doubled.<sup>10</sup>

### Supply

In order to cope with and take advantage of increasing demand for liner services, carriers ratcheted up global capacity. Drewry cites fleet capacity (TEU) growth of roughly 11% per year. Since 2000, the number of vessels in the cellular container fleet has nearly doubled to over 4,600 vessels, while overall capacity nearly tripled to 12.7 million TEU.<sup>11</sup>

Carriers increased capacity by purchasing newer, larger ships. (See Chart IV.B) The upward trend in vessel size is dramatic. In 2000, the largest 200 vessels averaged 5,115 TEUs in capacity. By 2009, the largest 200 vessels had nearly doubled in size to an average capacity of 9,337 TEUs.<sup>12</sup> The orderbook as of July 2010 counted 155 new 10,000+ TEU vessels, a 354% increase over the fleet's 46 existing megaships.<sup>13</sup> Larger vessels allow carriers to realize the cost-saving benefits of economies of scale. A study on the expansion of the Panama Canal estimates a 17% reduction in total voyage costs (operating and capital costs) if a carrier deploys an 8,000 TEU vessel instead of a 4,000 TEU vessel on the Asia-US East Coast all-water route. The cost savings accrue to over \$28 million per string during the course of a year.<sup>14</sup>

**Chart IV.B Fleet Size & Distribution**



Another indicator of liner industry performance comes from the vessel charter market. The charter market was more volatile than either the container fleet capacity or demand. In particular, time charter rates for a 3,500 TEU vessel bottomed out at \$12,000 per day in the fourth quarter of 2001, rose to \$43,000/day in 2005, and leveled off around \$32,000 by 2008. One would expect a certain level of demolition of aging vessels to occur annually, but strong market conditions can affect this trend. (See Chart IV.C)

10 Johor Bahru. "Transshipment & Global Container Traffic Growth." 5<sup>th</sup> ASEAN Ports & Shipping Conference 12 Jun 2007.

11 Drewry Quarterly Container Forecaster: Container Fleet Data.

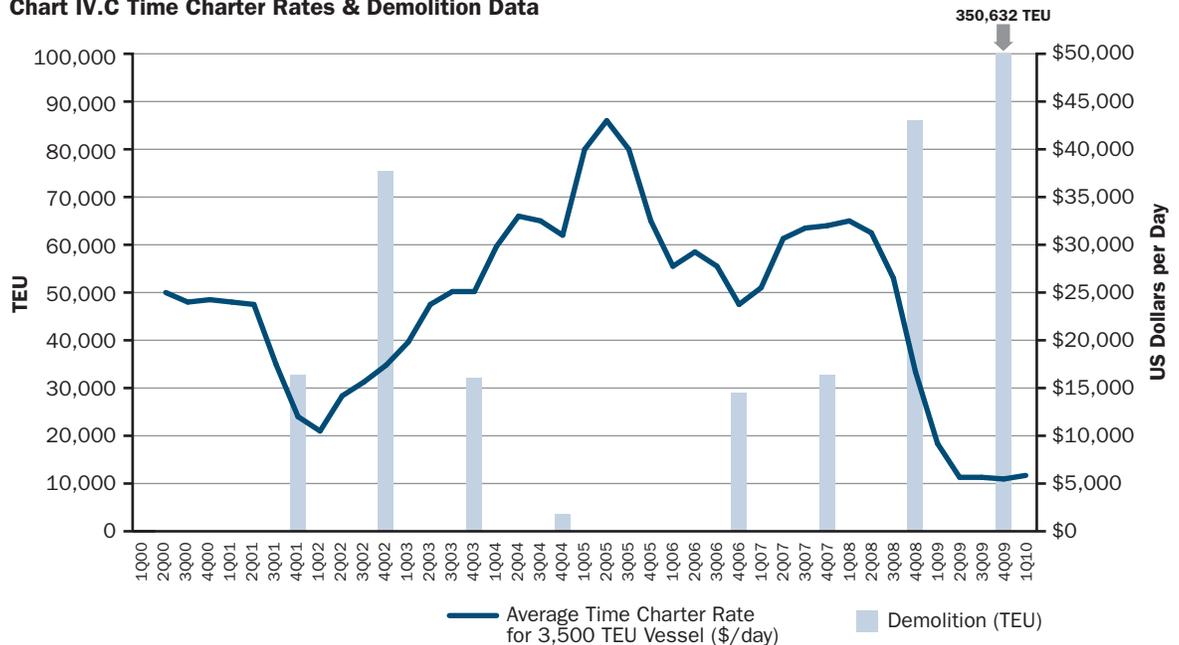
12 MDS Transmodal, 2009.

13 Alphaliner. "Cellular Fleet at 1<sup>st</sup> July 2010."

14 "Transpacific Vessel Deployment Options with an Expanded Panama Canal." R.K. Johns & Associates Inc. 2004.

## Appendix IV

**Chart IV.C Time Charter Rates & Demolition Data**



### The Great Recession, 2008-2010

#### Sizing Up the Recession

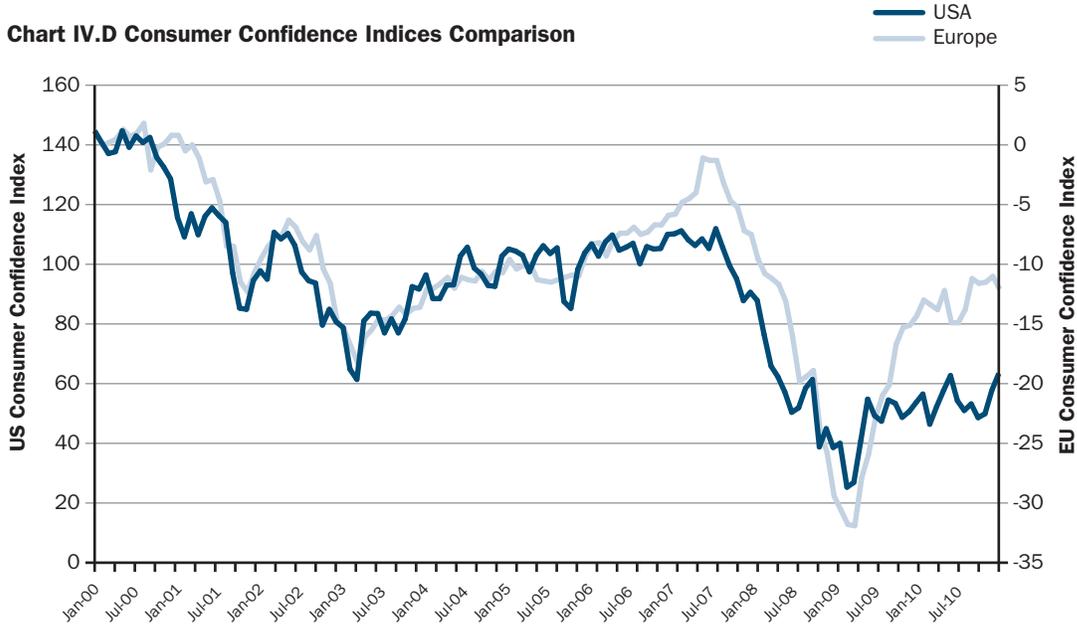
The Great Recession slowed output growth on a global scale, and some national economies actually contracted during the downturn. Economic indicators such as real GDP, the Consumer Confidence Index (“CCI”) and the unemployment rate paint a picture of a sharp drop in output that continues to have protracted adverse effects.

On a global scale, real GDP growth remained positive, but halved from 4.2% (2000–2007) to 2% (2008–2010). European countries were the worst hit by the recession, while emerging markets fared relatively well. The EU-27 experienced -4.2% growth in 2009. In the US, GDP growth was negative from 2<sup>nd</sup> quarter 2008 to 2<sup>nd</sup> quarter 2009. The US recession hit its nadir in the first quarter of 2009, and has since recovered to positive growth rates.

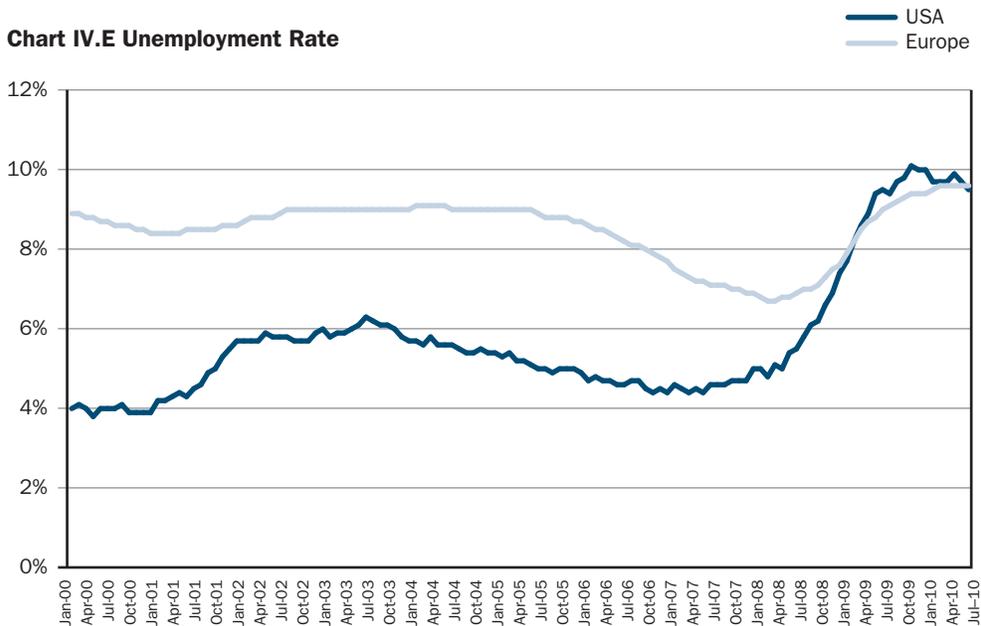
Other indicators of economic performance were even more ominous. The CCI is a leading indicator that measures consumer sentiments, based on a monthly survey of households. CCI in the US dropped long before output retracted. The US CCI began free-falling as early as August 2007. Consumer confidence continued to decline steadily until bottoming out in February 2009, at a mere 23% of the index in July 2007.

European consumers began to lose confidence at the same time as their American counterparts. The European Commission’s CCI indicator dropped swiftly from June 2007 to February 2009. As Chart IV.D shows, consumer confidence bounced back faster in Europe than in the US. The decline in consumer confidence in developed economies such as the US and EU reflects uncertainty and poor economic performance. Chinese consumers, in contrast, have remained confident in light of their country’s unabated GDP growth. Globally, Nielsen reports that consumer confidence finally returned to pre-recession levels in 1<sup>st</sup> quarter 2010 and that a large majority of countries surveyed recorded a rise in confidence over the previous quarter.

## Liner Recession and Recovery, 2008-2010



The unemployment rate, a lagging indicator, doubled from 5% in May 2008 to over 10% in October 2009 in the US. United States unemployment continued to hover near 10% and well above the long-term average unemployment rate of 5.7%.<sup>15</sup> In Europe, unemployment ratcheted up from a decade low 6.7% in February 2008 to a high of 9.6% in February 2010, where the rate has since leveled off. As can be seen in Chart IV.E, unemployment did not spike as drastically in Europe, where rates have traditionally been higher than the US.



Although growth rates have since recovered in Organization for Economic Co-operation and Development (“OECD”) countries, unemployment remains high and signifies that full recovery is far from over. For instance, unemployment did not drop significantly in 2011.

<sup>15</sup> US Department of Commerce, Bureau of Economic Analysis.

## Appendix IV

### Government Interventions

In response to the downturn, many national governments responded with fiscal stimulus packages or money allocated to create or maintain jobs, spending, and infrastructure. The US Congress passed a \$787 billion bill in February 2009. The Recovery and Reinvestment Act allocated the money in three broad categories: tax benefits, entitlements, and grants, contracts and loans. China announced as early as November 2008 intentions to implement a \$586 billion stimulus package. Overall economic stimulus accounted for 7% of China's GDP in 2009–2010, 5.5% of the US economy, and about 1–1.5% for the Eurozone.<sup>16</sup>

An important result of the global recession has been a sovereign debt crisis in Europe, particularly in Greece, Spain, Portugal, and Ireland. Doubts surrounding high deficit spending and debt levels in Greece led to a \$147 billion rescue package designed by the European Union and the International Monetary Fund, contingent on strict austerity levels imposed upon the Greek government.<sup>17</sup> General fear over the stability of the Euro currency caused the Euro to depreciate 20% against the US dollar between October 2009 and June 2010, prompting the establishment of a \$975 billion emergency fund providing guaranteed loans to Eurozone members.

### The Liner Industry

#### Recession

2009 was the worst year in the post-war (WWII) history of liner shipping. Globally, container lines lost an estimated total of \$15–20 billion.<sup>18</sup> Most of these losses can be attributed to the world's largest liner companies. According to *American Shipper*, the top 15 carriers made \$13.3 billion in profit from 2005–2008, only to lose almost all of it – \$11.4 billion – in 2009.<sup>19</sup>

Many major carriers turned to emergency loans or equity investment in order to stay afloat. Hapag-Lloyd was rescued by a combination of German government guarantees of \$1.8 billion in loans and extra investment from shareholders. Chile's CSAV was restructured with new shareholder equity as well as a plan to sell equity to the owners of their leased ships in return for low charter rates. Among Korean shipping lines, Hyundai Merchant Marine and Hanjin agreed to sell ships to a specially-created state ship owning fund in order to raise money. Israeli carrier, Zim, was bailed out by \$450 million in liquidity and a \$100 million emergency loan fund from its controlling stakeholders.<sup>20</sup> Meanwhile, CMA CGM secured a \$500 million credit line from its bankers in late 2009.<sup>21</sup> A year later, the Yildirim Group of Turkey invested \$500 million into CMA CGM, allowing the carrier to strengthen its equity base and secure the financing of its investment plan.<sup>22</sup>

Despite incurring losses of over \$2.1 billion in 2009, Maersk did not seek new equity investment. Maersk's container shipping company was able to weather the downturn and very weak rates in the Asia-Europe trade due to the deep pockets of its parent company (which itself reported \$4.3 billion in losses in 2009).<sup>23</sup> Most major carriers have secured

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16 David Barboza. "China Plans \$586 Billion Economic Stimulus." NY Times, 9 Nov 2008.

17 Nelson D. Schwartz. "Europe Faulted on Too-Tepid Stimulus." NY Times, 11 March 2009.

18 American Shipper. "Who's (NOT) Making Money." 22 Jun 2010.

19 Ibid.

20 Robert Wright. "Zim bail-out approved by narrow vote." Financial Times, 6 Nov 2009.

21 Bruce Barnard. "CMA CGM Gets \$500 Million Credit Line." Journal of Commerce, 18 Dec 2009.

22 CMA CGM press release of November 26, 2010. [http://www.cma-cgm.com/AboutUs/PressRoom/Press-Release\\_Agreement-between-CMA-CGM-and-YILDIRIM\\_9994.aspx](http://www.cma-cgm.com/AboutUs/PressRoom/Press-Release_Agreement-between-CMA-CGM-and-YILDIRIM_9994.aspx).

23 Drewry Quarterly Container Forecaster. Table 6.9 "Financial Results of Selected Carriers."

## Liner Recession and Recovery, 2008-2010

capital via equity offerings, business deals or state interventions. As a result, no major carrier failed even in the face of the challenging market conditions.

*American Shipper* writes that carriers who had high exposures to charter vessels often fared the worst in the recession because of the higher fixed cost of chartering. Ship owners also found themselves in dire straits. In 2009, charter rates plummeted. Daily rates fell from \$32,500 in 1<sup>st</sup> quarter 2008 to about \$5,500 in 4<sup>th</sup> quarter 2009. In addition, the average charter period was reduced from twenty-four months in mid-2007 to four months during all of 2009. Carriers either returned vessels to ship owners once contracts ended or renegotiated at cutthroat rates below daily operating costs. Charter rates bottomed out in the 1<sup>st</sup> quarter of 2010 and the average charter period began to recover.<sup>24</sup>

Carriers were unable to quickly decrease effective capacity to accommodate the reduced demand for liner services. As a result, capacity utilization rates dropped. Lumpy supply due to large ships meant that ships were forced to sail half-empty or not at all. Carriers reduced effective capacity by idling or demolishing ships after first consolidating or eliminating services. Demolitions by number of TEU increased tenfold from 2007 to 2009. In 2009, idle ships accounted for some 10% of the total fleet, peaking at 12% in March. Both demolitions and idling decreased in 2010. The idle fleet had been reduced to just 2.5% by the end of 2010 as carriers switched to a new strategy – slow steaming.

Slow steaming is a strategy to reduce emissions, cut costs, utilize idle ships and redress supply/demand imbalances. Large vessels that normally sail at 23–25 knots slow to 17–19 knots or even to 14–16 knots in ‘extra-slow’ steaming. Slower speeds mean higher fuel efficiency and lower operating costs for carriers. Shippers, on the other hand, face longer transit times. Alphaliner estimates that with 8,500 TEU ships and bunker costs of \$500 per ton, carriers could save as much as \$20 million per year on an Asia–Europe string by slow steaming.<sup>25</sup> In addition to cost-savings, slow steaming allows carriers to add vessels to a string without increasing the string’s effective capacity. By doing so, carriers utilize idle ships without increasing capacity.

The use of slow steaming accelerated by 2010, and, despite record deliveries of newbuildings, the idled fleet has decreased. Carriers have increasingly turned to extra-slow steaming as well. JOC Sailings reports that extra-slow steaming absorbed 4.1% of the cellular fleet in June 2010. Despite a variety of strategies to reduce effective capacity, the total fleet capacity continued to grow throughout the contraction.

Predictably, with such a mismatch in supply and demand, rates plummeted. Rates in the Asia–Europe trade were hit particularly hard. In 1<sup>st</sup> quarter 2009, freight rates fell to about \$300, only 10% of the rate a year earlier. Reuters reported as early as December 2008 that some “shipping firms are willing to move goods for a zero freight rate and exporters are only responsible for bunker (fuel) and terminal handling charges” on the Asia–Europe route.<sup>26</sup> The Great Recession caused a demand shock in the container trade and price wars in the world’s largest-volume routes.

### Recovery & Other Issues

If 2009 was the worst year in liner shipping, 2010 may have been the best. Drewry estimated that carriers would collectively earn \$17 billion in profit in 2010, completely erasing the losses of 2009.<sup>27</sup> All major carriers were profitable again, but for some lines market conditions proved especially lucrative. The Maersk parent company reported record net profits for 2010,

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24 Drewry Quarterly Container Forecaster. Table 7.1 “Average Time Charter Rates.”

25 Joseph Bonney. “Carriers Move Full Speed into Slow Steaming.” *Journal of Commerce*, 12 Jan 2010.

26 Allison Leung. “Maersk Cuts Asia–US Container Rates–Sources.” Reuters, 5 Dec 2008.

27 Drewry Quarterly Container Forecaster (4<sup>th</sup> quarter 2010). Executive Summary.

## Appendix IV

spearheaded by returns from its shipping division. Maersk Line earned \$2.6 billion in 2010, after losing \$1.59 billion the previous year.<sup>28</sup> COSCO, too, reported record profits in 2010 as well as a more than 50% increase in revenues. Not all carriers profited equally, however. CSAV reported only \$171 million in net profits in 2010.<sup>29</sup> CSAV chose volume over profit, using the recovery to increase market share by offering low freight rates and opening new services. Fast growing lines like APL and Zim also moved more volumes but were slow to return to profitability.

As for rates, the *Journal of Commerce* reports that China-North Europe rates shot up 68% from October 2009 to February 2010. Asia-Europe was the hardest hit major route, but recovered with equal speed. The former European Liner Affairs Association (“ELAA”) monitored the aggregate average monthly revenue per TEU of its members. In Chart IV.F, the ELAA freight rate index on European imports from Asia fell disproportionately compared to the corresponding drop in volume. While volumes plummeted temporarily in February 2009 and eventually surpassed 1 million TEU per month in August, it took carriers over a year to regain average revenue levels of 4<sup>th</sup> quarter 2008. In the meantime, carrier revenues were reduced 50% during the first half of 2009.



Carriers continue to slow steam in order to absorb the excess supply of vessel capacity, which enables carriers to increase rates and profit levels. Excess effective capacity was finally withdrawn from the market, but it came at the cost of productivity. Productivity decreased because slow steaming reduces effective capacity on a string and increases the amount of time in a vessel’s loop. For instance, the number of TEU moves per effective slot decreased from 17.2 per year in 3<sup>rd</sup> quarter 2007 to 13.2 in 1<sup>st</sup> quarter 2009. It takes more resources to operate the same strings as before, while moving more or less the same amount of cargo.

In early 2010, a container shortage materialized. When demand for liner services fell, so too did demand for new container purchases. After 8% growth in the container box fleet

<sup>28</sup> Robert Wright. “Maersk predicts turnaround as volumes recover.” *Financial Times*, 10 Nov 2010, and Maersk Line’s financial statements.

<sup>29</sup> CSAV’s financial statements.

## Liner Recession and Recovery, 2008-2010

from 2004 to 2008, almost none were built during 2009. Most container production occurs in China, where factories simply shut down during the recession.<sup>30</sup> The shortage was further exacerbated by slow steaming, which absorbed an additional one million containers.<sup>31</sup> Trade imbalances and lengthy repositioning times also played a role in the container shortage. Carriers did eventually reposition and acquire more containers, reducing the impact of the shortage in the second half of 2010.

US exporters were hardest hit by container shortages. On the major US trade, the transpacific route, US exports are the backhaul direction. Imports tend to be high value consumer items, which garner higher shipping rates, while exports tend to be heavy bulk items such as waste paper. In the US, container shortages present challenging logistical problems. Empty containers sit piled at coastal ports, hundreds or even thousands of miles from the inland agricultural regions where they are needed. Given lengthy turnaround time for boxes and the rate differential between imports and exports, carriers can make more money by shipping empty containers back to China to be used again for US imports.

### Chart Sources

#### Chart IV.A Annualized Global Demand Growth Rate

- Drewry Quarterly Container Forecaster. Table 2.1 “Quarterly Container Growth by Region.”
- Drewry Quarterly Container Forecaster. Table 4.1 “Estimated Development of the Container market Supply/Demand Balance.”

#### Chart IV.B Fleet Size & Distribution

- Drewry Quarterly Container Forecaster. Table 3.1 “World Cellular Containership Fleet by Size Range.”

#### Chart IV.C Time Charter Rates & Demolition Data

- Drewry Quarterly Container Forecaster. Table 7.1 “Average Time Charter Rates.”
- Drewry Quarterly Container Forecaster. Table 3.5 “Sales for Demolition.”

#### Chart IV.D Consumer Confidence Indices

- University of Wisconsin at Madison: Agricultural & Applied Economics website
- [http://future.aae.wisc.edu/data/monthly\\_values/by\\_area/998?area=US&tab=sales&grid=true](http://future.aae.wisc.edu/data/monthly_values/by_area/998?area=US&tab=sales&grid=true).
- European Commission Economic Databases & Indicators website
- [http://ec.europa.eu/economy\\_finance/db\\_indicators/surveys/time\\_series/index\\_en.htm](http://ec.europa.eu/economy_finance/db_indicators/surveys/time_series/index_en.htm).
- China National Bureau of Statistics website

#### Chart IV.E Unemployment Rate

- US Department of Commerce, Bureau of Economic Analysis
- Eurostat Database online

#### Chart VI.F Rate & Volumes for European Imports

- European Liner Affairs Association website, ELAA.net/trade

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30 Chris Dupin. “Boxed Out.” American Shipper Aug 2010.

31 Peter T. Leach & William B. Cassidy. “Cloudy, with a Chance of Pain.” Journal of Commerce, 12 July 2010.

## Regulation of Ocean Carrier Agreements in the Transatlantic Trade

Trade and shipping between the United States and Europe has historically been a mutually beneficial commercial exchange that has sustained and enriched both economies. To clarify the current state of the liner shipping industry in the US/Europe trade, this section provides background on the relevant legal and legislative decisions that impacted agreements between ocean carriers operating in the trade prior to and after the repeal of the block exemption regulations for liner shipping conferences, *Council Regulation (EEC) No. 4056/86* (“Regulation 4056/86”).

The repeal took effect on October 18, 2008; however, the decision to revoke legal immunity for liner shipping conferences occurred on September 25, 2006, when the Council of Ministers of the European Union (“EU Council”) adopted *Council Regulation (EC) No. 1419/2006*. This decision was preceded by a lengthy review of Regulation 4056/86 initiated by the European Commission (“EC”) on March 27, 2003, that involved hearings, numerous EC reports and studies, and extensive comments from the liner shipping industry and the shipping public.

The repeal of Regulation 4056/86 impacted the US/Europe trade by making all forms of conference and price fixing agreements between ocean carriers illegal, resulting in their termination. As such, it was the only US shipping trade directly affected by the repeal, which makes it a market of particular economic interest for this Study.

### Background on Carrier Agreements in the Trade

In terms of agreement activity among ocean carriers, the US/Europe trade has a long and involved history. As liner shipping evolved with the invention of the steam ship, some of the first agreements between ocean carriers were formed in the US/Europe trade; these included the *Transatlantic Shipping Conference* in 1868, the *North Atlantic Steam Traffic Conference* in 1868, and the *Trans-Atlantic Freight Conference* in 1895.<sup>1</sup> In more recent history, however, the *Trans-Atlantic Conference Agreement* (“TACA”)<sup>2</sup> was the last conference to operate in the trade and one of the most highly controversial and litigated agreements under the competition rules of the European Union (“EU”).<sup>3</sup>

In a protracted series of legal disputes over a period of eleven years, the EC and the TACA carriers became embroiled in lengthy and intricate arguments over the intended meaning and application of the block exemption regulations. In an appealed EC decision

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1 Luis Ortiz Blanco, *Shipping Conferences Under EC Antitrust Law*, Hart Publishing, Oregon, 2007, p.5.

2 TACA operated in the trade lane between the US and North Europe, traditionally defined as spanning the range from Bayonne, France to North Cape, Norway. The North Europe sector of the trade included container shipments originating and destined for the countries of Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Latvia, Liechtenstein, Lithuania, Luxembourg, Netherlands, Norway, Poland, Slovakia, Sweden, Switzerland, and United Kingdom.

3 Specifically, Article 101(1) of the EC Treaty prohibits agreements between undertakings which affect trade between Member States [of the EU] and which have as their object or effect the prevention, restriction, or distortion of competition within the common market [of the EU]. Article 102 of the EC Treaty prohibits any abuse of a dominant position by an undertaking within the common market or any substantial part of it that may affect trade between Member States. The term “undertakings” is interpreted to mean entities which are engaged in economic or commercial activities.

## Appendix V

against TACA, the European Court exclaimed:

[I]t is true that the contested decision is one of the longest ever adopted by the Commission in application of Articles 85 and 86 [renumbered as Articles 101 and 102] of the Treaty, that that decision raises relatively complex issues of fact and law in respect of which, when the actions were brought, there was no relevant case-law and that as Community law stands at present there is no provision limiting the length of the written pleadings or the number of documents lodged in support of an action for annulment under Article 173 of the Treaty.<sup>4</sup>

This drawn out and exhaustive legal dispute with TACA likely had an impact on the EC's decision to initiate its review of Regulation 4056/86, which resulted in the repeal of the block exemption.

In applying Regulation 4056/86 to TACA and other conferences, the EC interpreted the language of the regulation narrowly and literally. Unlike the Shipping Act that exempts other forms of agreements between regulated entities, Regulation 4056/86 only exempted a liner conference among vessel-operating carriers that operated, *inter alia*, under *uniform or common freight rates* as defined in Article 1(3)(b) of the regulations, which was the identical definition of a liner conference adopted under the United Nations Convention on a Code of Conduct for Liner Conference.<sup>5</sup> Further, unlike the Shipping Act, the EU block exemption did not apply to price fixing agreements under conferences for inland transport operations and quayside services.<sup>6</sup> The EC strictly applied the exemption to cover port-to-port maritime transport services performed by liner conferences. Such maritime transport services, as provided in Article 3 of Regulation 4056/86, included, *inter alia*, concerted practices by conference members to regulate capacity and allocate cargo or revenue. In applying the block exemption in these cases, however, the EC deemed that such concerted practices must be for the purpose of improving services to transport users and not for the sole purpose of potentially affecting rate increases.<sup>7</sup>

From the inception of TACA to its termination, the EC adopted three major decisions on the conference as the structure of the agreement evolved and its authority and market power eventually eroded. Initially in 1992, recessionary conditions in the trade, compounding the problems of excess vessel capacity and depressed freight rates, induced the major carriers to consolidate under a single conference agreement, called the *Trans-Atlantic Agreement* ("TAA"), with a total market share of about 80 percent.<sup>8</sup> TAA superseded the *USA-North Europe Rate Agreement* and the *North Europe-USA Rate Agreement*, which had formerly controlled 55 to 60 percent of the trade. The authority of TAA was unique in that it allowed the parties to form a dual pricing structure whereby certain members were bound by the conferences rates while other members could voluntarily adhere to the conference rates or price independently. TAA also provided authority for its members to implement a capacity management program in the inbound direction from North Europe that withheld a portion of the supply of vessel capacity from use in the market.

The authority available to the members of TAA was successfully employed to achieve

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4 Joined Cases T-191/98, T-212/98 to T-214/98, *Atlantic Container Line AB and Others v. Commission* [2003] ECR II-3275, paragraph (1646) (30 September 2003).

5 United Nations, *Convention on a Code of Conduct for Liner Conference*, Geneva, Part 1, Chapter 1 (6 April 1974).

6 Article 5(3) of Regulation 4056/86.

7 Alla Pozdnakova, *Liner Shipping and EU Competition Law*, Kluwer Law International, The Netherlands, 2008, p. 151.

8 At the time the conference became effective in August 1992, there were 12 carrier members; these were: A.P. Moller-Maersk Line; Atlantic Container Line AB; Cho Yang Shipping Co.; Compagnie Generale Maritime; DSR/Senator Joint Service; Hapag-Lloyd AG; Mediterranean Shipping Co.; Nedlloyd Lijnen BV; Orient Overseas Container Line Ltd.; P&O Container Limited; Polish Ocean Line; and Sea-Land Service, Inc.

## Regulation of Ocean Carrier Agreements in the Transatlantic Trade

sizable rate increases, which almost immediately incited severe criticism from transport users, prompting regulatory action in the US and Europe. In 1994, the Federal Maritime Commission (“FMC”) initiated a series of formal proceedings to investigate whether the complaints and allegations of transport users against TAA violated the Shipping Act.<sup>9</sup> These proceedings were later discontinued in 1995 with the approval of a settlement agreement that imposed certain conditions on the conference, which, *inter alia*, required that the agreement be amended to allow for independent action on service contracts by its members.

In its decision on the conference, the EC determined that TAA was operating in violation of the EU competition rules [Article 101(1)] and did not qualify for an exemption under Regulation 4056/86 due to its dual pricing structure, capacity management program, and price fixing on inland haulage.<sup>10</sup> Significantly, the EC viewed the pricing structure of TAA as a scheme that provided rate flexibility for traditionally non-conference carriers and not a true conference operating under uniform or common rates as defined in the regulations.<sup>11</sup> Further, the EC interpreted the capacity management program of TAA to be a tool intended primarily for suspending and artificially maintaining unused capacity in the market to increase the prices of European exports.<sup>12</sup> On appeal, the EC’s decision against TAA was upheld by the European Court.<sup>13</sup>

In response to the objections raised against TAA, the conference restructured its agreement as TACA and eliminated the dual pricing structure, capacity management program, and other controversial provisions from the agreement. In July 1994, the restructured conference agreement was submitted before the EC for consideration of a block exemption under Regulation 4056/86, and in October 1994, TACA took effect under the Shipping Act. After a lengthy review and comment period, in September 1998, the EC determined that the TACA carriers did not qualify for any form of exemption and, therefore, acted in violation of the Article 101(1) of the EC Treaty with respect to: (1) their price fixing on inland transport services within Europe, (2) their agreement on the terms and conditions for entering into service contracts with shippers, and (3) their agreement on rates of brokerage and freight forwarder remuneration.<sup>14</sup> In addition, the EC determined that the TACA carriers had abused their dominant market position in violation of Article 102 of the EC Treaty by: restricting the availability and content of service contracts,<sup>15</sup> and restricting competition to reinforce their dominant market position.<sup>16</sup> For abusing their dominant market position in violation of Article 102, the EC imposed fines on each TACA member that collectively amounted to 273 million European currency units (“ECU”).<sup>17</sup> On appeal, the European Court later annulled the EC’s decision against the TACA carriers on the abuse of their dominant market position and the fines that were imposed against the carriers

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9 These proceedings included FMC Fact Finding Investigation No. 21, *Activities of the Trans-Atlantic Agreement and its Members*; FMC Docket No. 94-29, *Practice of the Trans-Atlantic Agreement and its Members with respect to Independent Action*; and FMC Docket No. 94-30, *Container Pool Practices of the Trans-Atlantic Agreement and its Members*.

10 *Commission Decision 94/980/EC*, Commission of the European Communities (19 October 1994).

11 *Ibid.*, paragraphs (320) to (358).

12 *Ibid.*, paragraphs (359) to (370).

13 Case T-395/94, *Atlantic Container Line AB and Others v. Commission* [2002] ECR II-875 (28 February 2002).

14 *Commission Decision 1999/243/EC*, paragraphs (400) to (518).

15 *Ibid.*, paragraphs (551) to (558).

16 The EC determined that the TACA carriers restricted competition to reinforce their dominant position by providing incentives to new carrier entrants to join the conference rather than enter the trade as independent competitors. *Ibid.*, paragraphs (559) to (567).

17 *Ibid.*, paragraphs (583) to (606).

## Appendix V

relating to that part of the decision.<sup>18</sup> The Court, however, upheld the EC's decision on the application of an exemption for the agreement and the violations committed under Article 101(1).<sup>19</sup>

Around the time of the EC's proceedings against TACA, the US shipping statutes were revised in October 1998 to introduce new legislative measures aimed at increasing competition within the liner shipping industry under the *Ocean Shipping Reform Act of 1998* ("OSRA"). Most notably, OSRA prohibited agreements among ocean carriers from restricting, or interfering with, the right of their members to enter into individual service contracts on a confidential basis, but permitted agreements to adopt service contract guidelines that could be adhered to on a voluntary basis by their members.<sup>20</sup>

In effect, OSRA replaced the uniform system of pricing through the structure of conference agreements with a more competitive system of pricing directly between individual carriers and shippers. Consequently, in most of the US liner trades, conference agreements were replaced with less rigidly structured discussion agreements that contained voluntary rate authority. However, such agreements were not in compliance with the requirements of the block exemption regulations under Regulation 4056/86 that only provided for conference agreements on uniform or common freight rates. Therefore, carriers operating in the US/EU trades that still sought legal immunity to voluntarily agree on rates could only participate in conferences that discuss and agree on conference tariff and service contract rates. After OSRA was enacted, however, the movement of most liner cargo in the US trades rapidly shifted from conference tariffs and service contracts to individual service contracts between carriers and shippers that are kept confidential.<sup>21</sup> Consequently, the actual rate authority of conferences dwindled to only a small portion of the market.

In an attempt to comply with OSRA and the latest decision of the EC, TACA again revised its agreement by substantially restructuring its authority. Most notably, the new version of the agreement reduced the authority of the conference by prohibiting: (1) the TACA secretariat and members from discussing, collecting, or exchanging information on non-conference service contracts, or adopting voluntary guidelines on such contracts; (2) collective pricing on inland transport services within the Europe; and (3) agreements on forwarder compensation and brokerage on cargo shipments from Europe. Further, a number of carriers withdrew from the conference reducing its market share in the trade to 50 percent. The revised TACA agreement took effect under the Shipping Act in December 1998, and was notified with the EC in January 1999. Eventually, the EC adopted a decision granting the revised TACA agreement a complete exemption from the competition rules for a period of six years.<sup>22</sup>

By the time of the review period starting in 2006, the influence of the conference and the activity of its remaining members had diminished considerably from when the conference first formed. Subsequently, Hapag-Lloyd was forced to resign from TACA as a condition for the EC's approval of its acquisition of CP Ships in 2005. The membership of P&O Nedlloyd Ltd. was absorbed into Maersk Line with its acquisition in early 2006. Membership in the conference dropped to five carriers with a total market share of around 40 percent.<sup>23</sup>

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18 Joined Cases T-191/98, T-212/98 to T-214/98 (30 September 2003).

19 Ibid.

20 Section 5(c) of the Shipping Act of 1984, 46 USC 40303(a).

21 *The Impact of the Ocean Shipping Reform Act of 1998*, FMC, pp. 16-21 (September 2001).

22 *Commission Decision 2003/68/EC*, Official Journal of the European Communities (14 November 2002).

23 The remaining TACA members at the time of the termination of the conference were Atlantic Container Line AB, Maersk Line, Mediterranean Shipping Co., Nippon Yusen Kaisha, and Orient Overseas Container Line Ltd.

## Regulation of Ocean Carrier Agreements in the Transatlantic Trade

Further, as noted, in September 2006, the termination of the conference system in the trade was definite when the EU Council voted to repeal Regulation 4056/86 with a two-year transition period.

Under these conditions, the conference primarily conducted meetings at the senior executive level under its primary committees; and the frequency of these meetings declined as the end of the conference drew near in 2008. In the latter period of its existence, the conference primarily focused its activities on providing some degree of marketplace guidance by setting tariff general rate increases and surcharges. In particular, the price of bunker fuel substantially escalated during this period and TACA increased its bunker adjustment factor by 40 percent,<sup>24</sup> as was also the case with the major non-conference carriers. The TACA members also discussed and exchanged general trade information. In general, carriers described the influence of the conference during this period as providing some direction on surcharges and upcoming rate increases that carriers in the trade could follow and a forum for discussion of market data and information.<sup>25</sup> By the end of June 2008, TACA terminated its tariffs and discontinued operating as a conference; the agreement was terminated at the end of September 2008 prior to the date of block exemption repeal.

### Carrier Agreements after the Repeal

To provide carriers with direction in the post repeal period, the EC issued competition guidelines, which, *inter alia*, addressed information exchange between competitors in liner shipping.<sup>26</sup> While the guidelines did not sanction information exchange between carriers, they set forth standards under which forms of information exchange should be assessed within the structure of the market to determine whether or not the exchange of information would violate the law by restricting competition.<sup>27</sup>

Just prior to the repeal in October 2008, carriers operating between the US and the EU formed the *Container Trade Statistics Agreement* (“CTSA”) to provide for a system of information exchange in compliance with the EC’s competition guidelines. Initially, CTSA had 20 carrier members and authorized the collection and dissemination of historic and aggregated liner shipping data in the EU trades, including monthly cargo volumes and price indices based on the monthly average revenue of the participating carriers. CTSA also transformed the European Liner Affairs Association (“ELAA”) into an official trade association under which the members could confer, and established Container Trades Statistics, Ltd. (“CTS”) as a business enterprise to manage its commercial affairs. Under CTS, certain data at the highest aggregated level is made available to the public over the internet at no charge, while less aggregated data is made available to the public by paid subscription.<sup>28</sup>

Prior to the formation of CTSA, ELAA functioned as a representative for the liner shipping industry on maritime transportation matters before the EC and within the EU. In July 2010, ELAA decided to disband to allow CTS to operate more effectively as a business and remain in compliance with the competition rules of the EU.<sup>29</sup> The World Shipping

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24 TACA Tariff FMC Nos. 53 and 60, The Descartes Systems Group, Inc.

25 See public comments to question 7 of FMC Notice of Inquiry, *An Analysis of the European Union Repeal of the Liner Conference Block Exemption*, issued November 1, 2010.

26 *Guidelines on the application of Article 81 of the EC Treaty to maritime transport services*, Commission of the European Communities, Brussels, paragraphs (38) to (59) (1 July 2008).

27 As an alternative to the conference system, a system of information exchange between ocean carriers was first proposed by the European Liner Affairs Association (“ELAA”) on behalf of the liner shipping industry. *Review of Regulation 4056/86: Proposal for a new Regulatory Structure*, ELAA, Letter from Mr. Ken Bloch Soerensen of ELAA to Ms. Lowri Evans of EC DG Competition/Services (6 August 2004).

28 See [www.containerstatistics.com](http://www.containerstatistics.com).

29 Eric Johnson, *Lines file with FMC to index transpacific data*, *American Shipper* (November 10, 2010).

## Appendix V

Council took over the functions of ELAA as the EU representative for the industry. CTS was sold to an entity not affiliated with any shipping lines to operate as an independent company for profit. In December 2010, CTSA was superseded by the *World Liner Data Agreement* (“WLDA”), in which 15 carriers participate. WLDA has the same authority as CTSA to collect and disseminate trade data; however, its geographic scope was expanded to include all of the US liner trades worldwide. Under the terms of WLDA, the carrier members have contracted with CTS to manage the collection and compilation of trade data and the commercial business of marketing and selling the data. CTS expanded its business to offer liner trade data globally beyond just the EU trades. Users that subscribe to CTS data find it of value in conducting market analysis similar to other commercial sources of trade data.<sup>30</sup> In June 2011, CTSA was formally terminated as an agreement on file under the Shipping Act.

Another regulatory change by the EC involved modifications to its block exemption regulations for consortia agreements<sup>31</sup> between or among carriers in the EU trades.<sup>32</sup> In September 2009, the EC renewed and modified its regulations granting a conditional block exemption from Article 101(1) of the EC Treaty for specific concerted activities of carriers operating in consortia agreements in the EU trades.<sup>33</sup> Among the most substantive modifications to the regulations, the EC reduced the market share threshold by which consortia are block exempted from 35 to 30 percent. Further, the regulations were modified to specify that the block exemption does not apply to carrier agreements that involve: (1) the fixing of prices when selling liner services to third parties, (2) the limitation of capacity or sales (except capacity adjustments made in response to fluctuations in supply and demand), and (3) the allocation of markets or customers. The regulations also eliminated all past references to conferences or provisions and authorities pertaining to conferences. The revised regulations took effect in April 2010, and will remain in effect for five years till April 2015.

Most carriers in the US/Europe trade operate services in some form of cooperative consortia from highly integrated alliance or vessel-sharing agreements to more loosely structured arrangements such as space-charter agreements. The ability to cooperate in consortia was particularly useful to carriers in addressing the problems of severe excess capacity and financial losses that occurred in the trade during the 2009 recessionary period. By the end of 2010, there were 48 operational agreements between carriers on file and in effect at the FMC pertaining to the liner services operating in the trade lanes between the US and North Europe, and the US and South Europe in the Mediterranean region.

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30 See public comments to question 10 of FMC Notice of Inquiry, *An Analysis of the European Union Repeal of the Liner Conference Block Exemption*, issued November 1, 2010.

31 In its latest review of the consortia regulations, the EC determined that:

A consortium is a joint service provided by two or more shipping lines. Its main features are sharing of space and the determination of port calls and schedules. There is a great variety of different consortium agreements operating in the market. For the purposes of the Draft Consortia BER a consortium agreement can be made of one or a set of separate but interrelated agreements such as reciprocal slot charters, under which the parties operate the joint service. The legal form of the arrangement is considered less important than the underlying economic reality that the parties provide a joint service.

*Technical Paper on the Revision of Commission Regulation (EC) No. 823/2000 on the Application of Article 81(3) [now Article 101(3)] of the Treaty to Certain Categories of Agreements, Decisions and Concerted Practices between Liner Shipping Companies (Consortia) as last amended by Commission Regulation (EC) No. 611/2005 of 20 April 2005*, Commission of the European Communities, paragraph (39) (October 2008).

32 Pursuant to its authority under Council Regulation (EEC) No. 479/92, the EC first adopted block exemption regulations for consortia agreements between liner carriers that did not authorize price fixing under Commission Regulation (EC) No. 870/95, which took effect on 22 April 1995. In April 1996, the first major alliance formed in the trade under the *Grand Alliance Agreement* between Hapag-Lloyd Container Linie GmbH, Neptune Orient Lines, Ltd., Nippon Yusen Kaisha, and P&O Nedlloyd Limited.

33 Article 3 of Commission Regulation (EC) No. 906/2009 (28 September 2009).

## Appendix VI

# Timeline of Events Relating to Liner Shipping in the Transatlantic Trade

February 6, 1962

The Council of Ministers of the European Communities [now renamed the Council of Ministers of the European Union (“EU Council”)] adopted Council Regulation (EEC) No. 17, which first applied the laws of competition, i.e., Articles 85 and 86 [now Articles 101 and 102] to all activities covered under the Treaty establishing the European Economic Community (“EC Treaty”).

November 26, 1962

The EU Council adopted Council Regulation (EEC) No. 141 exempting transport from the application of Regulation No. 17.

July 19, 1968

The EU Council adopted Council Regulation (EEC) No. 1017/68 applying the laws of competition to transport by rail, road, and inland waterways. Article 5 of Regulation No. 1017/68 exempted agreements, decisions, and concerted practices which contributed towards improving the quality of transport services.

March 20, 1984

The Shipping Act of 1984 (“1984 Act”) was signed into law by the President. Among its reforms, the 1984 Act provided that carrier agreements be allowed to take effect upon 45 days after filing with the FMC, unless enjoined under section 6(h). The 1984 Act further authorized service contracts between carriers or conferences and shippers, and mandated that members of conference agreements be allowed to take independent action on any rate or service item after a notice period of no more than 10 days. The 1984 Act took effect on June 18, 1984.

December 22, 1986

The EU Council adopted Council Regulation (EEC) No. 4056/86 (“Regulation 4056/86”) applying the laws of competition to maritime transport [defined as international maritime transport services from or to one or more Community ports, other than tramp vessel services], which specifically provided for a block exemption of liner shipping conferences. Regulation 4056/86 took effect on July 1, 1987.

February 25, 1992

The EU Council adopted Council Regulation (EEC) No. 479/92 applying the laws of competition to certain agreements, decisions, and concerted practices (consortia) between liner shipping companies. Regulation 479/92 empowered the EC with the authority to exempt certain forms of consortia between carriers.

August 28, 1992

Carrier parties to the *Trans-Atlantic Agreement* (“TAA”) first notified the agreement with the European Commission (“EC”) for consideration under Regulation 4056/86.

## Appendix VI

August 31, 1992

TAA, FMC Agreement No. 011375, took effect under the Shipping Act, replacing the *USA-North Europe Rate Agreement*, FMC Agreement No. 011241, and the *North Europe-USA Rate Agreement*, FMC Agreement No. 011242, and increasing conference market share from 61 percent to 83 percent inbound, and 54 percent to 83 percent outbound. TAA implemented a capacity management program in the inbound trade direction from North Europe.

September 24, 1992

The EC informed TAA that it would also examine the agreement under Regulation 1017/68.

December 10, 1993

The EC issued a statement of objections against TAA.

July 5, 1994

Carrier parties to the *Trans-Atlantic Conference Agreement*, (FMC Agreement No. 011375-013), (“TACA”) notified the agreement with the EC for consideration under Regulation 4056/86.

July 15, 1994

By letter, the EC informed TACA that it would examine the agreement on the basis of an individual exemption with respect to activities authorized under the agreement that the EC considered to be outside of the block exemption under Regulation 4056/86.

July 27, 1994

The FMC initiated Fact Finding Investigation No. 21, *Activities of the Trans-Atlantic Agreement and Its Members* in response to petitions from shipper groups requesting FMC action against the agreement.

October 19, 1994

The EC adopted Decision 94/980/EC finding TAA ineligible for an exemption and in breach of the competition laws and ordering the carriers to cease operating under the agreement.

October 24, 1994

TACA took effect under the Shipping Act; TACA was filed as an agreement modification to TAA, FMC Agreement No. 011375-013. The capacity management program implemented under TAA was removed from TACA at the time of its effectiveness.

November 23, 1994

The FMC amended its order to add TACA to the scope of its investigation under Fact Finding Investigation No. 21 and further issued Orders of Investigation in FMC Docket No. 94-29, *Practices of the Trans-Atlantic Agreement and its Members With Respect to Independent Action*, and FMC Docket No. 94-30, *Container Pool Practices of the Trans-Atlantic Agreement and its Members*.

December 23, 1994

Carrier parties to TAA/TACA submitted an application of annulment of the Decision 94/980/EC against TAA to the European Court of First Instance, and requested that the decision be suspended pending appeal. Registered as Case T-395/94 R.

## Timeline of Events Relating to Liner Shipping in the Transatlantic Trade

March 9, 1995

The FMC approved a settlement agreement with the TAA/TACA carriers to terminate Fact Finding Investigation No. 21 and dismiss FMC Docket Nos. 94-29 and 94-30; the settlement agreement was approved on the condition that TACA be amended to allow for independent action on service contracts by its members.

March 10, 1995

The European Court of First Instance granted the request of the TAA/TACA carriers to suspend Decision 94/980/EC pending appeal.

April 20, 1995

The EC first adopted block exemption regulations (subject to certain conditions) for consortia agreements between liner carriers that do not involve price fixing (Commission Regulation (EC) No. 870/95), which took effect on April 22, 1995.

April 23, 1995

As required under the FMC settlement agreement, an amendment to TACA (011375-016) to allow for independent action on service contracts (commencing on January 1, 1996) took effect under the Shipping Act.

June 21, 1995

The EC issued a statement of objections against TACA to adopt a decision withdrawing TACA's immunity from fines for inland price fixing within the European Union ("EU").

November 29, 1995

Carrier parties to TACA notified the EC of the European Inland Equipment Interchange Arrangement ("EIEIA").

January 13, 1996

The amendment to TACA (011375-022) implementing EIEIA took effect under the Shipping Act.

March 1, 1996

The EC issued a supplementary statement of objections indicating that the EIEIA did not alter its statement of objections against TACA issued on June 21, 1995.

April 29, 1996

Effective under the Shipping Act, the Grand Alliance formed in the trade between Hapag-Lloyd, NOL, NYK, and P&O Nedlloyd, FMC Agreement No. 011536.

May 24, 1996

The EC issued a statement of objections against TACA to adopt a decision to deny TACA an exemption and find TACA in breach of EU law for certain practices, to cease such practices, and to impose fines against the parties for abuse of their dominant position.

November 26, 1996

The EC adopted Decision C(96)3414 to withdraw the TACA parties' immunity from fines for fixing inland rates within the EU.

## Appendix VI

January 1, 1997

TACA parties implemented a hub-and-spoke system of inland cooperation for certain EU ports.

January 10, 1997

TACA parties notified the EC of the hub-and-spoke system claiming that this new cooperation satisfied the conditions for an exemption for inland price fixing.

January 20, 1997

Hanjin Shipping Co. Ltd acquired DSR-Senator Lines GmbH from parent company Bremer Vulkan Verbund AG. Both Hanjin and DSR-Senator were members of TACA at the time.

January 27, 1997

TACA parties submitted an application for annulment of Decision C(96)3414 (withdrawal of immunity from fines for inland price fixing) to the European Court of First Instance. Registered as Case T-18/97.

February 16, 1997

Effective under the Shipping Act, COSCO, K Line, and Yang Ming began operating collectively in the trade under a series of agreements, FMC Agreement Nos. 011560, 011561, and 011562.

April 11, 1997

The EC issued a supplementary statement of objections indicating that notwithstanding the hub-and-spoke system, the objections of its statement against TACA issued on May 24, 1996 remained, including the practice of inland price fixing in the EU where such services fall outside of the scope of the hub-and-spoke system.

May 16, 1997

CP Ships Ltd. completed its acquisition of Lykes Lines, Inc. from Lykes Brothers Steamship Co.

November 12, 1997

NOL completed its acquisition of APL Limited.

November 24, 1997

TACA amendment (011375-033) deleting Hanjin Shipping Co. Ltd. as a party to the agreement took effect under the Shipping Act.

January 31, 1998

Effective under the Shipping Act, the Grand Alliance Agreement II formed in the trade between Hapag-Lloyd, NYK, P&O Nedlloyd, and OOCL, FMC Agreement No. 011602.

February 17, 1998

TACA amendment (011375-038) deleting NOL as a party to the agreement took effect under the Shipping Act.

March 30, 1998

Effective under the Shipping Act, APL and Mitsui OSK Line first began cooperating in the trade under Agreement No. 011611.

## Timeline of Events Relating to Liner Shipping in the Transatlantic Trade

August 6, 1998

TACA amendment (011375-040) deleting Cho Yang Shipping Co. as a party to the agreement took effect under the Shipping Act.

September 16, 1998

The EC adopted Decision 1999/243/EC finding TACA ineligible for any form of exemption for engaging in practices that breached EU competition law; ordering TACA to cease all such practices; and imposing fines that in total amounted to ECU (European currency unit) 273 million for abusing their dominant position by (1) entering into an agreement to place restrictions on the availability and content of service contracts, and (2) altering the competitive structure of the market.

October 14, 1998

The Ocean Shipping Reform Act of 1998 (“OSRA”) was signed into law by the President. Among its reforms, OSRA strictly prohibited carrier agreements from restricting the right of its member to engage in individual service contracts with shippers on a confidential basis. OSRA took effect on May 1, 1999.

December 7, 1998

Certain parties to TACA submitted an application for annulment of Decision 1999/243/EC against TACA to the European Court of First Instance. Registered as Case T-191/98. December 29, 1998, NOL and NYK each submitted separate applications for annulment of Decision 1999/243/EC. Registered as Case T-212/98 and Case T-213/98, respectively. December 30, 1998, TMM/Tecomar registered an application for annulment of Decision 1999/243/EC. Registered as Case T-214/98.

December 31, 1998

TACA amendment (011375-044) took effect under the Shipping Act to: (1) restate the agreement [4th edition]; (2) remove the authority to set inland rates collectively within the European Economic Area in favor of a not-below-cost rule based on each carrier’s individual costs for inland transport; (3) revise service contract authority to comply with the requirements of OSRA and the EC [the EC prohibited TACA parties and secretariat from discussing, collecting, or exchanging information on non-conference service contracts,<sup>1</sup> or adopting voluntary service contract guidelines for such contracts]; limit forwarder compensation/brokerage to shipments from US; reduce the notice period for independent action from ten to three days; and delete Tecomar Limited, Mexican Line Ltd., DSR-Senator Line, and Hyundai Merchant Marine Co as parties to the agreement. At this point, with the loss in membership, the conference market share dropped to about 50 percent in each trade direction.

January 29, 1999

TACA parties notified the revised version of the TACA agreement (“revised TACA”) with the EC for consideration under Regulation 4056/86.

February 12, 1999

The *North Atlantic Agreement* (“NAA”) was filed at the FMC as a conference agreement with the intention of replacing TACA. Membership in NAA included the TACA carriers plus eleven other carriers in the trade, which amounted to a market share of

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<sup>1</sup> The EC considered conference service contracts to be those contracts negotiated directly through the conference secretariat on behalf of the TACA members. The EC viewed all other contracts negotiated outside of the conference secretariat by TACA members to be non-conference service contracts.

## Appendix VI

84 percent. NAA set forth a system of information exchange between its members; the agreement was withdrawn after the FMC issued a formal request for additional information.

February 22, 1999

The European Court of First Instance ordered that Cases T-191/98, T-212/98, T-213/98, and T-214/98 against TACA be joined for written and oral proceedings, and judgment.

February 26, 1999

TACA amendment (011375-047) deleting POL-Atlantic as a party to the agreement took effect under the Shipping Act.

May 6, 1999

The EC published a summary of the notification of the revised TACA agreement for public comment.

May 29, 1999

TACA amendment (011375-048) to reduce the notice period for independent action from three days to one day took effect under the Shipping Act.

June 4, 1999

The European Shippers' Council ("ESC") submitted comments to the EC raising objections against the revised TACA agreement.

August 4, 1999

The EC notified the TACA parties by letter that it would continue its investigation of the revised TACA agreement due to serious doubts about the eligibility of an exemption for the agreement under the competition laws.

December 10, 1999

A.P. Moller-Maersk completed its acquisition of Sea-Land Services Inc.

December 10, 1999

TACA amendment (011375-051) deleting Sea-Land Services Inc. as a party to the agreement and modifying the trade name of Maersk took effect under the Shipping Act.

January 1, 2000

CP Ships Ltd. completed its acquisition of Americana Ships from TMM Lines (Grupo TMM).

April 19, 2000

The EC adopted Commission Regulation (EC) No. 823/2000 to renew the block exemption regulations for consortia agreements between carriers for a five-year period till 2005. Regulation 823/2000 took effect on April 26, 2000.

October 9, 2000

Effective under the Shipping Act, the New World Alliance between APL, Mitsui OSK Line, and Hyundai Merchant Marine formed in the trade under FMC Agreement No. 011723.

## Timeline of Events Relating to Liner Shipping in the Transatlantic Trade

December 1, 2000

The TACA parties submitted a supplementary notification to the EC on an amendment to the revised TACA agreement to implement a program to temporarily withdraw capacity for the off-peak season of 2000/2001.

December 4, 2000

TACA amendment (011375-054) took effect under the Shipping Act to implement a program to temporarily withdraw capacity for the off-peak season of 2000/2001.

November 29, 2001

The EC issued Commission Notice 2001/C 335/03 stating its intention to grant the revised TACA agreement an exemption under the competition rules.

December 10, 2001

TACA amendment (011375-058) took effect under the Shipping act to implement a program to temporarily withdraw capacity for the off-peak season of 2001/2002.

February 28, 2002

The European Court of First Instance dismissed the TAA/TACA parties' applications to annul Decision 94/980/EC against TAA (Case T-395/94 R) and Decision C(96)3414 to withdraw immunity from fines for inland price fixing (Case T-18/97). No appeals of the judgments were lodged by the parties.

April 16, 2002

The Organization for Economic Co-operation and Development ("OECD") published its final report on *Competition Policy in Liner Shipping*, recommending, *inter alia*, that exemptions for common pricing and rate discussions among liner carriers be re-examined and eliminated unless exceptionally justified.

April 28, 2002

Effective under the Shipping Act, COSCO, K Line, Yang Ming, Hanjin, and Senator consolidated their agreements and services in the trade under the *COSCO/KL/YMUK/Hanjin/Senator Worldwide Slot Allocation and Sailing Agreement*, FMC Agreement No. 011794.

August 6, 2002

CP Ships Ltd. completed its acquisition of Italia di Navigazione.

November 14, 2002

The EC adopted Commission Decision 2003/68/EC granting the revised TACA agreement an exemption under the competition rules for a period of six years.

December 16, 2002

The EU Council adopted Council Regulation (EC) 1/2003 on the implementation of the rules on competition laid down in Articles 101 and 102 of the EC Treaty. Regulation 1/2003 eliminated the notification and exemption process for agreements before the EC. Under the new regulations, an agreement that fulfills the conditions of the exemption rule contained in the EC Treaty [Article 101(3)] is legal and enforceable by national courts; conversely, a restrictive agreement that does not fulfill Article 101(3) is void and unenforceable from the beginning. Undertakings are required to self-assess their business practices to determine whether they comply with the competitions laws.

## Appendix VI

December 21, 2002

TACA amendment (011375-060) took effect under the Shipping Act to implement a program to temporarily withdraw capacity for the off-peak season of 2002/2003.

March 27, 2003

The EC initiated its formal review of Regulation 4056/86 by issuing a consultation paper to elicit public comment on whether current market conditions continue to justify a need for the block exemption of liner shipping conferences in the EU trades.

June 12, 2003

The ESC submitted its comments to the EC's consultation paper in opposition to continuing Regulation 4056/86.

June 18, 2003

The European Liner Affairs Association ("ELAA") submitted its comments to the EC's consultation paper in support of continuing Regulations 4056/86.

September 30, 2003

The European Court of First Instance gave its judgment on the TACA parties' applications to annul Decision 1999/243/EC against TACA (Cases T-191/98, T-212/98, T-213/98, and T-214/98). The Court upheld the EC's decision to deny TACA an exemption for engaging in practices that breached the laws of competition. Conversely, the Court annulled the fines of ECU 273 million levied in total against the TACA parties due to a lack of evidence in support of the EC's decision.

November 12, 2003

The EC issued a report summarizing the comments received in response to its consultation paper, prepared for the EC by consultants at Erasmus University, Rotterdam. Among its findings, based on an analysis of freight rates, the report indicated that liner shipping conferences were not price-setting cartels that adhered to set price levels.

December 4, 2003

The EC held a public hearing on the review of Regulation 4056/86 to allow interested parties to present oral and written arguments in support of their positions.

February 20, 2004

ELAA submitted post-hearing comments to the EC in support of retaining Regulation 4056/86.

April 19, 2004

ESC submitted comments to the EC in response to ELAA's post-hearing comments.

June 16, 2004

The EC issued a discussion paper on its review of the Regulation 4056/86 proposing that the block exemption for liner shipping conferences be repealed.

August 6, 2004

In connection with the review of Regulation 4056/86, ELAA first submitted before the EC a proposal for a system of information exchange to replace the conference system.

September 2004

ESC submitted comments to the EC responding to ELAA's proposal urging the EC to proceed with the repeal of Regulation 4056/86 and revise the consortia regulations.

## Timeline of Events Relating to Liner Shipping in the Transatlantic Trade

October 13, 2004

The EC issued a white paper on its review of Regulation 4056/86 requesting public comment on, *inter alia*, the proposal to repeal the block exemption for liner shipping conferences and proposals for alternative legal systems to replace conferences, including the proposal recommended by ELAA.

December 15, 2004

ELAA submitted comments to the EC in response to its white paper.

December 2004

ESC submitted comments to the EC in response to its white paper in opposition to ELAA's proposal noting that it can only be assessed "*as having the objective of coordinating the supply of capacity disguised as a mechanism for enhancing individual investment decisions.*" Instead, ESC recommended that the EC issue general guidelines for the industry on the application of the competition laws.

March 10, 2005

ELAA provided the EC with a competitive impact assessment (under Article 101 of the EC Treaty) of its information exchange proposal in response to the EC's request by letter dated November 22, 2004.

April 20, 2005

The EC adopted Commission Regulation (EC) No. 611/2005 to renew the block exemption regulations for consortia agreements between carriers for a five-year period till 2010. Regulation 611/2005 took effect on April 26, 2005.

May 2005

ICF Consulting completed *Economic Assistance Study on Liner Shipping* for EC Directorate-General for Energy and Transport, assessing the impact of the repeal of the block exemption for liner shipping conferences.

June 30, 2005

ESC submitted to the EC its response to ELAA's competitive impact assessment of its proposed information exchange system.

July 13, 2005

The EC issued a discussion paper informing Member States of the status of its review of Regulation 4056/86 and the responses received to its white paper of October 13, 2004.

October 7, 2005

ELAA submitted comments to the EC in response to its discussion paper to Member States.

October 26, 2005

The EC issued its final report on *The Application of Competition Rules to Liner Shipping* prepared by Global Insight. The report found that the repeal of Regulation 4056/86 would have either no impact or a positive impact on competition in the liner shipping industry, and the information exchange system of ELAA was unacceptable in its proposed form because it might facilitate collusion.

## Appendix VI

November 7, 2005

ELAA submitted to the EC a *Survey on terminal handling charges and currency and bunker adjustment factors*, prepared by the Center of Maritime Economics and Logistics (MEL), Erasmus University, Rotterdam.

December 14, 2005

The EC issued a proposal for a Council Regulation repealing Regulation 4056/86 for consideration before the EU Council, along with an impact assessment of the proposal.

December 21, 2005

The parent company of Hapag-Lloyd, TUI AG, completed its acquisition of CP Ships.

December 23, 2005

ELAA submitted comments before the EC on its impact assessment of the proposal for a Council Regulation repealing Regulation 4056/86 expressing disappointment that the “*same old, tired arguments have been repeated throughout the document.*” In addition, ELAA submitted comments before the EC on its report prepared by Global Insight.

January 23, 2006

TACA amendment (011375-065) deleting Hapag-Lloyd Container Linie GmbH as a party to the agreement took effect under the Shipping Act.

February 10, 2006

TACA amendment (011375-066) deleting P&O Nedlloyd Limited as a party to the agreement and modifying the trade name of Maersk took effect under the Shipping Act.

February 12, 2006

A.P. Moller-Maersk completed its acquisition of P&O Nedlloyd Limited.

June 16, 2006

ELAA submitted before the EC a revised proposal for a system of information exchange to replace the conference system.

June 30, 2006

ESC submitted before the EC its response in opposition to the revised system of information exchange proposed by ELAA.

June 30, 2006

Effective under the Shipping Act, APL, Hyundai, and Mitsui consolidated their agreements under the *New World Alliance Agreement*, FMC Agreement No. 011960.

September 25, 2006

The EU Council adopted Council Regulation (EC) No. 1419/2006 to repeal Regulation 4056/86. Regulation 1419/2006 extended the block exemption for conferences over a two-year transition period until October 18, 2008.

September 29, 2006

The EC issued a consultative paper requesting public comment on the revised system of information exchange proposed by ELAA. In the paper, the EC provided its assessment on the compatibility of ELAA's revised proposal under the competition laws [Article 101 of the EC Treaty].

## Timeline of Events Relating to Liner Shipping in the Transatlantic Trade

October 18, 2006

The US Antitrust Modernization Commission (“AMC”) conducted a public hearing to take testimony and receive evidence on the antitrust immunity and exemptions provided to the liner shipping industry under the Shipping Act. Representatives of the FMC and EC testified at the hearing.

April 2, 2007

The AMC issued its *Report and Recommendations to the President and Congress of the United States*. On the Shipping Act, the AMC acknowledged the pro-competitive changes that have occurred within the liner shipping industry since OSRA took effect, but found nothing unique about the industry that would prevent it from complying with US antitrust law.

July 4, 2007

The EC began a review of its consortia regulations by conducting a market investigation of consortia in the EU trades. The review was prompted by the repeal of Regulation 4056/86. Questionnaires seeking information on consortia arrangements were sent to carriers, shippers and freight forwarders. The deadline to respond was September 3, 2007.

September 14, 2007

The EC issued for public comment draft guidelines on the application of the competition laws to maritime transport services. The guidelines addressed information exchange between competitors in liner shipping.

November 9, 2007

ELAA submitted before the EC its comments and recommended modifications in support of the draft guidelines and provisions for information exchange between competitors.

November 9, 2007

ESC submitted before the EC its comments and recommended modification to the draft guidelines expressing its concerns and opposition to the provisions for information exchange between carriers.

November 9, 2007

The Global Shippers’ Forum submitted before the EC its comments in support of the establishment of general guidelines for carriers to follow, but strongly opposed the adoption of any form of information exchange proposed by ELAA.

November 20, 2007

In connection with its review of consortia, the EC issued further questionnaires to a large number of individual transport users, i.e. shippers and freight forwarders, and to five main transport users’ associations. In this regard, the questions sought to discern the benefits of consortia for transport users. The deadline to respond was December 20, 2007.

April 23, 2008

ELAA submitted comments to the EC in connection with its review of the block exemption regulations for consortia. Among other things, ELAA recommended that all market share thresholds and limitations on the length of time for consortia agreements be eliminated.

## Appendix VI

June 30, 2008

The parties to TACA suspended operations under the conference and canceled the conference tariffs. Former TACA parties began operating and pricing independently under their own individual tariffs on July 1, 2008.

July 1, 2008

The EC issued the final version of its *Guidelines on the application of Article 81* (now Article 101) *of the EC Treaty to maritime transport service* that provided for a framework to allow information exchange between liner carriers under conditions where the exchange would not facilitate collusion or restrict competition in the marketplace.

September 30, 2008

TACA was formally terminated. TACA last reported a market share of about 40 percent in each trade direction for the 1st quarter of 2008. At the time of termination, the last remaining members were Atlantic Container Line, Maersk Line, MSC, NYK, and OOCL.

October 13, 2008

The Container Trade Statistics Agreement (“CTSA”), FMC Agreement No. 012048, took effect under the Shipping Act. CTSA provided for a system of information exchange between 20 carriers in the trade between the US and the EU. The combined market share of the CTSA members was 88 percent in the US/North Europe trade, and 96 percent in the US/South Europe trade. CTSA prohibited collusion on rates, charges, capacity, or services between its members based on the information provided under the agreement.

October 13, 2008

TUI AG sells two-thirds share of Hapag-Lloyd to investment group Albert Ballin KG.

October 18, 2008

The repeal by the EU of the block exemption regulations for liner shipping conferences, Regulation 4056/86, took effect in the EU trades.

October 21, 2008

The EC issued for public comment a preliminary draft of its revised block exemption regulations for consortia agreements between carriers in the EU trades along with a technical paper explaining the proposed modifications and the results of its questionnaires to carriers and shippers. Among the most substantive proposed modifications to the regulations, the EC reduced the market share threshold by which consortia are block exempted from 35 percent to 30 percent. In addition, the proposed regulations directed that the calculation of market share (for purposes of applying the 30 percent threshold) must aggregate the individual and joint (i.e., the subject consortia) services operated by the carrier parties in the same relevant market along with the full market shares of all of the other consortia agreements of the carrier parties in the same relevant market. Further, the proposed regulations were modified to restrict the block exemption from applying to carrier agreements that involve: (1) the fixing of prices when selling liner services to third parties, (2) the limitation of capacity or sales (except capacity adjustments made in response to fluctuations in supply and demand), and (3) the allocation of markets or customers. The proposed regulation also eliminated all past references to conferences or provisions and authorities pertaining to conferences. The deadline to submit comments on the proposed regulation was November 21, 2008.

## Timeline of Events Relating to Liner Shipping in the Transatlantic Trade

November 2008

ELAA submitted comments, and a substantial amount of supplementary information in support of its comments, before the EC on the draft consortia regulations. ELAA supported the EC's decision to renew the consortia block exemption. As modified in the current draft form, however, ELAA disagreed with the proposed regulations mainly with respect to: (1) the “*unsupported and incorrect assumption*” on the part of the EC that there is no competition between carriers in a consortium (ELAA terms this the “*single block philosophy*”), (2) the aggregation of market shares of carriers in consortia linked by common membership, (3) the reduction of the market share threshold, and (4) the conditional time periods imposed on the withdrawal of membership from consortia agreements. To address its concerns, ELAA recommended that material modifications be made to the proposed regulations; these included deleting the provisions on the aggregation of market share, increasing the market share threshold for block exempted consortia to 50 percent, and deleting or substantially lengthening the conditional time periods on the membership withdrawal provisions from consortia.

November 2008

ESC submitted brief comments before the EC regarding the draft consortia regulations. Overall, ESC expressed its support for the proposed regulations as drafted, noting that they align the block exemption for consortia between carriers with those of other block exemptions for horizontal agreements. Nonetheless, ESC recommended that certain provisions be eliminated because it believes they still condone activities that reflect past conference behavior and are therefore anticompetitive toward shippers. Further, ESC recommended that clarifying language be appended to the regulations to explain exactly which types of agreements fall under the block exemption and which types of agreements require self-assessment under Article 101(3) of the EC Treaty.<sup>2</sup> ESC foresees a time when there will no longer be a need for the block exemption of consortia, and all carriers will be required to self-assess their activities in accordance and compliance with the competition laws. ESC referred to this renewal of the block exemption as a grace period whereby carriers may become accustomed to the practice of self-assessment under the competition laws.

May 22, 2009

Hamburg Sud terminated its pendulum service in the trade and entered into a service arrangement with the members of the Grand Alliance and Zim under the *Grand Alliance/Zim/HSDG Atlantic Space Charter Agreement*, FMC Agreement No. 012068.

August 12, 2009

CMA CGM entered into a service arrangement with MSC under *MSC/CMA CGM North Europe-US Atlantic and Gulf Vessel Sharing Agreement*, FMC Agreement No. 012075, replacing its service agreement with Evergreen Line and China Shipping. Subsequently, China Shipping withdrew its vessels and exited from the trade.

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<sup>2</sup> The prohibitions under Article 101(1) of the EC Treaty may be declared inapplicable under Article 101(3) in the case of: any agreement or category of agreements between undertakings, any decision or category of decisions between associations of undertakings, any concerted practice or category of concerted practices, which contributes to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefits, and which does not: (a) impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives; and (b) afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question.

## Appendix VI

August 27, 2009

Evergreen Line discontinued its NUE pendulum service in the trade and formed a service arrangement with members of the CKYH group under the *ELJSA/CKYH Vessel Sharing Agreement - Trans Atlantic Express Service*, FMC Agreement No. 012076.

September 28, 2009

The EC issued the final version of its revised block exemption regulations for consortia agreements between carriers in the EU trades, Commission Regulation (EC) No. 906/2009. In the final version of the regulations, the EC retained the reduced 30 percent market share threshold for consortia agreements to be block exempted but eliminated the provision on the aggregation of market shares of carriers in consortia linked by common membership. The revised regulations took effect on April 26, 2010, and will remain in effect until April 25, 2015.

December 2009

Maersk Line discontinued its TA3/TP7 pendulum service and took space on the APX pendulum service operated by members of the New World Alliance under the *New World Alliance/Maersk Line Slot Exchange Agreement*, FMC Agreement No. 011722.

January 12, 2010

CTSA was amended (012048-001) to delete three Japanese carriers from the membership of the agreement; these are Kawasaki Kisen Kaisha Ltd.; Mitsui O.S.K. Lines, Ltd.; and Nippon Yusen Kaisha.

June 30, 2010

CMA CGM entered into a service arrangement with CSAV under the *CMA CGM/CSAV Victory Bridge Vessel Sharing Agreement*, FMC Agreement No. 012103, replacing its service arrangement with MSC.

July 2010

ELAA was dissolved and its function as the EU representative for the liner shipping industry was taken over by the World Shipping Council. CTS, Ltd. was sold to an entity unaffiliated with the shipping lines to operate as an independent company for profit.

December 4, 2010

The *World Liner Data Agreement* (“WLDA”), FMC Agreement No. 12108, became effective under the Shipping Act. WLDA has the same authority as CTSA to collect and disseminate trade data; however, its geographic scope includes all of the US liner trades worldwide. The carrier members of WLDA have contracted with CTS to manage the collection and compilation of trade data and the commercial business of marketing and selling the data.

June 21, 2011

CTSA was formally terminated as an agreement on file under the Shipping Act.

## **Analysis of Service Contract Rates in the Transatlantic Trade**

### **I. Methodology**

The analysis of service contract rates in the US/North Europe trade uses data from a selection of service contracts on file with the Commission and contained in its electronic database, SERVCON. The analysis provides time series data in monthly increments of the average service contract rates, weighted by cargo volume, for the top container import and export commodities that moved in the trade for the review period from 2006 through 2010. Commercial trade data<sup>1</sup> was used to identify the top container import and export commodities in the trade, the major US and European ports that handled the greatest throughput of containers of each top commodity, the major shippers of each top commodity and the ocean carriers that moved the shippers' cargo in the trade.

Based on these parameters, specific contracts were selected from SERVCON and tracked over the review period.<sup>2</sup> Where possible, these parameters were kept consistent over the review period, meaning the same commodities, shippers and carriers were tracked from the start of the review period through the end. In some instances, however, a shipper might switch to the liner service of a different carrier during the review period; in which case, the service change is reflected in the analysis.

For the most part, port-to-port rates were used in the analysis corresponding to the major port pairs that handled the greatest throughput of containers for each commodity. In addition, where applicable, assessorial charges were added to the ocean freight rate to obtain the total rate per FEU (forty-foot equivalent unit) at which the container moved. Each service contract, and any amendments to the contract used in the analysis, were tracked on a monthly basis to reflect any change in the level or application of rates and charges. The total monthly service contract rates for the major import and export commodities were aggregated and weighted based on cargo volume<sup>3</sup> to obtain a single weighted average service contract rate per FEU for each month of the review period in each direction of the trade.

Sections II and III below provide a more detailed discussion of the specific parameters and trends in the weighted average service contract rates for liner imports in the inbound trade direction and liner exports in the outbound trade direction.

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1 The commercial source of the container cargo data is the Port Import Export Reporting Service (PIERS), United Business Media Limited.

2 The rates of major shippers of major commodities provide some assessment of the market rates at which the majority of the cargo moved. To the degree that the contracts of major shippers, who have the strongest negotiating power among shippers in the market, incurred rate increases, surcharges, and other service contract terms implemented by carriers, it would be expected that the contracts of smaller shippers were affected similarly if not to a greater extent. Therefore, it may be reasonably inferred that where increases and charges took effect in the contracts of major shippers, a similar impact within the overall trade occurred in the ocean carriage of the like commodities.

3 The service contract rates are weighted by the percentage of the total container cargo volume that moved in the corresponding trade direction for each of the selected commodities over the entire review period from 2006 through 2010.

## Appendix VII

### II. United States Liner Imports from North Europe

**A. Service Contracts:** The analysis of service contracts in the inbound (import) trade direction from North Europe to the US included 133 rate observations from 121 original service contracts, where 21 rate observations included some level of charges for inland haulage.<sup>4</sup> In addition to the base rates, where applicable, other major charges were added to the analysis, including currency adjustment factors (“CAF”), bunker adjustment factors (“BAF”) and all other fuel charges, and origin/destination terminal handling charges for ports in the US and Europe.

**B. Basic Rate Trends:** On a weighted average basis over the review period (2006–2010), the monthly rate levels of service contracts in the inbound direction ranged from a high of \$2,567 per FEU in February 2006 to a low of \$1,694 per FEU in June 2009. At the start of the repeal of the block exemption, rate levels fell 26 percent from \$2,284 per FEU in October 2008 to the low of \$1,694 per FEU in June 2009; from which point, rate levels rebounded by 29 percent to \$2,191 per FEU by the end of the review period in December 2010.

**C. Commodities:** The following major liner import commodities from North Europe, which accounted for 37 percent of the total import cargo volume for the review period, were included in the analysis as weighted based on the cargo volume percentages below:

**Table VII.A Major Liner Import Commodities from North Europe**

Rank	Commodity	Percent of Cargo Volume based on Weight
1	Beer and Ale	29%
2	Auto Parts	15%
3	Furniture	11%
4	Paper	11%
5	Beverages	11%
6	Tires	5%
7	Machinery	4%
8	Glassware	4%
9	Wine	4%
10	Vodka	3%
11	Chemicals	2%

**D. Shippers:** Thirteen different major shippers of the top import commodities were included in the analysis. (Their names have been withheld for confidentiality reasons.)

**E. Carriers:** Nine different ocean carriers were included in the analysis. (Their names have been withheld for confidentiality reasons.) Collectively, they moved 82 percent of the total cargo volume of the top import commodities for the review period.

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<sup>4</sup> Charges for inland haulage were included in cases where port-to-port rates were not available in the contracts and where such charges were verified through shipper information, such as through rates for auto parts moving from a manufacturing plant to an assembly plant or warehouse. Further, charges of inland haulage were added where, through direct contact, shippers identified the specific rates under which their cargo was shipped in the trade.

## Analysis of Service Contract Rates in the Transatlantic Trade

### III. United States Liner Exports to North Europe

**A. Service Contracts:** The analysis of service contracts in the outbound (export) trade direction from the US to North Europe included 92 rate observations from 90 original service contracts, where 19 rate observations included some level of charges for inland haulage. In addition to the base rates, where applicable, other major charges were added to the analysis, including currency adjustment factors (“CAF”), bunker adjustment factors (“BAF”) and all other fuel charges, and origin/destination terminal handling charges for ports in the US and Europe.

**B. Basic Rate Trends:** On a weighted average basis over the review period (2006–2010), the monthly rate levels of service contracts in the outbound trade direction ranged from a low of \$854 per FEU in February 2007 to a high of \$1,794 per FEU in October 2008. At the start of the repeal of the block exemption, rate levels fell 38 percent from \$1,794 per FEU in October 2008 to a low of \$1,104 per FEU in May 2009; from which point, rate levels rebounded by 44 percent to \$1,593 per FEU by the end of the review period in December 2010.

**C. Commodities:** The following major liner US export commodities to North Europe, which accounted for about 40 percent of the total export cargo volume for the review period, were included in the analysis as weighted based on the cargo volume percentages below:

**Table VII.B Major Liner Export Commodities to North Europe**

Rank	Commodity	Percent of Cargo Volume based on Weight
1	Automobiles	23%
2	Wood Pulp	14%
3	Paper	14%
4	General Cargo	12%
5	Auto Parts	9%
6	Synthetic Resins	8%
7	Logs/Lumber	5%
8	Medical Supplies	5%
9	Chemicals	5%
10	Synthetic Rubber	4%

**D. Shippers:** Seventeen different major shippers of the top export commodities were included in the analysis. (Their names have been withheld for confidentiality reasons.)

**E. Carriers:** Ten different ocean carriers were included in the analysis. (Their names have been withheld for confidentiality reasons.) Collectively, they moved 80 percent of the total cargo volume of the top export commodities for the review period.

## Appendix VIII

# Service Contract Rate Profiles for the Major East-West Trades

Service contract rate data were compiled for a convenience sample of shippers who shipped in both the transatlantic trade, which was directly impacted by the repeal, and the transpacific trade, which was not directly impacted. With access to some service contracts containing rate information for the Asia/North Europe trade, it was decided to add this additional trade to the data collection effort because it was directly impacted by the repeal. This collection of data would allow for rates in the transpacific trade, which is regulated under OSRA, to act as a “control group” against rates in the transatlantic and Asia/North Europe trades that no longer allowed carriers to discuss rates and surcharges after October 18, 2008.

Rate data were extracted from selected service contracts relating to the following trades during the period from January 1, 2006 through December 31, 2010:

- Transatlantic, eastbound and westbound
- Transpacific, eastbound and westbound
- Asia/North Europe, westbound only

A convenience sample of at least 20 shippers per trade was selected for examination. Only data pertaining to beneficial cargo owners (“BCO’s”) and Shipper Associations were used in this analysis. The selection criteria established was that each shipper must have a minimum of four years or 48 months of activity from the same origin port or point to the same destination port or point for the study period that commenced on January 1, 2006 and ended on December 31, 2010.

Data collected for the shippers consisted of a minimum of 48 out of the full 60-month period. Five global shippers, out of the 41 total shippers, shipped in each of the five trade lanes during the study period (an insufficient number of shippers were available for the North Europe to Asia (eastbound) trade). The goal was to use, whenever possible, the same US origin for exports in the transatlantic eastbound and transpacific westbound trades or same US destination for imports in the transatlantic westbound and transpacific eastbound trades as well as the same vessel-operating common carrier (“VOCC”). While the origin and destination always remained the same, shippers switched carriers on occasion; therefore, the Study followed the path where the rates led. The same VOCC was used exclusively in 70 percent of the service contract records for the entire period. The ability to adjust to market conditions, as well as loyalty and consistency, appear to be strong factors between major shippers staying with incumbent carriers for a minimum of five years.

This data collection exercise showed that major shippers export from multiple locations, therefore, trying to find consistency for the same origins proved to be more difficult than anticipated. US exporters tend to use certain plants or facilities for exporting to Europe, whereas they may have other suitable alternatives when exporting to the Asia. Numerous instances were encountered whereby a shipper’s contract was tracked for several years only to have to eliminate it from the study as it did not meet the requisite time frame.

In selecting the convenience sample of shippers, a range of commodities shipped was used, such as chemicals, tires, machinery, general department store merchandise (“GDSM”),

## Appendix VIII

food products, auto parts, agricultural products, medical items, furniture, electronics, toys, hardware, houseware items, computers and accessories, office supplies, photo apparatus, footwear and apparel. Special care was used to include as many carriers as possible so that the rates and surcharges would be indicative of a wide range of ocean carriers.

It was interesting to note that relatively few carriers seem to adopt a “global pricing synergy” by offering rates to a wide range of ports and geographical areas under a single contract. Most carriers put an emphasis on specific trade lanes and, in these circumstances, it is not uncommon for a carrier to conclude multiple contracts with the same shipper.

The rate elements collected consisted of ocean freight rate, currency adjustment factor (“CAF”), all charges pertaining to bunker fuel, as well as terminal handling charges at origin and destination. In reviewing the data it was rather obvious that the global recession and subsequent recovery which together lasted from approximately October 1, 2008 until May 31, 2010 was the dominating feature during this period.

Transatlantic eastbound and westbound aggregated rates were fairly consistent during the study period. While transatlantic westbound rates dropped during the global recession period, transatlantic eastbound rates did not see as dramatic a drop and remained higher than in the pre-repeal period. In the transpacific trade, which was not directly affected by the repeal, export and import rates trended in the same general pattern. When import rates increased, so did export rates. Similarly, when transpacific eastbound rates dropped, transpacific westbound rates followed suit. Both transatlantic westbound and transpacific eastbound rates showed a similar trend pattern, which likely is attributable to US consumer confidence and consumer demand generally.

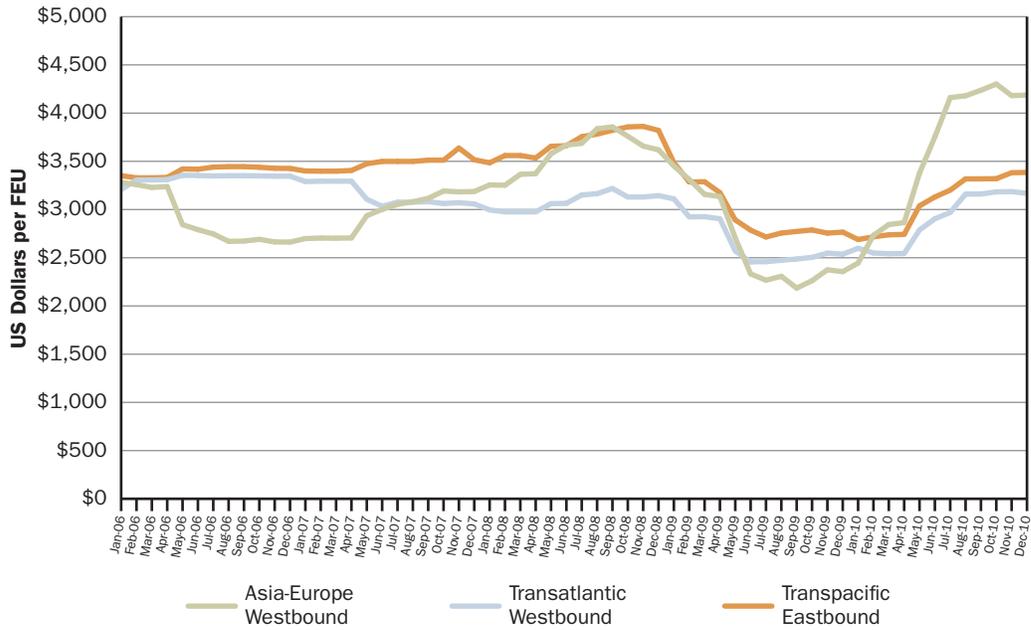
A review of the charts for the three headhaul legs over the study period, consisting of the transpacific eastbound trade, transatlantic westbound trade, and Asia/Europe westbound trade, showed the patterns to be somewhat similar, although rates in the Asia/Europe westbound trade seemed notably more volatile than in the other two trades. Both the transpacific eastbound and transatlantic westbound trades are primarily driven by annual contracts, which until the end of 2007 mainly had fixed or rolled-in bunker charges. After January 2008, bunker charges in the transpacific eastbound and transatlantic westbound trades were most often floating. The Asia/Europe westbound trade contracts were most often subject to monthly bunker and CAF adjustments. In addition, Asia/Europe westbound contracts were often subject to quarterly or semi-annual rate reviews which allowed for adjustments in the base rate.

A review of the charts for the three backhaul legs consisting of the transpacific westbound, transatlantic eastbound, and Europe/Asia eastbound trades showed the trends to be almost identical over the course of the study period.

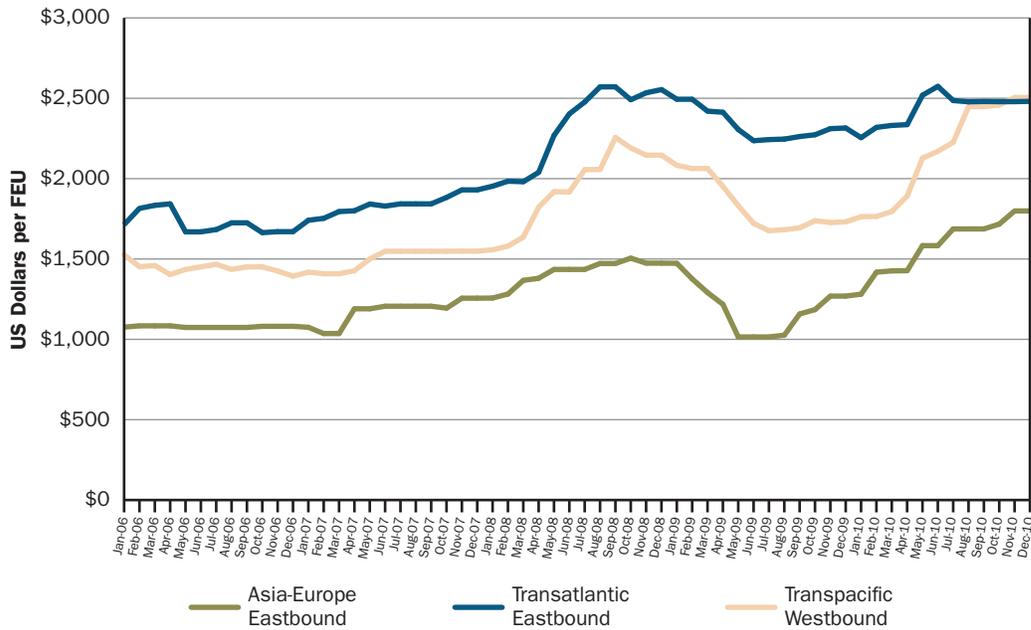
Overall, this brief chart analysis of the three major east-west trade lanes indicates that imports and consumer demand appears to be the catalyst and main driving force in the marketplace. As more demand is generated for imported goods, it then creates a need from producing countries to source more raw materials from the buying countries. The US tends to import at a slower pace from Europe when the dollar is weaker, however, imports still remain the headhaul in this trade. Europe is more likely to source raw materials from the US when the dollar is weaker, yet that region relies more heavily on Asia than the US for finished goods.

## Service Contract Rate Profiles for the Major East-West Trades

**Chart VIII.A Average Service Contract All-In Rates Headhaul Direction**

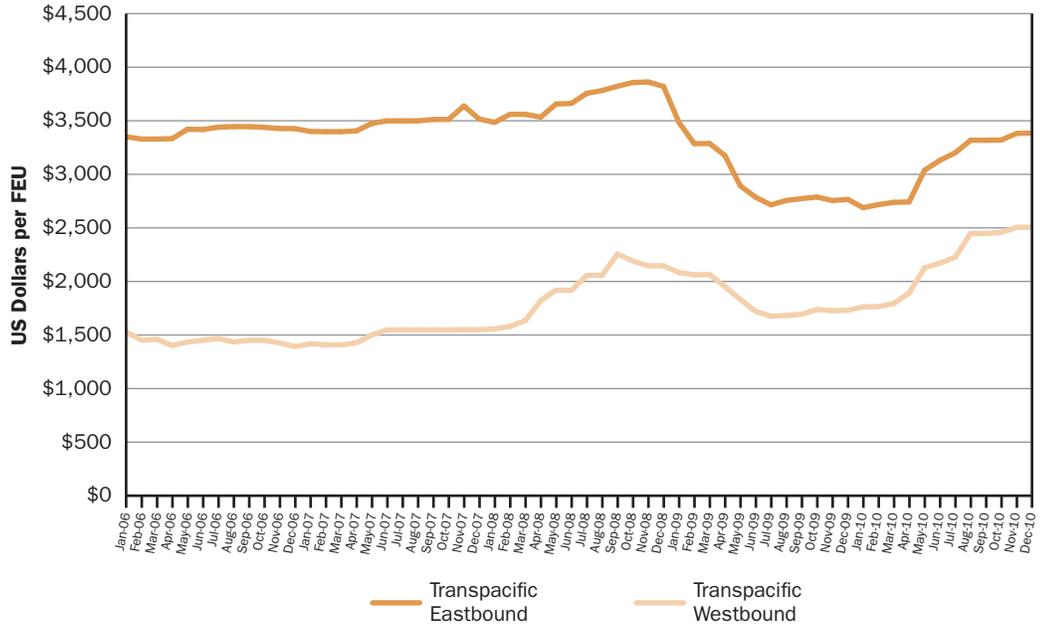


**Chart VIII.B Average Service Contract All-In Rates Backhaul Direction**

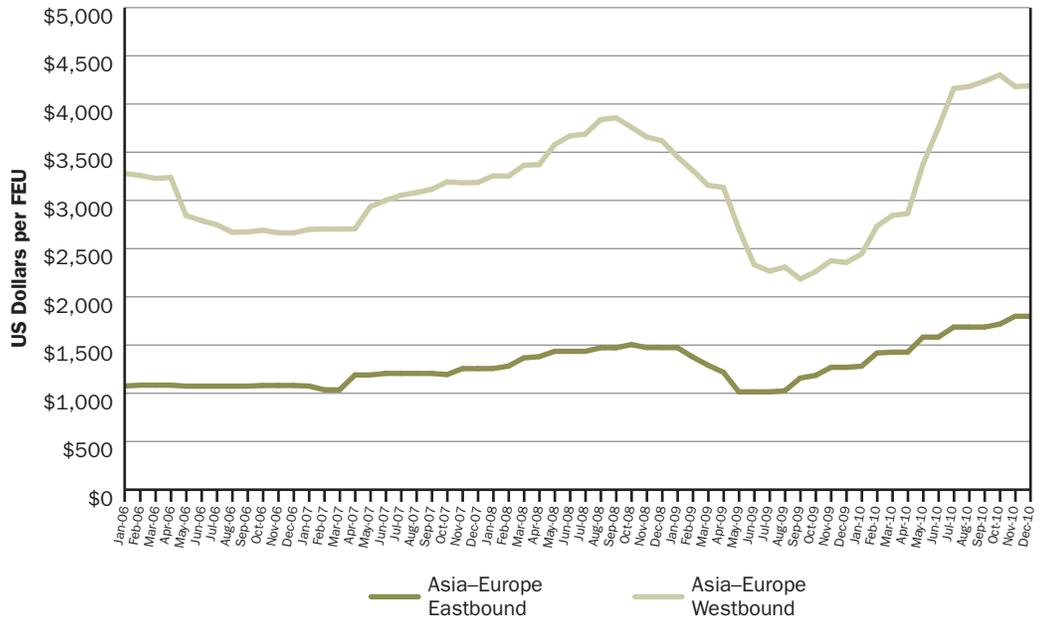


## Appendix VIII

**Chart VIII.C Average Service Contract All-In Rates Transpacific Trades**

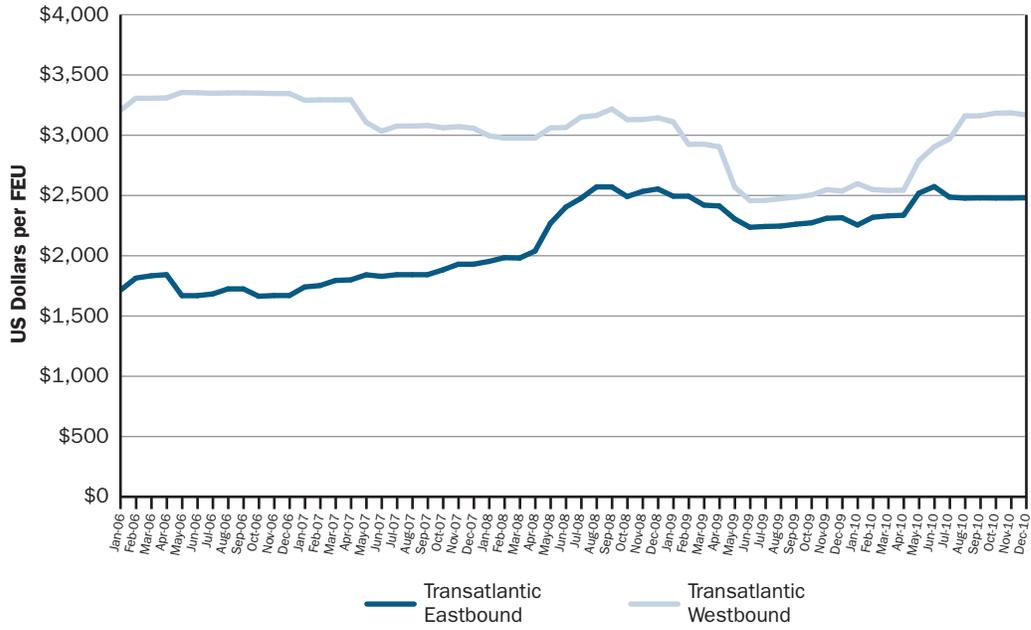


**Chart VIII.D Average Service Contract All-In Rates Asia/Europe Trades**



# Service Contract Rate Profiles for the Major East-West Trades

**Chart VIII.E Average Service Contract All-In Rates Transatlantic**



## Appendix IX

# Difference-in-Differences Estimates and Data

### A. Asia to Europe Estimates

**Table IX.A.1 DD Estimate of the Impact of Repeal on Average Revenue**

Trade Lane	Average Revenue per TEU		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Asia to Europe (subject to the repeal)	\$1,730	\$1,589	(\$141)
Asia to US (not subject to the repeal)	\$1,747	\$1,597	(\$150)
Difference between the trades	(\$17)	(\$8)	\$9 DD Estimate

**Table IX.A.2 DD Estimate of the Impact of Repeal on Rate Volatility (as measured by standard deviation divided by average revenue)**

Trade Lane	Std dev as % of avg revenue		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Asia to Europe (subject to the repeal)	15%	32%	17%
Asia to US (not subject to the repeal)	5%	16%	11%
Difference between the trades	10%	16%	6% DD Estimate

**Table IX.A.3 DD Estimate of the Impact of Repeal on Rate Volatility (as measured by dispersion about mean average revenue – one standard deviation)**

Trade Lane	Standard deviation of average revenue		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Asia to Europe (subject to the repeal)	\$260	\$510	\$250
Asia to US (not subject to the repeal)	\$90	\$260	\$170
Difference between the trades	\$170	\$250	\$80 DD Estimate

**Table IX.A.4 DD Estimate of the Impact of Repeal on Capacity Utilization (Quarterly Load Factor)**

Trade Lane	Average Load Factor		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Asia to Europe (subject to the repeal)	86.9%	85.0%	-1.9%
Asia to US (not subject to the repeal)	86.1%	78.7%	-7.4%
Difference between the trades	0.8%	6.3%	5.5% DD Estimate

## Appendix IX

**Table IX.A.5 DD Estimate of the Impact of Repeal on Market Concentration (HHI)**

Trade Lane	Herfindahl Hirschman Index		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Asia to Europe (subject to the repeal)	856	917	61
Asia to US (not subject to the repeal)	633	665	32
Difference between the trades	223	252	29 DD Estimate

**Table IX.A.6 DD Estimate of the Impact of Repeal on Market Share Stability**

Trade Lane	Market Share Stability Index		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Asia to Europe (subject to the repeal)	6.4%	8.4%	2.0%
Asia to US (not subject to the repeal)	9.6%	7.6%	-2.0%
Difference between the trades	-3.2%	0.8%	4% DD Estimate

**Table IX.A.7 DD Estimate of the Impact of Repeal on Average Capacity Deployed per Quarter**

Trade Lane	Average Capacity Deployed per Qtr (TEU)		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Asia to Europe (subject to the repeal)	2,381,000	2,370,000	(11,000)
Asia to US (not subject to the repeal)	4,125,000	3,950,000	(175,000)
Difference between the trades	(1,744,000)	(1,580,000)	164,000 DD Est

### B. Europe to Asia Estimates

**Table IX.B.1 DD Estimate of the Impact of Repeal on Average Revenue**

Trade Lane	Average Revenue per TEU		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Europe to Asia (subject to the repeal)	\$887	\$1,012	\$125
US to Asia (not subject to the repeal)	\$843	\$992	\$149
Difference between the trades	\$44	\$20	\$24 DD Estimate

**Table IX.B.2 DD Estimate of the Impact of Repeal on Rate Volatility (as measured by standard deviation divided by average revenue)**

Trade Lane	Std dev as % of avg revenue		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Europe to Asia (subject to the repeal)	17%	19%	2%
US to Asia (not subject to the repeal)	15%	15%	0%
Difference between the trades	2%	4%	2% DD Estimate

## Difference-in-Differences Estimates and Data

**Table IX.B.3 DD Estimate of the Impact of Repeal on Rate Volatility  
(i.e. dispersion about mean average revenue)**

Trade Lane	Standard dev of average revenue		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Europe to Asia (subject to the repeal)	\$150	\$191	\$41
US to Asia (not subject to the repeal)	\$129	\$148	\$19
Difference between the trades	\$21	\$43	\$22 DD Estimate

**Table IX.B.4 DD Estimate of the Impact of Repeal on Capacity Utilization  
(Quarterly Load Factor)**

Trade Lane	Average Load Factor		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Europe to Asia (subject to the repeal)	46.7%	49.9%	3.2%
US to Asia (not subject to the repeal)	42.4%	52.0%	9.6%
Difference between the trades	4.3%	-2.1%	-6.4% DD Estimate

**Table IX.B.5 DD Estimate of the Impact of Repeal  
on Market Concentration (HHI)**

Trade Lane	Herfindahl Hirschman Index		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Europe to Asia (subject to the repeal)	828	874	46
US to Asia (not subject to the repeal)	693	670	-23
Difference between the trades	135	204	69 DD Estimate

**Table IX.B.6 DD Estimate of the Impact of Repeal on Market Share Stability**

Trade Lane	Market Share Stability Index		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Europe to Asia (subject to the repeal)	6.7%	8.6%	1.9%
US to Asia (not subject to the repeal)	11.3%	10.2%	-1.1%
Difference between the trades	-4.6%	-1.6%	3% DD Estimate

**Table IX.B.7 DD Estimate of the Impact of Repeal on  
Average Capacity Deployed per Quarter**

Trade Lane	Average Capacity Deployed per Qtr (TEU)		Difference between periods
	Jan. 2006 to Sept. 2008	Oct. 2008 to Dec. 2010	
Europe to Asia (subject to the repeal)	1,847,000	1,756,000	(91,000)
US to Asia (not subject to the repeal)	3,438,000	3,247,000	(191,000)
Difference between the trades	(1,591,000)	(1,491,000)	100,000 DD Est

## Appendix IX

### C. Data used in calculating the estimates

Korea Maritime Institute (“KMI”) Study Difference-in-Differences Method

**Table IX.C.1 Freight Rate (average revenue per TEU)**

	Asia-Europe (Treatment)		Asia-N. America (Control)	
	eastbound	westbound	eastbound	westbound
2006 1Q	US\$793	US\$1,454	US\$1,836	US\$815
2006 2Q	804	1,408	1,753	828
2006 3Q	806	1,494	1,715	839
2006 4Q	792	1,545	1,671	777
2007 1Q	755	1,549	1,643	737
2007 2Q	744	1,658	1,675	765
2007 3Q	792	2,014	1,709	751
2007 4Q	959	2,109	1,680	761
2008 1Q	1,064	2,030	1,757	845
2008 2Q	1,104	1,937	1,844	987
2008 3Q	1,141	1,837	1,934	1,170
<b>standard deviation average</b>	<b>US\$150 887</b>	<b>US\$260 1,730</b>	<b>US\$90 1,747</b>	<b>US\$129 843</b>
2008 Q4	US\$1,109	US\$1,619	US\$1,890	US\$1,196
2009 1Q	853	1,023	1,670	913
2009 2Q	742	897	1,383	802
2009 3Q	787	1,061	1,232	817
2009 4Q	920	1,422	1,322	883
2010 1Q	1,090	2,060	1,440	978
2010 2Q	1,263	2,146	1,680	1,122
2010 3Q	1,226	2,177	1,944	1,158
2010 4Q	1,116	1,899	1,808	1,059
<b>standard deviation average</b>	<b>US\$191 1,012</b>	<b>US\$510 1,589</b>	<b>US\$260 1,597</b>	<b>US\$148 992</b>

Sources: *CI-online, CTS, TSA and WTSA*

**Volatility of avg revenue as measured by sd/average**

	Asia-Europe (Treatment)		Asia-N. America (Control)	
	eastbound	westbound	eastbound	westbound
pre-repeal	17%	15%	5%	15%
post-repeal	19%	32%	16%	15%

**Difference-in-differences estimate of the treatment effect on Volatility**

	Asia - Europe	
	eastbound	westbound
Asia - N. America		6%
		2%

*Compares headhaul-to-headhaul and backhaul-to-backhaul directions only*

*Formula*

*(Mean of treatment group, post-repeal - Mean of control group, post-repeal)*

*MINUS (Mean of treatment group, pre-repeal - Mean of control group, pre-repeal)*

## Difference-in-Differences Estimates and Data

### Other measures examined by the FMC

#### Changes in average revenue levels (absolute)

	Asia-Europe (Treatment)		Asia-N. America (Control)	
	eastbound	westbound	eastbound	westbound
pre-repeal	US\$887	US\$1,730	US\$1,747	US\$843
post-repeal	1,012	1,589	1,597	992

#### Difference-in-differences estimate of the treatment effect on Average Revenue

		Asia - Europe	
		eastbound	westbound
Asia - N. America	eastbound		\$9
	westbound	-\$24	

*Compares headhaul-to-headhaul and backhaul-to-backhaul directions only*

#### Changes in dispersion about the mean average revenue (standard deviation)

	Asia-Europe (Treatment)		Asia-N. America (Control)	
	eastbound	westbound	eastbound	westbound
pre-repeal	US\$150	US\$260	US\$90	US\$129
post-repeal	191	510	260	148

#### Difference-in-differences estimate of the treatment effect on Average Revenue dispersion about the mean

		Asia - Europe	
		eastbound	westbound
Asia - N. America	eastbound		\$80
	westbound	\$22	

*Compares headhaul-to-headhaul and backhaul-to-backhaul directions only*

## Appendix IX

**Table IX.C.2 Capacity Utilization**

	Asia-Europe (Treatment)		Asia-US (Control)	
	eastbound	westbound	eastbound	westbound
2006 1Q	51.4%	92.6%	79.8%	42.1%
2006 2Q	55.9%	92.8%	91.2%	40.1%
2006 3Q	49.9%	90.0%	90.3%	37.2%
2006 4Q	48.2%	90.1%	83.1%	37.4%
2007 1Q	50.4%	98.7%	80.8%	42.3%
2007 2Q	52.2%	95.0%	91.0%	48.1%
2007 3Q	45.8%	85.3%	91.6%	44.0%
2007 4Q	40.0%	78.9%	81.4%	48.2%
2008 1Q	38.3%	86.1%	78.2%	53.6%
2008 2Q	43.7%	78.3%	84.4%	55.6%
2008 3Q	37.7%	67.4%	86.5%	51.2%
<b>standard deviation</b>	<b>6.1%</b>	<b>9.0%</b>	<b>5.3%</b>	<b>4.3%</b>
<b>average</b>	<b>46.7%</b>	<b>86.9%</b>	<b>86.1%</b>	<b>42.4%</b>
2008 4Q	32.7%	66.7%	73.2%	36.7%
2009 1Q	37.3%	83.9%	63.0%	42.8%
2009 2Q	56.5%	91.8%	73.9%	55.2%
2009 3Q	55.4%	87.4%	80.1%	53.0%
2009 4Q	55.8%	93.3%	78.7%	54.0%
2010 1Q	54.0%	100.1%	79.4%	54.0%
2010 2Q	55.5%	88.8%	99.7%	64.8%
2010 3Q	52.6%	74.1%	86.3%	54.7%
2010 4Q	49.3%	78.9%	73.8%	52.4%
<b>standard deviation</b>	<b>8.8%</b>	<b>10.3%</b>	<b>10.2%</b>	<b>8.0%</b>
<b>average</b>	<b>49.9%</b>	<b>85.0%</b>	<b>78.7%</b>	<b>52.0%</b>

Source: Drewry Maritime Research

**Capacity Utilization**

	Asia-Europe (Treatment)		Asia-US (Control)	
	eastbound	westbound	eastbound	westbound
pre-repeal	46.7%	86.9%	86.1%	42.4%
post-repeal	49.9%	85.0%	78.7%	52.0%

**Difference-in-differences estimate of the repeal on capacity utilization**

		Asia - Europe	
		eastbound	westbound
Asia - US	eastbound		5.5%
	westbound	-6.4%	

Compares headhaul-to-headhaul and backhaul-to-backhaul directions only

Formula

(Mean of treatment group, post-repeal - Mean of control group, post-repeal)

MINUS (Mean of treatment group, pre-repeal - Mean of control group, pre-repeal)

## Difference-in-Differences Estimates and Data

**Table IX.C.3 Market Concentration (HHI)**

	Asia-Europe (Treatment)		Asia-US (Control)	
	eastbound	westbound	eastbound	westbound
2006 1Q	684	682	578	662
2006 2Q	881	867	599	709
2006 3Q	865	888	623	773
2006 4Q	867	887	621	706
2007 1Q	850	871	605	698
2007 2Q	842	860	620	665
2007 3Q	866	895	651	700
2007 4Q	870	882	661	691
2008 1Q	848	866	669	681
2008 2Q	771	858	667	672
2008 3Q	769	859	668	667
<b>standard deviation</b>	<b>61</b>	<b>59</b>	<b>32</b>	<b>31</b>
<b>average</b>	<b>828</b>	<b>856</b>	<b>633</b>	<b>693</b>
2008 4Q	758	841	674	652
2009 1Q	806	850	673	684
2009 2Q	870	920	677	707
2009 3Q	936	988	671	679
2009 4Q	929	951	667	668
2010 1Q	930	947	666	678
2010 2Q	947	983	661	663
2010 3Q	829	868	653	647
2010 4Q	860	902	639	650
<b>standard deviation</b>	<b>67</b>	<b>55</b>	<b>12</b>	<b>19</b>
<b>average</b>	<b>874</b>	<b>917</b>	<b>665</b>	<b>670</b>

**Market Concentration (HHI)**

	Asia-Europe (Treatment)		Asia-US (Control)	
	eastbound	westbound	eastbound	westbound
pre-repeal	828	856	633	693
post-repeal	874	917	665	670

**Difference-in-differences estimate of the repeal on market concentration (HHI)**

	Asia - Europe		
		eastbound	westbound
Asia - US	eastbound		29
	westbound	69	

*Compares headhaul-to-headhaul and backhaul-to-backhaul directions only*

*Formula*

*(Mean of treatment group, post-repeal - Mean of control group, post-repeal)*

*MINUS (Mean of treatment group, pre-repeal - Mean of control group, pre-repeal)*

## Appendix IX

**Table IX.C.4 Market Share Stability Index**

	Asia-Europe (Treatment)		Asia-US (Control)	
	eastbound	westbound	eastbound	westbound
2006 1Q	4.6%	1.8%	7.4%	10.0%
2006 2Q	26.4%	24.3%	15.1%	11.4%
2006 3Q	2.6%	2.7%	7.1%	7.8%
2006 4Q	5.7%	4.4%	6.4%	12.4%
2007 1Q	6.3%	8.0%	5.9%	8.6%
2007 2Q	4.2%	4.0%	8.6%	24.9%
2007 3Q	3.2%	3.9%	27.8%	15.9%
2007 4Q	4.1%	6.2%	6.7%	10.2%
2008 1Q	4.0%	3.8%	6.5%	7.2%
2008 2Q	8.1%	7.0%	7.8%	5.6%
2008 3Q	4.6%	4.5%	6.1%	10.6%
<b>standard deviation</b>	<b>6.7%</b>	<b>6.2%</b>	<b>6.6%</b>	<b>5.3%</b>
<b>average</b>	<b>6.7%</b>	<b>6.4%</b>	<b>9.6%</b>	<b>11.3%</b>
2008 4Q	7.3%	6.0%	5.8%	11.6%
2009 1Q	10.2%	9.4%	7.5%	14.5%
2009 2Q	14.1%	15.0%	9.1%	9.3%
2009 3Q	5.4%	6.3%	8.5%	7.9%
2009 4Q	6.2%	8.7%	7.8%	7.9%
2010 1Q	5.2%	4.3%	5.9%	9.2%
2010 2Q	4.9%	5.8%	6.6%	9.3%
2010 3Q	13.7%	12.1%	8.5%	11.4%
2010 4Q	10.0%	8.1%	9.1%	10.7%
<b>standard deviation</b>	<b>3.6%</b>	<b>3.4%</b>	<b>1.3%</b>	<b>2.1%</b>
<b>average</b>	<b>8.6%</b>	<b>8.4%</b>	<b>7.6%</b>	<b>10.2%</b>

*The index is based on the sum of changes in market shares quarter-to-quarter by all carriers.*

**Market Share Stability Index**

	Asia-Europe (Treatment)		Asia-US (Control)	
	eastbound	westbound	eastbound	westbound
pre-repeal	6.7%	6.4%	9.6%	11.3%
post-repeal	8.6%	8.4%	7.6%	10.2%

**Difference-in-differences estimate of the treatment effect on Market Share Stability**

		Asia-Europe	
		eastbound	westbound
Asia - US	eastbound		4.0%
	westbound	3.0%	

*Compares headhaul-to-headhaul and backhaul-to-backhaul directions only*

*Formula*

*(Mean of treatment group, post-repeal - Mean of control group, post-repeal)*

*MINUS (Mean of treatment group, pre-repeal - Mean of control group, pre-repeal)*

*The index is based on the sum of changes in market shares quarter-to-quarter by all carriers*

## Difference-in-Differences Estimates and Data

**Table IX.C.5 Capacity Deployed per Quarter (thousands of TEUs)**

	Asia-Europe (Treatment)		Asia-US (Control)	
	eastbound	westbound	eastbound	westbound
2006 1Q	1725	2103	3842	3242
2006 2Q	1640	2046	3974	3341
2006 3Q	1754	2210	4201	3532
2006 4Q	1816	2254	4330	3643
2007 1Q	1751	2217	4129	3426
2007 2Q	1778	2288	3955	3272
2007 3Q	1901	2473	4238	3503
2007 4Q	1950	2572	4333	3546
2008 1Q	1974	2613	4071	3306
2008 2Q	1948	2617	3981	3255
2008 3Q	2080	2800	4173	3436
<b>standard deviation</b>	<b>132</b>	<b>245</b>	<b>183</b>	<b>143</b>
<b>average</b>	<b>1847</b>	<b>2381</b>	<b>4125</b>	<b>3438</b>
2008 4Q	2108	2789	4312	3551
2009 1Q	1889	2479	4036	3296
2009 2Q	1585	2128	3728	3046
2009 3Q	1684	2268	3927	3209
2009 4Q	1667	2270	3930	3209
2010 1Q	1583	2181	3611	2988
2010 2Q	1533	2131	3450	2854
2010 3Q	1771	2423	4142	3423
2010 4Q	1986	2664	4415	3646
<b>standard deviation</b>	<b>199</b>	<b>237</b>	<b>318</b>	<b>262</b>
<b>average</b>	<b>1756</b>	<b>2370</b>	<b>3950</b>	<b>3247</b>

**Capacity Deployed per Quarter (thousands of TEUs)**

	Asia-Europe (Treatment)		Asia-US (Control)	
	eastbound	westbound	eastbound	westbound
pre-repeal	1847	2381	4125	3438
post-repeal	1756	2370	3950	3247

**D-in-D estimate of the repeal on average capacity deployed quarterly (thousands of TEUs)**

	Asia - Europe		
		eastbound	westbound
Asia - US	eastbound		164
	westbound	100	

*Compares headhaul-to-headhaul and backhaul-to-backhaul directions only*

*Formula*

*(Mean of treatment group, post-repeal - Mean of control group, post-repeal)*

*MINUS (Mean of treatment group, pre-repeal - Mean of control group, pre-repeal)*

## Appendix IX

### D. Difference-in-Differences Explained Further

Difference-in-differences (DD) estimation is commonly used to assess the impact of a program intervention, new policy or law. DD estimation of impact involves identifying a specific intervention or the implementation of a particular policy or law. The difference in outcomes before and after the change in policy for the group affected by the new policy is compared to the difference in outcomes for the group to whom the new policy does not apply. In the context of this study, for example, in order to identify the possible outcome effects of removing the limited antitrust immunity granted to liner shipping, one must isolate liner trades where this immunity has been repealed. One can then compare changes in outcomes among carriers operating in those liner trades that have had antitrust immunity repealed to outcomes among carriers operating in trades where such immunity still remains.

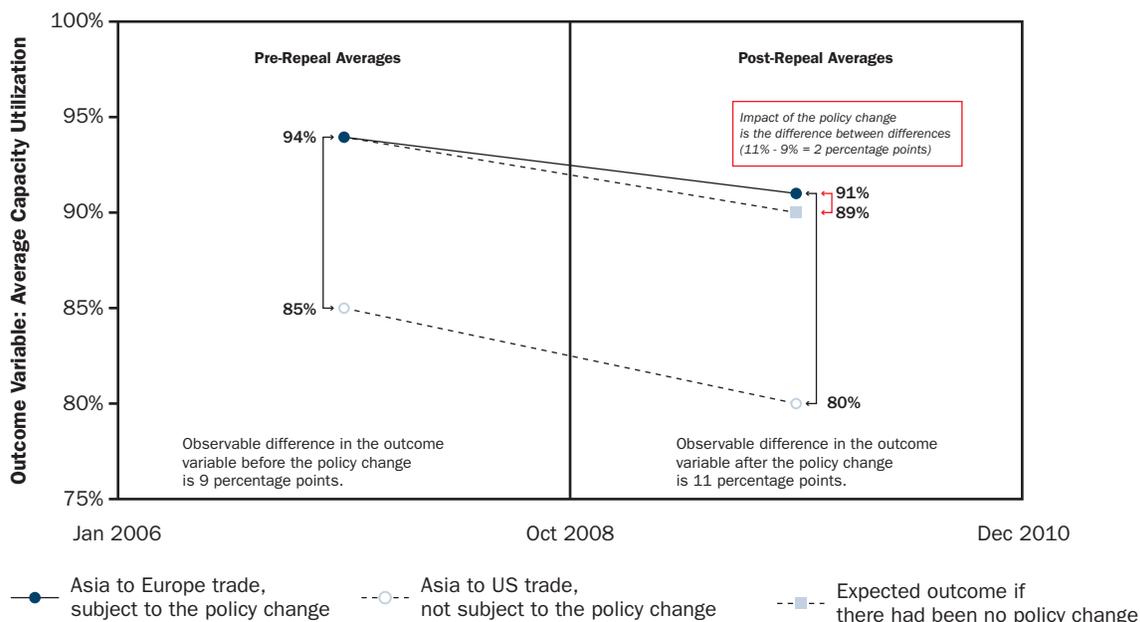
Using DD, the impact of a policy on an outcome can be assessed relatively simply by calculating a *double difference* – one over time (i.e. before and after the policy change) and one across groups (i.e. between the group subject to the policy change and the group not subject to it). In its simplest form, this method requires only aggregate data for each outcome variable of interest. And, so long as aggregate data are available for these two groups (i.e. the “treatment” group subject to the new policy and the “control” group not subject to it) for at least two time periods (i.e. for a period before the policy was implemented and for a period after implementation), the DD method will produce impact estimates that are more reliable than those based on a *single difference* either over time or between groups.

How double differencing produces impact estimates is illustrated in Chart IX.D. In this chart, the difference in outcomes between the group subject to the new policy and the group untouched by it are observed after the new policy has been implemented. The difference observed in the post-implementation period, however, does not reveal the true impact of the new policy since circumstances in one group (i.e. trade lane) could be different from those in the other group (i.e. trade lane). This phenomenon is referred to in the technical literature as *selection bias*. However, selection bias can be accounted for if outcome data is available for the “treatment” and “control” groups before the new policy was implemented. So long as what differentiates the two groups is time-invariant (i.e. fixed in time), then subtracting the difference in outcomes before the new policy was implemented from the difference in outcomes after the policy was implemented should produce plausible estimates of the impact of the intervention.

The DD method can provide answers to a question such as: Did removal of the block exemption in Europe have a positive effect on carriers’ capacity utilization rates? As long as the outcome variable of interest – average capacity utilization in this example – can be measured both before and after implementation of the new policy, the DD method can furnish an estimate of its impact. The impact of repeal on average capacity utilization, or any other variable of interest, is estimated by subtracting the difference observed between the two groups (i.e. the European trade lane impacted by the repeal and the other non-European trade lane left unaffected by it) before the repeal from the difference observed between the two groups after repeal. Chart IX.D illustrates this interpretation of the DD method. Time is depicted on the horizontal axis and two periods are distinguished – the pre-repeal period from January 2006 through September 2008 and the post-repeal period from October 2008 through December 2010. The average capacity utilization rate is shown on the vertical axis. Each circle in the chart illustrates an average capacity utilization rate. Two circles illustrate the overall average capacity utilization rates during the pre-repeal and post-repeal periods. The solid circles illustrate the average capacity utilization rate for carriers operating in the Asia to Europe trade lane (subject to the repeal) and the hollow circles illustrate the average for carriers operating in the Asia to US trade lane (not affected by the repeal).

## Difference-in-Differences Estimates and Data

**Chart IX.D DD as a Difference between Post-Repeal and Pre-Repeal Differences**



It should be obvious now that the “raw” difference observed in this illustration between the two trade lanes in the post-repeal period (91 percent minus 80 percent) does not represent the true impact of the repeal. If taken as an indication of the impact of the repeal, this 11 percentage point difference would overstate the repeal’s impact. The truth of this statement is evident when average capacity utilization rates observed before the repeal are evaluated and compared. In the pre-repeal period the difference in average capacity utilization between the two trade lanes in this illustration was 9 percent (94 percent minus 85 percent). As a result, just the gain in average capacity utilization (11 percent minus 9 percent = 2 percent) should be interpreted as the impact of the repeal of the block exemption. However, the validity of this DD estimate critically depends on the assumption that, absent the repeal, the trend in the Asia to Europe trade lane would have been similar to that in the Asia to US trade lane absent the repeal. The dotted line in Chart IX.D which runs parallel to the trend observed in the Asia to US trade lane and which starts where the Asia to Europe trade lane was in the pre-repeal period, represents the DD model’s best estimate of what would have happened to average capacity utilization in the Asia to Europe trade had the repeal not occurred. It should now be clear that the DD approach relies on an assumption of *parallelism* between what happened and what would have happened in the absence of the repeal and any attempt at a causal interpretation of DD estimates based on the simple DD method used in Chapter 6 rests on this vital assumption.

In the absence of the repeal of the block exemption in Europe, the assumption of parallelism asserts that the Asia to Europe trade lane would have continued to experience the same *trends* in outcomes, or other variables of interest, as the Asia to US trade lane operating outside of Europe. This assumption, therefore, views carriers in both trades as operating in similar “parallel worlds” in which events in one world (i.e. trade lane) are equivalently felt in the other.<sup>1</sup> Given the trends observed in our earlier more detailed longitudinal examination

1 J.D. Angrist & J.S. Pischke, *Mostly Harmless Econometrics: An Empiricist’s Companion*, p 230. Princeton University Press, 2008.

## Appendix IX

of structure, conduct and performance in these two trades, although stringent, this assumption seems reasonably plausible in the case of the two trades analyzed in Chapter 6.

The assumption that the two trades operate in “parallel worlds” can be investigated using data on multiple periods or if more complex DD methods are used. If more data was available in the pre-repeal period, for example, one could test the assumption that trends were the same in both trade lanes in the absence of the repeal by comparing outcomes in, for example, the 2003 through 2005 period with those in the 2006 through 2008 period. In this manner, one could simply view whether the Asia to US trade provides an adequate measure of the counterfactual of the variables of interest in the Asia to Europe trade in the absence of the repeal of the block exemption by establishing whether strong visual evidence of common underlying trends exists between the “treatment” and “control” trade lanes.

An alternative to having more outcome data available would be to incorporate into the analysis data on other variables that possibly could influence the outcome variables and/or are thought to be correlated with the repeal. Incorporating other variables into the analysis, however, means a substantial loss of simplicity and would require shifting from the simple and easy-to-interpret estimates obtained in the simple DD model to using regression models based, for example, on a sufficiently large cross-section (or panel) of individual shippers or carriers. If such data were available, the use of regression to develop DD estimates based on either a cohort of shippers or a large group of carriers active in the Asia to US and Asia to Europe trade lanes would be well worth exploring.<sup>2</sup> Using this enhanced technique, covariates could be added to the regression model(s) to attempt to control for the impact of the global recession, thereby relaxing the stringent assumption implicit in the simpler “parallel worlds” DD estimation method. The addition of control variables conceivably could destroy any impacts of the repeal established using the simpler DD method. That is to say, it is possible that controlling for any potential time-varying trends between the Asia to Europe and Asia to US trades could drive the impacts of the repeal estimated previously to zero or turn apparently positive impacts into negative ones, and vice-versa.

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<sup>2</sup> Unsuccessful attempts were made to obtain cross-sectional data from carriers operating in the major east-west trades.

# An Empirical Analysis of EU's Policy of Abolishing the Liners' Block Exemption from Competition Rules\*

Korea Maritime Institute, December 2009

## 1. Method of difference-in-difference estimation

Effect of EU's Abolition Policy

$$= (x_i, \text{post-policy, EA-EU route} - x_i, \text{post-policy, EA-NA route}) \\ - (x_i, \text{pre-policy, EA-EU route} - x_i, \text{pre-policy, EA-NA route})$$

where EA means East Asia, EU European, NA North America.

For an intuitively mathematical explanation, see the below manipulation:

### 1) Notations

Effect of global crisis =  $gc_i$

Effect of EU's Abolition Policy =  $ab_i$

Characteristic of EA-EU route =  $EU_i$

Characteristic of EA-NA route =  $NA_i$

### 2) Expressions for the Variables

So, each variable can be expressed as follow:

$$x_i, \text{post-policy, EA-EU route} = EU_i + gc_i + ab_i$$

$$x_i, \text{post-policy, EA-NA route} = NA_i + gc_i$$

$$x_i, \text{pre-policy, EA-EU route} = EU_i$$

$$x_i, \text{pre-policy, EA-NA route} = NA_i$$

### 3) The result

Effect of EU's Abolition Policy

$$= (x_i, \text{post-policy, EA-EU route} - x_i, \text{post-policy, EA-NA route}) \\ - (x_i, \text{pre-policy, EA-EU route} - x_i, \text{pre-policy, EA-NA route}) \\ = \{(EU_i + gc_i + ab_i) - (NA_i + gc_i)\} - \{(EU_i) - (NA_i)\}$$

## 2. Empirical Results

First of all, it should be kept in mind that the combinations such as (EA-EU west-bound, EA-NA east-bound) and (EA-EU east-bound, EA-NA west-bound) are better than the other combinations because the former combinations showed the similar global crisis effects. That is, (EA-EU west-bound, EA-NA east-bound) routes both showed more reduction in trade volume after global crisis, but (EA-EU east-bound, EA-NA west-bound) routes both showed less reduction in trade volume in the same period. So these combinations include an approximately same global crisis effect. Therefore, in the following empirical results, the more meaningful ones belong to these combinations but the others are less meaningful.

According to CI-Online data, the EU-route rate volatility after EU's policy has increased relative to that of NA route. The increase in rate volatility can be interpreted harmful to both the shipper and shipping company.

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\* We have been informed that the research results presented here (reproduced from the original) are not the official views of the Korean Maritime Institute. Furthermore, they do not represent the position of the Government of Korea. The results reflect only the views of the authors.

## Appendix X

**Table 1–Difference-in-difference estimation of volatility of ocean rates**

		EA-EU route	
		East-Bound	West-Bound
EA-NA route	East-Bound	-2%	15%
	West-Bound	6%	22%

Source: CI-Online

According to the results shown in Table 2 and Table 3, there has been decrease of the concentration in EU route, relative to NA route. These results mean that EU’s policy has enhanced the competition among the liners in EU routes. As shown in Table 4, this increase in competition resulted in the more efficient utilization of vessel space.

**Table 2–Difference-in-difference estimation of CR5**

	EA-EU route
EA-NA route	-11.7%

Note: 1) The values are calculated based on the services, which have been provided to Busan Port.

2) CR5 means the 5-firm concentration ratio.

Source: CI-Online and Containerisation International Yearbook

**Table 3–Difference-in-difference estimation of HHI**

	EA-EU route
EA-NA route	-17.9%

Note: 1) that of Table 2

2) HHI means Herfindahl-Hirschman Index.

Source: Refer to that of Table 2

**Table 4–Difference-in-difference estimation of load factor**

		EA-EU route	
		East-Bound	West-Bound
EA-NA route	East-Bound	15.6%	5.2%
	West-Bound	11.1%	0.7%

Source: Drewry, Container Market | 2009/10, 2009. 10

However, according to the results in Table 5, there have been significant reductions in the liners’ revenue. These results can be interpreted that the dynamic risk hedging function of shipping conference has been eliminated.

**Table 5–Difference-in-difference estimation of revenue (Unit: billion \$)**

		EA-EU route	
		East-Bound	West-Bound
EA-NA route	East-Bound	1.3	-0.9
	West-Bound	0	-2.8

Source: refer to that of Table 4

## Appendix XI

# Mergers and Acquisitions (Global)

### A.P. Moller Maersk

Maersk Line (takeover 2005) (Renamed 2006)

Maersk-Sealand (1999)

Maersk

Sealand

Torm Lines (2002)

Royal P&O Nedlloyd (2002)

P&O Nedlloyd (2005)

Blue Star Line (1998)

Farrell Line (2000)

Oceanica AGW (renamed Mercosul Line) (2000)

MCC Transport Singapore Pte Ltd

Norfolk Line Containers

Norse Merchant (2005)

Safmarine Container Lines (1999)

Unicorn Lines (2002) (renamed Ocean Africa Container Line) (2004)

SCF Oriental Lines (2004)

### CMA CGM (1999)

CMA

CGM

CGM (1977)

MessMar

Tansat

Australian National Lines (ANL) (1998)

Cagema

Cheng Lie Navigation Ltd (2007)

CoMaNav (2007)

US Lines (2007)

Delmas (2006)

Setramar (2001)

OTAL (2005)

Sudcargos (2005)

United Baltic Corp (Andrew Wier) (2002)

MacAndrews & Ellerman Iberian (Andrew Wier) (2002)

Delom SA (2002) (controlling interest- 80%)

Feeder Associate Systems (FAS)

Gemartrans

## Appendix XI

### **Evergreen Line (2007)**

Evergreen

Hatsu Marine Ltd (2007)

Lloyd Triestino ( 1998) (renamed Italia Marittima)

### **Hapag Lloyd (2005)**

Hapag Lloyd

CP Ships (2005)

Italia di Navigazione (2002)

TMM (2000)

Christensen Canada-Africa Line (2000)

ANZDL (1998)

Ivarans ( 1998)

Contship Container Lines (1997)

Lykes Lines (1997)

Casl (1995)

### **China Shipping Container Lines (CSCL)**

Shanghai Puhai Shipping Company (2005)

Universal Shipping

### **APL/NOL (1997)**

APL

NOL

### **NYK**

Nippon Liner Systems (1991)

### **Hanjin/Senator ( 1997)**

Hanjin

DSR-Senator (renamed Senator Lines - 2002)

### **MOL**

P&O Nedlloyd (2005) (SAECS trade)

### **Hamburg Sud**

Costa Container Lines (2007)

Gilnavi srl di Navigazione (2004)

FOML (renamed FESCO Australia New Zealand Liner Services (FANZL)) (Mar 2006)

Ybarra (renamed Ybarra Sud) (2006)

Columbus Line (2004)

Kien Hung Line (2003)

Ellerman deep sea services (Andrew Wier) (2002)

Crowley American Transport (2000)

Alianca (1998)

## Mergers and Acquisitions (Global)

### **CSAV**

Norsul container activities (2002)

Norasia (2000)

### **PIL**

Advanced Container Lines (1994)

Pacific Direct Line (2006)

Pacific Eagle Lines

### **Wan Hai**

Interasia (2005)

Trans-Pacific Lines (2002)

### **Grimaldi**

Finnlines (2005)

    Nordo Link (2002)

ACL (2002)

*Original Source: Transport Policy 16 (2009), Table B1, p.269 - Updated July 2011*

## Appendix XII

# Slow Steaming Services in the Major East-West Trades, December 2010

Using information collected by AXS-Alphaliner, staff compiled the attached tables to show the extent to which services in the major east-west trades are slow steaming as of December 2010. Reflecting the greater fuel cost savings achievable on longer voyages using bigger ships, slow steaming is more prevalent in the Asia/Europe and transpacific trades than in the transatlantic trade. At the end of December 2010, well over 90 percent of weekly capacity in the Asia/Europe trade was being generated by slow steaming services. Overall, 61 percent of the transpacific weekly capacity is generated by slow steaming services. This proportion is higher (77 percent) to the US East Coast where voyages are much longer and more time is spent at sea. Fifty-six percent of weekly capacity is generated by slow steaming services to and from the US West Coast. Only 43 percent of the weekly capacity in the transatlantic trade is generated by slow steaming where the relatively short voyage distance and smaller ships used mean the potential fuel cost saving in this trade is much lower.

**Table XII.A Slow Steaming Summary - Transatlantic (December 2010)**

	North Europe	Mediterranean	Total
Total Services:	15	13	28
Total Slow Steaming Services:	3	6	9
Number Ships Deployed:	91	107	198
Average Vessel Size:	4,069	4,269	4,183
Total Weekly Capacity:	51,240	51,195	102,435
Total Slow Steaming Weekly Capacity:	16,164	27,697	43,861
Percent Weekly Capacity Slow Steaming:	32%	54%	43%
Percent Services Slow Steaming:	20%	46%	32%

Source: Compiled by the Federal Maritime Commission, Bureau of Trade Analysis using Alphaliner data extracts.

## Appendix XII

**Table XII.B Slow Steaming Services in the Transatlantic  
(December 2010)**

Slow Steaming	Trade Lane	Score	Service	# of Operators	Coverage	Freq	# of ships	Ship Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
no	North Europe	1020	Maersk Line - Atlantic South service - TA-2 (US flag service) (NWA : ATS) (CMA CGM : Liberty Bridge)	1	N. Eur / US Gulf / USEC	7	5	4,000 teu	35	4,360	0
yes	North Europe	M071	New World Alliance - Atlantic Pacific Express (APX) - Atlantic string (Maersk : TA-1) (CMA CGM : Liberty Bridge 2)	2	FE / USEC / N. Eur	7	13	4,000 / 5,000 teu	91	4,737	4,737
yes	North Europe	M090	Grand Alliance - PAX - Europe-USEC-USWC string	1	N. Eur / USEC / PSW / FE	7	14	4,600 / 5,000 teu	98	4,709	4,709
no	North Europe	1026	Grand Alliance / Zim / HS - North Europe-USEC service (ATX)	3	N. Eur / USEC	7	4	4,000 / 4,500 teu	28	4,613	0
no	North Europe	1031	Grand Alliance - North Europe-US Gulf-Mexico service (GuMex / GMX)	1	N. Eur / USEC(S) / USG	7	6	2,800 / 3,300 teu	42	2,940	0
no	North Europe	1035	Hapag-Lloyd - Atlantic Express Shuttle (AES) (Antwerp-New York service)	1	N. Eur / USEC	7	3	2,500 / 2,800 teu	21	2,716	0
no	North Europe	1072	CKYH / Evergreen - Trans Atlantic Express (TAE)	3	N. Eur / USEC	7	4	2,800 / 3,000 teu	28	2,726	0
no	North Europe	1106	Grand Alliance - Europe-US Gulf service (GAX) (US flag service)	1	N. Eur / USEC(S) / USG	7	5	3,300 teu	35	3,237	0
no	North Europe	1115	CMA CGM / CSAV - North Europe-South USEC-US Gulf service (Victory Bridge / SAMEX)	2	N. Eur / USEC / USG	7	5	2 700 / 3,400 teu	35	3,155	0
no	North Europe	1122	MSC - North Europe-USEC (North) service	1	N. Eur / USEC (N)	7	5	3 800 / 5000 teu	35	4,869	0
yes	North Europe	1130	MSC - North Europe-South USEC-US Gulf service (CMA CGM : New Victory Bridge)	1	N. Eur / USEC (S) / USG	7	7	5 500 / 6700 teu	49	6,718	6,718
no	North Europe	1140	Independent Container Line (ICL) - Transatlantic service	1	N. Eur / USEC	7	4	1 500 / 2000 teu	28	1,953	0
no	North Europe	1150	ACL - Transatlantic conro service (Grimaldi-owned)	1	N. Eur / USEC(N)	7	5	2 908 teu (conros)	35	2,908	0
no	North Europe	M184	CMA CGM / Marfret - Europe-US-ANZ Pendulum via PANAMA (PAD)	2	Eur / USEC / ANZ	14	6	2 200 / 2500 teu	84	1,165	0

## Slow Steaming Services in the Major East-West Trades, December 2010

**Table XII.B Slow Steaming Services in the Transatlantic (December 2010) (continued)**

Slow Steaming	Trade Lane	Scode	Service	# of Operators	Coverage	Freq	# of ships	Ship Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
no	North Europe	6591	Ecuadorian Line - Europe-US-Ecuador container/reefer service	1	N. Eur / USEC(S) / Ecuador	7	5	434 teu	35	434	0
yes	Mediterranean	1616	Maersk Line / CMA CGM - West Med-USEC service (MGS / Amerigo)	2	Med / US	7	6	2 700 / 4300 teu	42	3,021	3,021
yes	Mediterranean	3599	Maersk Line - India-ME-USEC service - MECL 2 - Med-US string	1	Indian sub / ME / Med / USEC	7	10	4 500 / 5000 teu	70	4,916	4,916
yes	Mediterranean	3595	Indamex / IAX - India-America Direct Express service	5	N. Am / India	7	8	3 800 / 4500 teu	56	4,239	4,239
yes	Mediterranean	26741	CMA CGM - China-USEC-Tangier-ME (eastbound) service (new PEX 3) - US-Med string	1	FE / US Gulf / USEC	7	11	5 000 teu	77	5,078	5,078
yes	Mediterranean	2139	Grand Alliance - Asia-Med-USEC - AEX - Med-US string	2	FE / USEC via Suez	7	10	5 300 / 5800 teu	70	5,712	5,712
no	Mediterranean	3594	UASC / Hanjin - India-Med-US service (MINA / IMU) - Med-US string (COSCO : TAS-4)	2	Ind. sub / ME / Med / USEC	7	9	3 800 / 4250 teu	63	3,901	0
yes	Mediterranean	1631	MSC - Med-USEC service	1	Med / USEC	7	6	4 000 / 5000 teu	42	4,732	4,732
no	Mediterranean	1632	MSC - Med-US Gulf service	1	Med / US Gulf	7	6	4 000 / 5000 teu	42	5,003	0
no	Mediterranean	1636	MSC - Med-Panama-USWC service (California Express)	1	Med / Pan / USWC	7	8	2 500 / 4000 teu	56	4,193	0
no	Mediterranean	1641	Hapag-Lloyd - Mediterranean Gulf Express (MGX)	1	Med / USG / Mexico	7	7	3 200 teu	49	3,057	0
no	Mediterranean	1660	Hapag-Lloyd - Med Pacific Express (MedPac / MPS)	1	Med / Caribb. / NCSA / WCNA	11	6	2 100 / 2500 teu	65	1,495	0
no	Mediterranean	M160	Zim Container Service (ZCS) - Med-US string	1	Med / USEC / USWC / FE	7	15	4 200 / 5000 teu	105	4,951	0
no	Mediterranean	1680	Turkon Line - Med-America Line	1	Med / USEC	9	5	1 150 teu	45	897	0

Source: Compiled by the Federal Maritime Commission, Bureau of Trade Analysis, using Alphaliner data extracts.

## Appendix XII

**Table XII.C Slow Steaming Summary - Far East/Europe  
(December 2010)**

	North Europe	Mediterranean	Total
Total Services:	31	21	52
Total Slow Steaming Services:	28	20	48
Number Ships Deployed:	312	202	514
Average Vessel Size:	8,174	6,250	7,418
Total Weekly Capacity:	251,846	124,866	376,712
Total Slow Steaming Weekly Capacity:	231,332	120,468	351,800
Percent Weekly Capacity Slow Steaming:	92%	96%	93%
Percent Services Slow Steaming:	90%	95%	92%

*Source: Compiled by the Federal Maritime Commission, Bureau of Trade Analysis, using Alphaliner data extracts.*

## Slow Steaming Services in the Major East-West Trades, December 2010

**Table XII.D Slow Steaming Services in the Far East/Europe Trade (December 2010)**

Slow Steaming	Trade Lane	Scode	Service	# of Operators	Coverage	Freq	# of ships	Ship Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
yes	North Europe / Far East	31203	CKYH - Asia-North Europe Loop 1 - NE 1 (UASC : AEC 3)	2	N. Eur / FE	7	8	9,500 / 10,000 teu	63	8,742	8,742
yes	North Europe / Far East	31204	CKYH - Asia-North Europe Loop 2 - NE 2 (UASC : AEC 4)	2	N. Eur / FE	7	9	8,000 / 9,000 teu	63	8,587	8,587
yes	North Europe / Far East	31205	CKYH - Asia-North Europe Loop 3 - NE 3 (via Port Said wbd) (UASC : AEC 5)	1	N. Eur / FE	7	10	8,000 / 10,000 teu	70	9,021	9,021
yes	North Europe / Far East	31206	CKYH - Asia-North Europe Loop 4 - NE 4 (via Port Said ebd) (UASC : AEC 6)	3	N. Eur / FE	7	9	8,000 / 9,000 teu	63	8,778	8,778
yes	North Europe / Far East	31209	CKYH - Asia-North Europe Loop 5 - NE 5 (UASC : AEC 7)	1	N. Eur / FE	7	9	6,500 teu	63	6,521	6,521
yes	North Europe / Far East	3200	CMA CGM - Asia-Europe service - FAL 1 (CSCL : AEX 3 / APL-MOL : NCE)	1	Europe / Med / ME / FE	7	11	8,500 / 11,000 teu	77	10,881	10,881
yes	North Europe / Far East	3210	CMA CGM - Asia-Europe service - FAL 3 (CSCL : AEX 4) (APL : CFX)	1	Eur / ME / FE	7	10	8,500 / 9,500 teu	70	9,025	9,025
yes	North Europe / Far East	3205	CMA CGM / CSCL - Asia-Europe service - FAL 2 / AEX 7	3	Europe / FE	7	9	8,500 / 9,500 teu	63	9,191	9,191
yes	North Europe / Far East	M187	CMA CGM / Hapag-Lloyd / North Europe-Mediterranean-Oceania (New NEMO / EAX) - Asia-Europe-string	2	Eur / Med / ANZ	7	13	2,800 teu	91	2,799	2,799
yes	North Europe / Far East	3207	CMA CGM / Maersk - Asia-Europe service - FAL 5 / AE-8	2	Europe / FE	7	10	11,000 / 13,000 teu	70	13,287	13,287
no	North Europe / Far East	32151	CSCL / Evergreen - Asia-Europe Express 1 (AEX 1 / CEM) (CMA CGM : FAL 10)	2	Europe / Med / FE	7	8	8,000 / 10,000 teu	56	8,788	0
yes	North Europe / Far East	3012	Evergreen Line - China Europe Service (CES) (CMA CGM : FAL 15)	1	N. Eur / Med / FE	7	10	7,000 / 8,000 teu	70	7,129	7,129
yes	North Europe / Far East	30711	Grand Alliance - Europe-Asia - Loop A (EU A)	1	Europe / FE	7	10	8,500 / 9,000 teu	70	9,104	9,104
yes	North Europe / Far East	30713	Grand Alliance - Europe-Asia - Loop C (EU C)	1	Europe / FE	7	10	8,000 teu	70	8,063	8,063
yes	North Europe / Far East	30715	Grand Alliance - Europe-Asia - Loop D (EU D)	3	N. Eur / FE (China)	14	5	5,700 / 6,700 teu	70	3,059	3,059

Appendix XII

**Table XII.D Slow Steaming Services in the Far East/Europe Trade (December 2010) (continued)**

Slow Steaming	Trade Lane	Code	Service	# of Operators	Coverage	Freq	# of ships	Ship Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
no	North Europe / Far East	M095	Grand Alliance - Europe-Asia-WCNA - Asia-Europe string - Loop B (EU B)	1	Eur / FE / PNW	7	16	8,500 teu	112	8,692	0
yes	North Europe / Far East	30412	Maersk Line - AE-1	1	N. Europe / FE	7	10	8,000 / 8,500 teu	70	8,414	8,414
yes	North Europe / Far East	30510	Maersk Line - AE-10	1	N. Europe / FE	7	10	8,500 teu	70	8,317	8,317
yes	North Europe / Far East	30421	Maersk Line - AE-2	1	N. Europe / Med / FE	7	10	8,500 teu	70	8,482	8,482
yes	North Europe / Far East	30471	Maersk Line - AE-7 - 'E'-class loop	1	N. Europe / FE	7	10	9,500 / 15,200 teu	70	14,070	14,070
yes	North Europe / Far East	30491	Maersk Line - AE-9	1	N. Europe / FE	7	10	6,200 / 7,200 teu	70	6,847	6,847
yes	North Europe / Far East	3190	MSC - Asia Middle East Europe (Silk Service)	1	N. Eur / Med / ME / FE	7	11	13,798 / 14,000 teu	77	13,927	13,927
yes	North Europe / Far East	3192	MSC - Asia-Europe service (Lion Service)	1	N. Eur / Med / FE / ME	7	11	9,000 / 14,000 teu	77	12,870	12,870
no	North Europe / Far East	M172	MSC - Euro service - Europe-ANZ service - Singapore-Europe string (westbd only)	1	Eur / Mascareignes / Australia / FE / Eur	7	13	3,000 / 4,000 teu	91	3,034	0
yes	North Europe / Far East	3110	New World Alliance - Asia Europe Express (AEX - EU 2) (HMM loop) (CMA CGM : FAL 11)	1	N. Eur / FE	7	10	6,800 / 8,900 teu	70	8,480	8,480
yes	North Europe / Far East	31121	New World Alliance - Central China Express (CEX)	3	Europe / FE	7	10	6,400 teu	70	6,180	6,180
yes	North Europe / Far East	3100	New World Alliance - Japan Europe Express (JEX - EU 1) (MOL loop) (CMA CGM : FAL 12)	1	N. Eur / FE (Japan)	7	10	6,400 / 6,700 teu	70	6,589	6,589
yes	North Europe / Far East	31122	New World Alliance - South China Express (SCX)	2	Europe / FE	7	10	8,100 / 8,500 teu	70	8,196	8,196
yes	North Europe / Far East	32401	PIL / Wan Hai - Far East-Europe service (FES)	2	Europe / FE	7	9	4,250 teu	63	4,253	4,253
yes	North Europe / Far East	31227	UASC - Far East-Europe service - AEC 2 (Hanjin : CME)	1	N. Eur / ME / FE	7	10	6,900 teu	70	6,928	6,928

## Slow Steaming Services in the Major East-West Trades, December 2010

**Table XII.D Slow Steaming Services in the Far East/Europe Trade (December 2010) (continued)**

Slow Steaming	Trade Lane	Code	Service	# of Operators	Coverage	Freq	# of ships	Ship Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
yes	North Europe / Far East	3233	Zim - Asia-Med-Europe (AME)	1	Europe / FE	7	11	3,400 / 4,250 teu	77	3,593	3,593
yes	Med / Far East - dedicated services	31231	CKYH - Asia-Med Loop 1 - MD 1	2	Med / FE	7	8	5,500 teu	63	4,908	4,908
yes	Med / Far East - dedicated services	31232	CKYH - Asia-Med Loop 2 - MD 2	2	Med / FE	7	8	5,500 / 6,500 teu	63	5,453	5,453
yes	Med / Far East - dedicated services	31233	CKYH - Asia-Med Loop 3 - MD 3	1	Med / FE	7	8	5,500 teu	63	4,994	4,994
yes	Med / Far East - dedicated services	3211	CMA CGM - Med-Asia Express service (MEX)	1	Med / Asia	7	11	5,700 / 6,700 teu	77	6,092	6,092
yes	Med / Far East - dedicated services	32142	CMA CGM / Maersk - Asia-Near East-Adriatic service - BEX 2 / AE-12	2	Med / Asia	7	9	6,500 teu	63	6,656	6,656
yes	Med / Far East - dedicated services	32145	CSAV Norasia - Asia-Near East-Black Sea service (ABS / ABX)	1	Med / Asia	7	9	5,000 / 5,500 teu	63	5,553	5,553
yes	Med / Far East - dedicated services	32146	CSAV Norasia - Asia-West Med service (Mare Nostrum)	1	Med / Asia	7	10	5,000 / 6,500 teu	70	6,108	6,108
yes	Med / Far East - dedicated services	32312	CSCL / K Line / Yang Ming / PIL / Wan Hai - Asia-Black Sea service (ABX / CBX / SB 1)	5	Med / FE	7	8	4,000 / 4,250 teu	56	4,312	4,312
yes	Med / Far East - dedicated services	M033	Evergreen Line - WCNA-Asia-Med service (UAM) - Asia-Med string (FEM)	1	Med / FE / PNW	7	14	5,300 / 5,600 teu	98	5,405	5,405
yes	Med / Far East - dedicated services	2139	Grand Alliance - Asia-Med-USEC - AEX - Asia-Med string	2	FE / USEC via Suez	7	10	5,300 / 5,800 teu	70	5,712	5,712
yes	Med / Far East - dedicated services	30750	Grand Alliance / New World Alliance - Med-Asia - loop EU M / MED	5	Med / FE	7	9	6,000 / 7,500 teu	63	6,702	6,702

## Appendix XII

**Table XII.D Slow Steaming Services in the Far East/Europe Trade (December 2010) (continued)**

Slow Steaming	Trade Lane	Code	Service	# of Operators	Coverage	Freq	# of ships	Ship Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
yes	Med / Far East - dedicated services	32315	HDS Lines - Far East-Med service (FMCL) (aka AMEL = FMX + SMX)	1	Asia / Med	9	7	2,700 / 3,300 teu	63	2,254	2,254
no	Med / Far East - dedicated services	3116	HMM / Hanjin / Yang Ming / UASC - Asia-East Med-Adriatic service (MAE / AAX / AMC-3)	4	Med / FE	7	8	4,200 / 5,000 teu	56	4,399	0
yes	Med / Far East - dedicated services	M067	Maersk Line - AE-6 (Med only) - Med-FE string of pendulum	1	Med / FE / WCNA	7	14	9,500 / 10,000 teu	98	9736	9,736
yes	Med / Far East - dedicated services	30511	Maersk Line / CMA CGM - AE-11 / New MEX 2	2	Med / FE	7	10	8,200 / 8,500 teu	70	8,380	8,380
yes	Med / Far East - dedicated services	30432	Maersk Line / CMA CGM - Asia-Black Sea service (AE-3 / BEX)	2	Med / FE	7	11	6,500 teu	77	6,509	6,509
yes	Med / Far East - dedicated services	31971	MSC - Asia-E. Med service (Tiger Service)	1	Med / FE	7	10	8,000 / 9,000 teu	70	8,886	8,886
yes	Med / Far East - dedicated services	3195	MSC - Asia-Med service (Dragon Service)	1	Med / ME / FE	7	11	8,000 / 12,500 teu	77	10,166	10,166
yes	Med / Far East - dedicated services	32405	PIL / Wan Hai - Sino-Black Sea service (SB 2 / BSC)	2	Med / FE	7	8	2,500 / 3,100 teu	56	2,703	2,703
yes	Med / Far East - dedicated services	3137	UASC / CSCL - Asia-Med service (AMC-1 / AMX 1) (Hanjin : MEX)	2	Med / ME / FE	7	9	5,600 teu	63	5,685	5,685
yes	Med / Far East - dedicated services	3261	Zim - Asia-East Med Express service (EMX) (CSCL : AMX 2) (HL : ABX)	1	Med / FE	7	10	4,250 teu	70	4,253	4,253

Source: Compiled by the Federal Maritime Commission, Bureau of Trade Analysis, using Alphaliner data extracts.

## Slow Steaming Services in the Major East-West Trades, December 2010

**Table XII.E Slow Steaming Summary - Transpacific  
(December 2010)**

	West Coast	Pendulum	East Coast	Total
Total Services	45	6	15	66
Total Slow Steaming Services	22	4	11	37
Number Ships Deployed	288	75	142	505
Average Vessel Size	5,942	5,273	4,960	5,562
Total Weekly Capacity	253,019	31,010	73,276	357,305
Total Slow Steaming Weekly Capacity	141,985	21,134	56,516	219,635
Percent Weekly Capacity Slow Steaming	56%	68%	77%	61%
Percent Services Slow Steaming	49%	67%	73%	56%

Source: Compiled by the Federal Maritime Commission, Bureau of Trade Analysis, using Alphaliner data extracts.

## Appendix XII

**Table XII.F Slow Steaming Services in the Transpacific  
(December 2010)**

US Coast	Slow Steaming	Scode	Service	# of Operators	Coverage	# of Ships	Ships Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
WC	no	22231	APL - Transpacific / PS 5 (APL loop)	1	FE / PSW	5	5,100 / 5,500 teu	35	5,108	0
WC	yes	2668	CMA CGM / MSC - Pearl River Express - PRX (ANL : USW-3)	2	FE / WCNA	6	8,000 teu	42	8,324	8,324
WC	yes	2660	COSCO - China North East-WCNA service (CEN)	1	China (North) / PNW / PSW	6	7,500 / 8,500 teu	42	7,385	7,385
WC	no	24224	COSCO / Hanjin - CH-PNW North Loop (PNN)	2	FE / PNW	5	5,500 teu	35	5,360	0
WC	no	24225	COSCO / Hanjin - CH-PNW South Loop (PNS)	2	FE / PNW	5	5,000 / 5,800 teu	35	5,583	0
WC	yes	2650	COSCO / Hanjin - South China-WCNA service (SEA / South China Express)	2	FE (South) / WCNA	6	5,400 / 8,500 teu	42	6,832	6,832
WC	yes	2707	CSAV Norasia - Indian Subcont-FE-USWC service (ASIAM)	1	ISC / FE / USWC	11	3,500 teu	77	3,392	3,392
WC	no	26785	CSCL - America-Asia Container service - AAC (Evergreen : CPS)	1	China / WCNA	5	5,700 / 8,500 teu	35	7,964	0
WC	no	26783	CSCL - Far East-WCNA service (ANW 1)	1	FE / USWC	5	4,200 teu	35	4,210	0
WC	yes	20311	Evergreen Line - China-PSW/PNW service (TPS)	1	FE / PSW / PNW	6	6,300 / 7,000 teu	42	6,447	6,447
WC	no	2021	Evergreen Line - Hong Kong-Taiwan-PSW service (HTW) (CSCL : AAS)	1	FE / PSW	5	8,000 teu	35	8,073	0
WC	yes	M033	Evergreen Line - WCNA-Asia-Med service (UAM) - Asia-WCNA string	1	Med / FE / PNW	14	5,300 / 5,600 teu	98	5,405	5,405
WC	no	20312	Evergreen Line / CSCL - China-PSW service (CPS 2 / AAC 2)	2	FE / PSW	5	4,200 teu	35	4,230	0
WC	yes	M095	Grand Alliance - Europe-Asia-WCNA - TP string (NWX)	1	Eur / FE / PNW	16	8,500 teu	112	8,500	8,500
WC	no	21711	Grand Alliance - Transpacific / CCX (Central China Express)	2	FE / USWC	5	5,500 / 6,500 teu	35	6,073	0
WC	yes	2161	Grand Alliance - Transpacific / New SCX	1	FE / USWC	8	6,500 teu	56	6,513	6,513
WC	yes	2175	Grand Alliance - Transpacific / PNX (Pacific NW Express)	2	FE / PNW	7	5,500 / 10,000 teu	49	8,271	8,271

## Slow Steaming Services in the Major East-West Trades, December 2010

**Table XII.F Slow Steaming Services in the Transpacific  
(December 2010) (continued)**

US Coast	Slow Steaming	Scode	Service	# of Operators	Coverage	# of Ships	Ships Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
WC	yes	2150	Grand Alliance - Transpacific / SSX (South China-California Express)	1	FE / USWC	6	8,000 teu	42	8,063	8,063
WC	no	2700	Hainan P O Shg / TS Lines - China-America West Coast Express service (CAE)	2	FE / USWC	5	2,700 / 3,400 teu	35	3,195	0
WC	no	2437	Hanjin - Transpacific / China-Busan-California service (CAX)	1	FE / PSW	5	3,000 / 4,250 teu	35	4,487	0
WC	yes	2424	Hanjin - Transpacific / PSX	1	FE / PNW	6	7,500 / 8,500 teu	42	7,657	7,657
WC	no	2438	Hanjin / Wan Hai - Transpacific / Singapore-Japan-California service (SJX)	2	FE / PSW	6	4,000 teu	42	4,382	0
WC	no	20412	Horizon Lines - US-Hawaii-China service (US flag service) (Five Star Express - FSX)	1	FE / Hawaii / WCNA	5	2,800 teu	35	2,825	0
WC	yes	26657	K Line - PSW-1 (Hanjin : SCP)	1	FE / WCNA	6	4,400 / 4,800 teu	42	4,508	4,508
WC	yes	25611	K Line / MOL - PNW / PN-1 service	2	FE / WCNA	6	5,500 / 6,300 teu	42	5,644	5,644
WC	no	2045	Maersk Line - TP-5 (US flag service) (CMA CGM : Sunrise)	1	FE / WCNA	5	4,000 teu	35	4,333	0
WC	yes	M067	Maersk Line - TP-6	1	Med / FE / WCNA	14	9,500 / 10,000 teu	98	9,736	9,736
WC	yes	20511	Maersk Line / MSC / CMA CGM - Transpacific VSA - Loop 1 - TP-2 / Eagle / Yang Tse (Southern China loop)	3	FE / PSW	6	6,500 / 8,000 teu	42	7,234	7,234
WC	yes	2052	Maersk Line / MSC / CMA CGM - Transpacific VSA - Loop 2 - TP-8 / New Orient Express / Bohai (Northern China loop)	3	FE / PSW	6	8,000 teu	42	8,000	8,000
WC	no	2302	Matson - China-Long Beach Express (CLX 2)	1	FE / PSW	5	3,500 teu	35	3,695	0
WC	no	2301	Matson - China-Long Beach Express (CLX) - via Hawaii and Guam (US flag service)	1	FE / PSW / Hawaii	5	2,200 / 2,900 teu	35	2,758	0
WC	no	26661	MOL / K Line - PSW-3 / JAS (Hanjin : KPS)	2	FE / PSW	5	4,800 / 5,000 teu	35	4,793	0

Appendix XII

**Table XII.F Slow Steaming Services in the Transpacific  
(December 2010) (continued)**

US Coast	Slow Steaming	Scode	Service	# of Operators	Coverage	# of Ships	Ships Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
WC	no	2267	New World Alliance - Transpacific / Pacific China Express (PCX) (HMM loop)	1	FE / PNW / PSW	5	6,800 teu	35	6,800	0
WC	yes	2272	New World Alliance - Transpacific / Pacific Coast Express - PCE	1	FE / PSW	6	4,700 teu	42	4,700	4,700
WC	no	2280	New World Alliance - Transpacific / PNW (HMM loop)	1	FE / PNW	5	6,479 teu	35	6,479	0
WC	yes	2210	New World Alliance - Transpacific / PS 1 (APL loop)	1	FE / PNW / FE	7	5,000 / 5,500 teu	49	5,138	5,138
WC	yes	2222	New World Alliance - Transpacific / PS 2 (APL loop) + AME 2 / MAX 2 (APL / Hapag-Lloyd)	1	FE / PSW	7	4,500 / 5,500 teu	49	5,750	5,750
WC	no	22601	New World Alliance - Transpacific / PSW (HMM loop)	1	FE / PSW / PNW	5	4,600 teu	35	4,666	0
WC	yes	2264	New World Alliance - Transpacific / PSX (South East Asia-California) (MOL loop)	1	FE / PSW	7	6,000 / 6,350 teu	49	6,293	6,293
WC	yes	2203	New World Alliance - Transpacific / SAX (APL loop)	1	FE / PSW	7	5,500 / 7,000 teu	49	6,551	6,551
WC	yes	26881	PIL - China Transpacific service (CTP)	1	FE / PNW	6	1,500 / 1,800 teu	42	1,642	1,642
WC	no	2696	The Containership Company (TCC) - China-US 'Great Dragon' service	1	FE / USWC	5	2,800 / 3,000 teu	35	2,938	0
WC	no	2820	Westwood Shipping Line - PNW-NE Asia service	1	FE / PNW	7	1,700 / 2,000 teu (conbulklers + cc)	56	1,975	0
WC	no	2665	Yang Ming - PSW-2 / YPS	1	FE / PSW	5	5,500 teu	35	5,556	0
WC	no	26672	Yang Ming - PSW-4 / CUX / PS 4	1	FE / PSW	5	5,500 teu	35	5,551	0
Pendulum	yes	2026	Evergreen Line - Far East-USEC service (NUE) (CSCL : AAE 4)	1	FE / US	9	4,200 teu	63	4,325	4,325
Pendulum	yes	M090	Grand Alliance - PAX pendulum - Pacific string	1	N. Eur / USEC / PSW / FE	14	4,600 / 5,000 teu	98	4,709	4,709
Pendulum	no	2047	Maersk Line - TP-7 - FE-USEC service	1	FE / USEC	9	4,500 / 5,000 teu	63	4,925	0
Pendulum	yes	2061	Maersk Line / CMA CGM - FE-PNW - Columbus / TP-9	2	FE / PNW	15	6,500 / 7,400 teu	105	7,363	7,363

## Slow Steaming Services in the Major East-West Trades, December 2010

**Table XII.F Slow Steaming Services in the Transpacific  
(December 2010) (continued)**

US Coast	Slow Steaming	Scode	Service	# of Operators	Coverage	# of Ships	Ships Used	Rotation (days)	Average Weekly Capacity	Slow Steaming Capacity
Pendulum	yes	M071	New World Alliance - FE-USEC service - String of Atlantic Pacific Express (APX)	2	FE / USEC / N. Eur	13	4,000 / 5,000 teu	91	4,737	4,737
Pendulum	no	M160	Zim Container Service (ZCS) - Pacific string (CSCL : AAE 3)	1	Med / USEC / USWC / FE	15	4,200 / 5,000 teu	105	4,951	0
EC	yes	2582	CKHY Alliance - FE-USEC - AWC / AWE 2 Loop	1	FE / USEC	9	3,500 / 5,100 teu	63	4,476	4,476
EC	yes	2588	CKHY Alliance - FE-USEC - AWH / AWE 1 Loop	1	FE / USEC	9	4,000 teu	63	4,024	4,024
EC	yes	2589	CKHY Alliance - FE-USEC - AWN / AWE 5 Loop	2	FE / USEC	9	4,250 teu	63	4,250	4,250
EC	yes	2583	CKHY Alliance - FE-USEC - AWY / AWE 3 Loop	1	FE / USEC	9	3,900 / 5,000 teu	63	4,198	4,198
EC	yes	26741	CMA CGM - FE-USEC-Tangier-ME (eastbound) service (new PEX 3)	1	FE / US Gulf / USEC	11	5,000 teu	77	5,078	5,078
EC	no	26752	CSAV - Far East-USEC service (AMEX)	1	FE / USEC	10	3,500 / 4,200 teu	70	3,782	0
EC	yes	26798	CSCL / Evergreen - Asia-Mexico-USEC service (AAE 1 / AUE 2)	2	ME/ FE / WCNA	9	4,000 / 5,000 teu	70	4,192	4,192
EC	yes	2005	Evergreen Line - Asia-USEC service (AUE)	1	FE / USEC	9	4,200 / 5,000 teu	63	4,506	4,506
EC	yes	2139	Grand Alliance - Asia-Med-USEC - AEX - Suez route	2	FE / USEC via Suez	10	5,300 / 5,800 teu	70	5,712	5,712
EC	yes	21901	Grand Alliance - FE-USEC / North & Central China Express service (NCE)	1	FE / USEC	9	4,900 teu	63	4,922	4,922
EC	yes	21903	Grand Alliance / Zim - FE-USEC / South China Express service (SCE)	4	FE / USEC	9	4,000 / 4,900 teu	63	4,637	4,637
EC	yes	25861	K Line / MOL - FE-USEC - AWK / AWE 4 / SVE (South China Vietnam-USEC service)	2	FE / USEC via Suez	9	5,500 teu	63	5,776	5,776
EC	no	26702	MSC - FE-USEC service (Golden Gate service) (via Suez)	1	FE / ME / USEC via Suez	12	8,000 / 8,500 teu	84	8,281	0
EC	yes	2291	New World Alliance - Asia-USEC - SZX - Suez route (US flag service) (Hanjin : AWZ)	1	FE / Col. / ME / USEC / ME	9	4,500 / 5,000 teu	63	4,745	4,745
EC	no	2285	New World Alliance - FE-USEC service - New York Express (NYX)	2	FE / USEC	9	4,500 / 5,000 teu	63	4,697	0

Source: Compiled by the Federal Maritime Commission, Bureau of Trade Analysis, using Alphaliner data extracts.

## Appendix XIII

# Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

The information tabulated in this document helps to illuminate trends in slow steaming that have taken shape during the last several years in the three major east-west liner trades (i.e., the transpacific, Asia-Europe, and the transatlantic). The data were compiled by using extracts of chronological information from *Lloyds Voyage Records* that specified the sailing and arrival dates of thousands of voyages undertaken by hundreds of containerships operating in each of the trades. The tabulations that follow compare over time average elapsed voyage time (in days) between specified pairs of ports on a “last port out” and “first port in” basis. On an annual basis, the elapsed time for all voyages between each port-pair was averaged, converted into hours, and divided into the nautical distance between each port-pair specified to determine trends in average ocean-cruising speed between the ports concerned.

In addition to calculating average cruising speed between the key port-pairs in each trade for inbound and outbound voyages separately, trade-wide weighted averages were calculated to obtain summary-level information. Trends in average speeds on a trade-wide basis are shown below:

**Table XIII.A Transpacific inbound, weighted average speed for all voyages between the port-pairs selected**

	US Inbound	US Outbound
2006	22.0 knots (1,263 voyages)	18.7 knots (1,359 voyages)
2007	22.0 knots (1,321 voyages)	18.9 knots (1,292 voyages)
2008	21.7 knots (1,102 voyages)	18.0 knots (1,121 voyages)
2009	21.4 knots (1,012 voyages)	17.6 knots (1,125 voyages)
2010	20.4 knots (978 voyages)	16.3 knots (1,000 voyages)

**Table XIII.B Asia-Europe, weighted average speed for all voyages between the port-pairs selected**

	Europe Inbound	Europe Outbound
2006	20.2 knots (1,250 voyages)	19.9 knots (852 voyages)
2007	20.7 knots (1,442 voyages)	20.4 knots (955 voyages)
2008	19.9 knots (1,688 voyages)	19.1 knots (1,254 voyages)
2009	19.6 knots (1,294 voyages)	17.5 knots (1,015 voyages)
2010	18.4 knots (1,376 voyages)	16.7 knots (928 voyages)

**Table XIII.C Transatlantic, weighted average speed for all voyages between the port-pairs selected**

	US Inbound	US Outbound
2006	17.0 knots (804 voyages)	17.4 knots (645 voyages)
2007	17.1 knots (734 voyages)	17.1 knots (732 voyages)
2008	17.0 knots (750 voyages)	16.6 knots (731 voyages)
2009	16.4 knots (727 voyages)	16.1 knots (687 voyages)
2010	16.6 knots (574 voyages)	16.0 knots (440 voyages)

### Key Observations

- In 2010, four of the six trade legs examined adopted an average cruising speed of just over 16 knots, namely, the transatlantic inbound and outbound legs, the transpacific outbound leg, and the outbound leg from Europe to Asia. With regard to the other two trade legs, European inbound voyages from Asia operated at just over 18 knots, while US inbound voyages from Asia operated at just over 20 knots, on average.
- Transpacific voyages traditionally have operated at significantly slower speeds on the US outbound leg – three to four knots slower on average than the inbound leg.
- Transpacific inbound voyages in 2010 were steaming at almost 20½ knots on average during the ocean crossing, compared to just over 16 knots outbound – the widest disparity in the past five years.
- Between 2006 and 2010, inbound transpacific voyages reduced average speed by just over 1½ knots compared to a reduction of over 2½ knots for outbound voyages.
- Transpacific inbound voyages steam faster than European inbound voyages from Asia (about two knots faster). In both trades, outbound voyages now cruise more or less at the same speed on average. However, in the early part of the period outbound voyages from Europe to Asia cruised a knot or so faster than outbound voyages from the US to Asia.
- The transpacific and Asia-Europe trades have both exhibited similar speed reductions (in absolute terms).
- Until 2009, both directions of the Asia-Europe trade operated at similar speeds. However, in 2009 and 2010, voyages outbound from Europe to Asia reduced speed more than inbound voyages.
- Transatlantic voyages operate at speeds in the mid-teens in both trade directions, and have done so throughout the period studied. Over this five-year period, the average speed of transatlantic voyages has been reduced by about one half knot (inbound) and one knot (outbound).

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.D Transpacific Trade**

Year	Inbound				nautical miles: 5,294	Outbound				nautical miles: 5,294
	Busan, South Korea - Long Beach, USA					Long Beach, USA - Busan, South Korea				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	300	9.6	8	23.0	49	11.6	10	19.0		
2007	229	9.5	8	23.3	24	12.9	9	17.1		
2008	172	9.8	8	22.5	18	14.6	11	15.2		
2009	110	9.7	7	22.8	11	12.6	10	17.5		
2010	154	9.9	7	22.2	36	12.4	10	17.8		

Year	Busan, South Korea - Oakland, USA				nautical miles: 4,978	Oakland, USA - Busan, South Korea				nautical miles: 4,978
	Too few voyages observed									
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006					183	11.4	9	18.2		
2007					180	11.1	7	18.7		
2008					109	11.0	9	18.9		
2009					161	11.5	10	18.0		
2010					103	12.0	9	17.3		

Year	Busan, South Korea - Seattle, USA				nautical miles: 4,637	Seattle, USA - Busan, South Korea				nautical miles: 4,637
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	131	8.8	7	22.0	97	9.7	8	20.0		
2007	134	8.7	7	22.2	88	9.8	8	19.6		
2008	137	8.9	7	21.6	87	10.9	9	17.8		
2009	159	9.0	6	21.4	57	10.6	9	18.2		
2010	153	9.7	7	19.9	77	11.7	9	16.6		

Year	Busan, South Korea - Los Angeles, USA				nautical miles: 5,289	Los Angeles, USA - Busan, South Korea				nautical miles: 5,289
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	176	10.0	8	22.1	24	11.8	10	18.7		
2007	149	9.8	8	22.6	30	11.5	11	19.2		
2008	113	9.8	8	22.4	11	12.7	11	17.3		
2009	101	10.0	8	22.1	15	13.3	11	16.5		
2010	102	10.4	9	21.2	25	13.4	12	16.4		

Year	Busan, South Korea - Tacoma, USA				nautical miles: 4,657	Tacoma, USA - Busan, South Korea				nautical miles: 4,657
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	79	11.4	8	17.0	30	9.6	9	20.3		
2007	117	11.1	8	17.6	43	10.0	9	19.4		
2008	90	10.9	8	17.8	46	9.8	9	19.7		
2009	71	10.2	6	19.1	34	10.5	9	18.4		
2010	65	8.9	8	21.7						

## Appendix XIII

**Table XIII.D Transpacific Trade (continued)**

Year	Inbound				nautical miles: 4,669	Outbound				nautical miles: 4,669
	Busan, South Korea - Vancouver, Canada					Vancouver, Canada - Busan, South Korea				
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	50	10.1	8	19.2		45	10.5	8	18.5	
2007	47	10.2	8	19.1		17	10.4	9	18.8	
2008	41	10.1	8	19.2		35	12.2	11	16.0	
2009	9	10.1	8	19.2		33	11.4	9	17.1	
2010	23	9.4	7	20.7		49	12.1	10	16.1	

Year	Busan, South Korea - Savannah, USA				nautical miles: 9,593	Savannah, USA - Busan, South Korea				nautical miles: 9,593
	Voyages	Average	Minimum	Speed		Voyages	Average	Minimum	Speed	
2006	62	19.7	18	20.3		95	21.5	17	18.6	
2007	92	20.2	19	19.8		99	21.7	16	18.4	
2008	50	20.1	19	19.9		87	21.7	17	18.4	
2009	53	20.6	19	19.4		83	21.0	17	19.1	
2010	43	21.6	19	18.5		75	24.9	18	16.0	

Year	Tokyo, Japan - Oakland, USA				nautical miles: 4,547	Oakland, USA - Tokyo, Japan				nautical miles: 4,547
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	Too few voyages observed					232	10.0	8	18.9	
2007					242	10.1	9	18.7		
2008					221	10.3	9	18.3		
2009					243	10.7	9	17.7		
2010					221	11.3	10	16.8		

Year	Tokyo, Japan - Tacoma, USA				nautical miles: 4,271	Tacoma, USA - Tokyo, Japan				nautical miles: 4,271
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	137	7.6	6	23.3		3	9.0	9	19.8	
2007	141	7.5	6	23.8		5	11.0	9	16.2	
2008	128	7.7	7	23.1		30	10.1	8	17.6	
2009	116	8.0	7	22.3		10	10.6	9	16.8	
2010	51	8.3	7	21.4		34	12.0	10	14.9	

Year	Tokyo, Japan - Vancouver, Canada				nautical miles: 4,283	Vancouver, Canada - Tokyo, Japan				nautical miles: 4,283
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	Too few voyages observed					147	9.1	8	19.5	
2007					155	9.0	7	19.8		
2008					92	9.4	8	18.9		
2009					110	9.9	8	18.1		
2010					54	11.3	9	15.8		

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.D Transpacific Trade (continued)**

	Inbound				nautical miles: 4,536	Outbound				nautical miles: 4,536
	Yokohama, Japan - Oakland, USA					Oakland, USA - Yokohama, Japan				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				165	10.5	9	18.0		
2007					172	10.3	9	18.3		
2008					106	10.7	9	17.7		
2009					109	11.1	10	17.0		
2010					92	11.8	10	16.1		

	Yokohama, Japan - Los Angeles, USA				nautical miles: 4,834	Los Angeles, USA - Yokohama, Japan				nautical miles: 4,834
	Yokohama, Japan - Los Angeles, USA					Los Angeles, USA - Yokohama, Japan				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	74	9.7	8	20.8	30	11.5	10	17.5		
2007	78	9.1	8	22.0	3	12.3	12	16.3		
2008	92	9.2	8	21.9	90	11.5	10	17.5		
2009	85	9.4	8	21.3	62	12.1	10	16.7		
2010	41	9.9	8	20.4	73	13.3	10	15.2		

	Yokohama, Japan - Dutch Harbour, USA				nautical miles: 2,550	Dutch Harbour, USA - Yokohama, Japan				nautical miles: 2,550
	Yokohama, Japan - Dutch Harbour, USA					Dutch Harbour, USA - Yokohama, Japan				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				79	6.5	5	16.3		
2007					59	6.3	5	16.8		
2008					72	6.4	5	16.7		
2009					75	6.9	5	15.5		
2010					64	6.5	5	16.4		

	Yokohama, Japan - Vancouver, Canada				nautical miles: 4,272	Vancouver, Canada - Yokohama, Japan				nautical miles: 4,272
	Yokohama, Japan - Vancouver, Canada					Vancouver, Canada - Yokohama, Japan				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				73	9.6	8	18.5		
2007					93	9.1	8	19.6		
2008					59	10.3	9	17.2		
2009					70	10.3	9	17.3		
2010					51	12.2	10	14.6		

	Kaohsiung, Taiwan - Los Angeles, USA				nautical miles: 6,115	Los Angeles, USA - Kaohsiung, Taiwan				nautical miles: 6,115
	Kaohsiung, Taiwan - Los Angeles, USA					Los Angeles, USA - Kaohsiung, Taiwan				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	174	10.8	10	23.6	95	12.5	11	20.4		
2007	178	10.8	10	23.5	62	12.3	11	20.8		
2008	151	11.2	10	22.8	50	13.4	11	19.1		
2009	134	11.6	10	21.9	50	13.7	12	18.6		
2010	96	12.2	11	20.9	40	15.5	12	16.4		

## Appendix XIII

**Table XIII.D Transpacific Trade (continued)**

	Inbound				Outbound			
	Kaohsiung, Taiwan - Vancouver, Canada				Vancouver, Canada - Kaohsiung, Taiwan			
					nautical miles: 5,545			
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	43	9.9	9	23.4	Too few voyages observed			
2007	40	10.0	9	23.1				
2008	39	9.8	9	23.6				
2009	35	10.1	9	22.9				
2010	21	10.4	8	22.3				

	Shanghai, China - Long Beach, USA				Long Beach, USA - Shanghai, China			
					nautical miles: 5,278			
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	34	11.1	10	19.8	12	13.0	12	16.9
2007	78	10.8	8	20.3	20	13.3	11	16.6
2008	80	10.9	9	20.3	8	13.8	10	16.0
2009	95	10.9	10	20.2	2	18.5	17	11.9
2010	174	12.1	10	18.2	6	14.2	12	15.5

	Yantian, China - Long Beach, USA				Long Beach, USA - Yantian, China			
					nautical miles: 6,340			
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	3	11.3	9	23.3	Too few voyages observed			
2007	38	12.0	11	22.1				
2008	9	11.7	11	22.6				
2009	44	12.5	12	21.2				
2010	55	13.1	10	20.2				

*Note: All voyage transit times are calculated on the basis of "last port out, first port in."  
Source: Data Extracted and Compiled from Lloyd's Voyage Records, May 24, 2011*

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.E Asia - Europe Trade**

Year	Inbound				nautical miles: 8,265	Outbound				nautical miles: 8,265
	Singapore, Singapore - Rotterdam, Netherlands					Rotterdam, Netherlands - Singapore, Singapore				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	210	16.2	14	21.3	67	17.0	16	20.2		
2007	198	15.7	14	21.9	81	16.9	15	20.4		
2008	195	16.1	12	21.5	77	17.8	15	19.4		
2009	136	16.2	13	21.2	42	19.9	17	17.3		
2010	110	18.0	14	19.1	46	21.0	18	16.4		

Year	Singapore, Singapore - Southampton, U.K.				nautical miles: 8,063	Southampton, U.K. - Singapore, Singapore				nautical miles: 8,063
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	87	15.2	12	22.1	52	16.1	14	20.9		
2007	93	15.5	15	21.6	38	16.8	15	20.0		
2008	90	15.9	15	21.1	36	19.1	16	17.6		
2009	80	16.5	14	20.4	52	19.0	15	17.7		
2010	22	19.0	16	17.7	46	20.3	18	16.5		

Year	Singapore, Singapore - Valencia, Spain				nautical miles: 6,670	Valencia, Spain - Singapore, Singapore				nautical miles: 6,670
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	48	12.8	11	21.7	25	14.7	12	18.9		
2007	87	13.1	12	21.2	16	15.6	14	17.8		
2008	54	13.5	12	20.6	39	15.2	13	18.2		
2009	18	14.9	13	18.6	59	16.2	12	17.2		
2010	41	14.7	11	19.0	11	17.6	15	15.8		

Year	Singapore, Singapore - Hamburg, Germany				nautical miles: 8,513	Hamburg, Germany - Singapore, Singapore				nautical miles: 8,513
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	11	17.3	16	20.5	33	17.7	16	20.1		
2007	52	16.5	15	21.5	29	17.5	16	20.2		
2008	68	17.5	15	20.2	53	18.5	16	19.1		
2009	26	17.3	16	20.4	3	21.7	20	16.4		
2010	84	19.2	16	18.4	18	20.5	17	17.3		

Year	Singapore, Singapore - Gioia Tauro, Italy				nautical miles: 5,957	Gioia Tauro, Italy - Singapore, Singapore				nautical miles: 5,957
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	2	13.5	11	18.4	38	13.1	12	19.0		
2007	37	11.5	11	21.6	2	17.0	17	14.6		
2008	57	11.8	11	21.0	9	14.1	12	17.6		
2009	54	12.9	11	19.2	12	15.7	11	15.8		
2010	41	13.0	12	19.1	19	14.1	10	17.6		

## Appendix XIII

**Table XIII.E Asia - Europe Trade (continued)**

	Inbound				nautical miles: 8,063	Outbound				nautical miles: 8,063
	Singapore, Singapore - Le Havre, France					Le Havre, France - Singapore, Singapore				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	34	15.5	15	21.7	149	15.8	13	21.3		
2007	41	16.6	13	20.2	113	15.9	13	21.2		
2008	52	17.1	15	19.6	103	17.5	13	19.2		
2009	43	18.1	11	18.5	69	18.4	11	18.2		
2010	27	19.0	15	17.7	49	19.0	11	17.6		

	Singapore, Singapore - Felixstowe, U.K.				nautical miles: 8,184	Felixstowe, U.K. - Singapore, Singapore				nautical miles: 8,184
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	10	16.5	16	20.7	53	16.0	14	21.3		
2007	7	15.9	15	21.5	69	15.9	15	21.4		
2008	28	17.4	15	19.6	51	19.5	15	17.5		
2009	18	17.3	16	19.7	59	19.7	15	17.3		
2010	4	17.3	16	19.8	40	20.2	17	16.9		

	Singapore, Singapore - Antwerp, Belgium				nautical miles: 8,258	Antwerp, Belgium - Singapore, Singapore				nautical miles: 8,258
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	Too few voyages observed				44	17.0	14	20.2		
2007					99	16.4	15	21.0		
2008					95	17.4	15	19.8		
2009					68	17.4	16	19.8		
2010					31	20.8	18	16.6		

	Singapore, Singapore - Algeciras, Spain				nautical miles: 6,917	Algeciras, Spain - Singapore, Singapore				nautical miles: 6,917		
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed			
2006	Too few voyages observed				75	14.2	11	20.3				
2007					22	14.7	13	19.6				
2008					5	15.4	14	18.7				
2009					Too few voyages observed							
2010												

	Singapore, Singapore - Jeddah, Saudi Arabia				nautical miles: 4,301	Jeddah, Saudi Arabia - Singapore, Singapore				nautical miles: 4,301
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	96	9.0	7	20.0	67	10.4	7	17.2		
2007	68	8.4	7	21.4	133	9.1	7	19.6		
2008	116	9.3	7	19.4	249	9.5	7	18.9		
2009	68	10.2	7	17.5	109	9.6	7	18.7		
2010	144	10.2	8	17.6	172	10.4	7	17.2		

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.E Asia - Europe Trade (continued)**

	Inbound				Outbound			
	Singapore, Singapore - Jebel Ali, U.A.E.				Jebel Ali, U.A.E. - Singapore, Singapore			
				nautical miles: 3,449				nautical miles: 3,449
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	112	7.9	6	18.2	180	7.5	6	19.1
2007	122	8.2	6	17.6	151	6.7	6	21.4
2008	133	8.3	6	17.4	243	7.3	6	19.6
2009	91	7.8	6	18.4	273	8.2	6	17.5
2010	131	8.3	6	17.4	177	8.7	6	16.4

	Singapore, Singapore - Salalah, Oman				Salalah, Oman - Singapore, Singapore			
	Singapore, Singapore - Salalah, Oman				Salalah, Oman - Singapore, Singapore			
				nautical miles: 3,165				nautical miles: 3,165
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	59	6.6	4	19.9	41	6.7	4	19.8
2007	34	6.0	5	22.0	50	6.6	5	19.9
2008	11	7.5	5	17.5	13	6.8	5	19.5
2009	26	6.5	5	20.3	66	7.7	6	17.2
2010	61	7.2	5	18.2	91	7.4	5	17.8

	Port Klang, Malaysia - Le Havre, France				Le Havre, France - Port Klang, Malaysia			
	Port Klang, Malaysia - Le Havre, France				Le Havre, France - Port Klang, Malaysia			
				nautical miles: 7,881				nautical miles: 7,881
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	56	15.9	14	20.6	Too few voyages observed			
2007	75	15.1	12	21.7				
2008	73	15.3	11	21.5				
2009	42	15.5	15	21.2				
2010	71	17.0	14	19.3				

	Port Klang, Malaysia - Marsaxlokk, Malta				Marsaxlokk, Malta - Port Klang, Malaysia			
	Port Klang, Malaysia - Marsaxlokk, Malta				Marsaxlokk, Malta - Port Klang, Malaysia			
				nautical miles: 5,892				nautical miles: 5,892
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	69	11.2	9	21.9	14	11.9	11	20.6
2007	54	11.3	10	21.8	28	11.6	9	21.2
2008	53	11.9	9	20.7	37	12.2	9	20.1
2009	45	11.7	10	20.9				
2010	64	13.1	10	18.7	14	17.0	11	14.4

	Port Klang, Malaysia - Zeebrugge, Belgium				Zeebrugge, Belgium - Port Klang, Malaysia			
	Port Klang, Malaysia - Zeebrugge, Belgium				Zeebrugge, Belgium - Port Klang, Malaysia			
				nautical miles: 8,017				nautical miles: 8,017
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	Too few voyages observed				10	16.1	15	20.7
2007					46	16.4	15	20.4
2008					40	16.6	16	20.2
2009					44	21.5	16	15.6
2010					51	19.5	9	17.1

## Appendix XIII

**Table XIII.E Asia - Europe Trade (continued)**

Year	Inbound				nautical miles: 7,881	Outbound				nautical miles: 7,881
	Port Klang, Malaysia - Southampton, U.K.					Southampton, U.K. - Port Klang, Malaysia				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	31	15.7	13	20.9	Too few voyages observed					
2007	22	15.5	14	21.1						
2008	38	15.4	13	21.3						
2009	24	16.4	14	20.0						
2010	57	17.1	16	19.2						

Year	Port Klang, Malaysia - Rotterdam, Netherlands				nautical miles: 8,083	Rotterdam, Netherlands - Port Klang, Malaysia				nautical miles: 8,083
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	6	16.7	15	20.2	35	16.1	14	20.9		
2007	29	17.3	16	19.5	42	16.9	14	20.0		
2008	46	17.5	15	19.3	43	19.2	17	17.6		
2009	7	18.3	18	18.4	39	24.3	17	13.9		
2010	32	18.4	17	18.3	7	27.4	25	12.3		

Year	Port Klang, Malaysia - Valencia, Spain				nautical miles: 6,488	Valencia, Spain - Port Klang, Malaysia				nautical miles: 6,488
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	19	13.9	12	19.4	12	14.2	13	19.1		
2007	7	15.4	13	17.5	19	14.1	13	19.2		
2008	10	14.2	12	19.0	17	14.3	13	18.9		
2009	11	13.5	12	20.0	19	15.2	11	17.8		
2010	3	14.3	14	18.9	2	15.0	14	18.0		

Year	Port Klang, Malaysia - Jebel Ali, U.A.E.				nautical miles: 3,267	Jebel Ali, U.A.E. - Port Klang, Malaysia				nautical miles: 3,267
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	167	7.3	6	18.7	32	7.3	6	18.6		
2007	124	6.6	6	20.6	78	7.0	6	19.5		
2008	179	7.2	5	18.9	119	7.1	6	19.1		
2009	186	7.0	6	19.3	71	8.2	6	16.7		
2010	175	7.3	6	18.6	22	9.4	7	14.5		

Year	Port Klang, Malaysia - Jeddah, Saudi Arabia				nautical miles: 4,119	Jeddah, Saudi Arabia - Port Klang, Malaysia				nautical miles: 4,119
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	60	8.3	7	20.7	48	7.8	7	22.1		
2007	126	8.6	7	19.9	84	8.2	7	21.0		
2008	168	8.9	7	19.3	107	8.6	7	19.9		
2009	166	8.9	7	19.3	84	9.6	7	17.9		
2010	125	9.5	7	18.1	136	10.8	7	15.9		

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.E Asia - Europe Trade (continued)**

	Inbound				Outbound			
	Port Klang, Malaysia - Antwerp, Belgium			nautical miles: 8,076	Antwerp, Belgium - Port Klang, Malaysia			nautical miles: 8,076
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	Too few voyages observed				38	17.3	16	19.4
2007					38	16.5	16	20.4
2008					28	17.3	15	19.5
2009					4	20.8	19	16.2
2010					25	19.7	17	17.1

	Colombo, Sri Lanka - Southampton, U.K.				nautical miles: 6,535	Southampton, U.K. - Colombo, Sri Lanka				nautical miles: 6,535
	Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed	
2006	30	12.7	6	21.4	Too few voyages observed					
2007	32	13.1	12	20.8						
2008	34	13.7	13	19.8						
2009	46	13.2	7	20.7						
2010	42	14.5	7	18.8						

	Colombo, Sri Lanka - Hamburg, Germany				nautical miles: 6,985	Hamburg, Germany - Colombo, Sri Lanka				nautical miles: 6,985
	Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed	
2006	47	14.0	13	20.8	Too few voyages observed					
2007	56	14.5	11	20.1						
2008	40	14.3	13	20.4						
2009	40	14.6	11	19.9						
2010										

	Colombo, Sri Lanka - Rotterdam, Netherlands				nautical miles: 6,737	Rotterdam, Netherlands - Colombo, Sri Lanka				nautical miles: 6,737
	Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed	
2006	45	13.4	12	20.9	Too few voyages observed					
2007	43	13.7	12	20.6						
2008	49	14.0	13	20.0						
2009	21	14.2	11	19.7						
2010	11	15.8	14	17.7						

	Colombo, Sri Lanka - Zeebrugge, Belgium				nautical miles: 6,671	Zeebrugge, Belgium - Colombo, Sri Lanka				nautical miles: 6,671
	Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed	
2006	Too few voyages observed									
2007						42	13.2	12	21.0	
2008						41	13.2	12	21.0	
2009						46	14.0	13	19.9	
2010						35	14.5	14	19.2	

## Appendix XIII

**Table XIII.E Asia - Europe Trade (continued)**

	Inbound				Outbound			
	Colombo, Sri Lanka - Taranto, Italy				Taranto, Italy - Colombo, Sri Lanka			
	nautical miles: 4,417				nautical miles: 4,417			
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	44	12.5	9	14.7	6	13.3	8	13.8
2007	48	10.0	9	18.5	22	10.2	9	18.1
2008	50	9.3	8	19.8	58	9.6	7	19.2
2009	15	9.7	8	18.9	58	10.1	7	18.2
2010	8	10.6	10	17.3	78	10.9	7	16.9

	Colombo, Sri Lanka - Marsaxlokk, Malta				Marsaxlokk, Malta - Colombo, Sri Lanka			
	nautical miles: 4,546				nautical miles: 4,546			
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	2	9.5	9	19.9	Too few voyages observed			
2007	9	10.7	10	17.8				
2008	35	11.0	8	17.3				
2009	26	12.1	11	15.6				
2010	34	12.3	11	15.4				

	Hong Kong, China - Le Havre, France				Le Havre, France - Hong Kong, China			
	nautical miles: 9,481				nautical miles: 9,481			
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	5	16.8	6	23.5	Too few voyages observed			
2007	13	19.2	19	20.5				
2008	31	19.4	6	20.4				
2009	10	20.1	19	19.7				
2010	8	21.5	19	18.4				

	Shanghai, China - Bremerhaven, Germany				Bremerhaven, Germany - Shanghai, China			
	nautical miles: 10,603				nautical miles: 10,603			
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006					Too few voyages observed			
2007								
2008	19	20.3	7	21.8				
2009	36	21.2	20	20.8				
2010	40	22.4	8	19.8				

	Tanjung Pelepas, Malaysia - Le Havre, France				Le Havre, France - Tanjung Pelepas, Malaysia			
	nautical miles: 8,052				nautical miles: 8,052			
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006					Too few voyages observed			
2007	23	16.0	14	21.0				
2008	18	16.3	15	20.6				
2009	13	16.6	16	20.2				
2010	6	18.3	18	18.3				

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.E Asia - Europe Trade (continued)**

	Inbound				Outbound			
	Tanjung Pelepas, Malaysia - Taranto, Italy			nautical miles: 5,934	Taranto, Italy - Tanjung Pelepas, Malaysia			nautical miles: 5,934
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	Too few voyages observed				34	11.9	9	20.7
2007					23	12.1	10	20.4
2008					18	13.1	12	18.9
2009					6	14.0	13	17.7
2010					9	17.0	15	14.5

	Tanjung Pelepas, Malaysia - Algeciras, Spain				Algeciras, Spain - Tanjung Pelepas, Malaysia			
				nautical miles: 6,906				nautical miles: 6,906
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	Too few voyages observed				1	14.0	14	20.6
2007					31	14.3	13	20.1
2008					19	17.2	14	16.8
2009					8	23.0	18	12.5
2010					16	23.4	21	12.3

*Note: All voyage transit times are calculated on the basis of "last port out, first port in."  
Source: Data Extracted and Compiled from Lloyd's Voyage Records, June, 14, 2011*

## Appendix XIII

**Table XIII.F Transatlantic Trade**

	Inbound				nautical miles: 3,082	Outbound				nautical miles: 3,082
	Le Havre, France - New York, USA					New York, USA - Le Havre, France				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	154	7.1	5	18.0	Too few voyages observed					
2007	177	7.1	5	18.0						
2008	150	7.2	5	17.9						
2009	166	8.2	6	15.8						
2010	103	7.8	6	16.5						

	Algeciras, Spain - New York, USA				nautical miles: 3,185	New York, USA - Algeciras, Spain				nautical miles: 3,185
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	40	8.4	6	15.9	29	7.0	6	19.0		
2007	45	9.0	6	14.8	34	7.0	6	19.0		
2008	72	8.4	6	15.7	12	6.9	6	19.2		
2009	82	7.5	5	17.8						
2010	118	8.2	6	16.1	1	6.0	6	22.1		

	Bremerhaven, Germany - New York, USA				nautical miles: 3,469	New York, USA - Bremerhaven, Germany				nautical miles: 3,469
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	6	8.2	7	17.7	12	7.9	7	18.3		
2007	3	8.0	7	18.1	52	7.8	6	18.5		
2008	11	8.5	7	17.1	64	7.5	6	19.3		
2009	4	9.3	8	15.6	73	8.3	6	17.4		
2010	31	9.5	7	15.2	19	8.7	7	16.6		

	Bremerhaven, Germany - Charleston, USA				nautical miles: 3,944	Charleston, USA - Bremerhaven, Germany				nautical miles: 3,944
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	163	9.8	8	16.8	Too few voyages observed					
2007	140	10.0	8	16.5						
2008	119	9.8	8	16.7						
2009	116	10.2	8	16.0						
2010	56	9.9	8	16.7						

	Antwerp, Belgium - New York, USA				nautical miles: 3,269	New York, USA - Antwerp, Belgium				nautical miles: 3,269
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	Too few voyages observed				49	6.7	5	20.3		
2007					51	7.2	6	19.0		
2008					46	7.2	6	18.8		
2009					37	7.7	6	17.7		
2010					51	8.2	7	16.6		

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.F Transatlantic Trade (continued)**

	Inbound				nautical miles: 3,735	Outbound				nautical miles: 3,735
	Antwerp, Belgium - Charleston, USA					Charleston, USA - Antwerp, Belgium				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				90	9.7	7	16.0		
2007					86	9.7	7	16.0		
2008					50	9.4	7	16.6		
2009					103	10.0	8	15.6		
2010					72	9.7	8	16.1		

	Antwerp, Belgium - Wilmington, NC, USA				nautical miles: 3,583	Wilmington, NC, USA - Antwerp, Belgium				nautical miles: 3,583
	Antwerp, Belgium - Wilmington, NC, USA					Wilmington, NC, USA - Antwerp, Belgium				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed									
2007										
2008										
2009					34	10.7	10	13.9		
2010					38	10.6	9	14.0		

	Antwerp, Belgium - Chester, USA				nautical miles: 3,267	Chester, USA - Antwerp, Belgium				nautical miles: 3,267
	Antwerp, Belgium - Chester, USA					Chester, USA - Antwerp, Belgium				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				43	9.3	7	14.7		
2007					45	9.0	8	15.1		
2008					43	9.3	8	14.6		
2009					13	9.6	8	14.2		
2010					4	12.8	12	10.7		

	Antwerp, Belgium - Norfolk, USA				nautical miles: 3,448	Norfolk, USA - Antwerp, Belgium				nautical miles: 3,448
	Antwerp, Belgium - Norfolk, USA					Norfolk, USA - Antwerp, Belgium				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				75	8.5	8	16.9		
2007					54	8.5	8	16.8		
2008					47	8.6	8	16.7		
2009					40	8.3	8	17.4		
2010					49	8.8	8	16.4		

	Antwerp, Belgium - Montreal, Canada				nautical miles: 3,129	Montreal, Canada - Antwerp, Belgium				nautical miles: 3,129
	Antwerp, Belgium - Montreal, Canada					Montreal, Canada - Antwerp, Belgium				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	29	10.2	8	12.7	43	8.1	6	16.1		
2007	30	8.8	7	14.8	35	9.0	7	14.5		
2008	32	8.4	7	15.5	42	9.3	7	14.0		
2009	6	8.5	8	15.3	25	8.6	7	15.2		
2010	5	8.2	7	15.9	10	8.0	7	16.3		

## Appendix XIII

**Table XIII.F Transatlantic Trade (continued)**

	Inbound				nautical miles: 3,289	Outbound				nautical miles: 3,289
	Bremerhaven, Germany - Montreal, Canada					Montreal, Canada - Bremerhaven, Germany				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				10	8.8	8	15.6		
2007					73	8.3	7	16.6		
2008					88	9.2	8	14.9		
2009					70	9.1	8	15.1		
2010					18	12.7	12	10.8		

	Cagliari, Italy - Halifax, Canada				nautical miles: 3,390	Halifax, Canada - Cagliari, Italy				nautical miles: 3,390
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006										
2007										
2008	10	7.3	6	19.3	11	7.1	6	19.9		
2009	33	7.6	6	18.6	35	7.3	6	19.4		
2010	42	7.1	6	19.8	42	7.4	6	19.1		

	Felixstowe, U.K. - New York, USA				nautical miles: 3,195	New York, USA - Felixstowe, U.K.				nautical miles: 3,195
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	48	7.3	5	18.3	Too few voyages observed					
2007	52	7.3	6	18.2						
2008	45	7.2	6	18.4						
2009	46	7.8	6	17.2						
2010	3	7.7	7	17.4						

	Gioia Tauro, Italy - Halifax, Canada				nautical miles: 3,692	Halifax, Canada - Gioia Tauro, Italy				nautical miles: 3,692
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	45	7.9	6	19.4	45	6.9	5	22.3		
2007	50	7.5	5	20.6	47	7.4	5	20.8		
2008	33	7.4	6	20.8	30	7.6	6	20.3		
2009										
2010										

	Le Havre, France - Charleston, USA				nautical miles: 3,585	Charleston, USA - Le Havre, France				nautical miles: 3,585
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	11	7.9	6	18.9	Too few voyages observed					
2007	8	7.4	6	20.3						
2008	5	8.2	8	18.2						
2009	24	8.6	7	17.4						
2010	29	8.9	7	16.7						

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.F Transatlantic Trade (continued)**

	Inbound				nautical miles: 4,866	Outbound				nautical miles: 4,866
	Le Havre, France - Veracruz, Mexico					Veracruz, Mexico - Le Havre, France				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	39	12.4	11	16.3	Too few voyages observed					
2007	39	12.2	11	16.6						
2008	24	13.0	12	15.6						
2009										
2010	15	13.4	13	15.1						

	Liverpool, U.K. - Chester, U.S.A.				nautical miles: 2,966	Chester, U.S.A. - Liverpool, U.K.				nautical miles: 2,966
	Liverpool, U.K. - Chester, U.S.A.					Chester, U.S.A. - Liverpool, U.K.				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	45	8.4	7	14.7	Too few voyages observed					
2007	40	8.4	7	14.8						
2008	44	8.5	7	14.6						
2009	40	9.0	8	13.8						
2010	48	9.1	8	13.6						

	Liverpool, U.K. - Montreal, Canada				nautical miles: 2,812	Montreal, Canada - Liverpool, U.K.				nautical miles: 2,812
	Liverpool, U.K. - Montreal, Canada					Montreal, Canada - Liverpool, U.K.				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	23	8.3	7	14.2	23	7.5	6	15.6		
2007	17	8.6	7	13.6	23	7.4	7	15.9		
2008	24	8.1	7	14.4	27	8.2	7	14.3		
2009	13	8.5	7	13.8	12	8.3	7	14.1		
2010	5	6.6	5	17.8	5	8.0	7	14.6		

	Marsaxlokk, Malta - Miami, USA				nautical miles: 4,805	Miami, USA - Marsaxlokk, Malta				nautical miles: 4,805
	Marsaxlokk, Malta - Miami, USA					Miami, USA - Marsaxlokk, Malta				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				48	10.5	8	19.0		
2007					43	10.7	4	18.8		
2008					39	11.5	10	17.4		
2009					9	11.7	11	17.2		
2010					1	11.0	11	18.2		

	Rotterdam, Netherlands - Halifax, Canada				nautical miles: 2,741	Halifax, Canada - Rotterdam, Netherlands				nautical miles: 2,741
	Rotterdam, Netherlands - Halifax, Canada					Halifax, Canada - Rotterdam, Netherlands				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	40	5.8	5	19.9	Too few voyages observed					
2007	37	6.0	5	18.9						
2008	42	5.8	5	19.7						
2009	41	6.0	5	18.9						
2010	43	5.9	5	19.3						

## Appendix XIII

**Table XIII.F Transatlantic Trade (continued)**

Year	Inbound				nautical miles: 3,751	Outbound				nautical miles: 3,751
	Rotterdam, Netherlands - Charleston, USA					Charleston, USA - Rotterdam, Netherlands				
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed		
2006	Too few voyages observed				58	9.9	8	15.8		
2007					56	9.9	9	15.8		
2008					46	9.4	8	16.6		
2009					51	9.6	8	16.3		
2010					51	9.4	8	16.6		

Year	Rotterdam, Netherlands - New York, USA				nautical miles: 3,275	New York, USA - Rotterdam, Netherlands				nautical miles: 3,275
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	24	8.1	6	16.9	51	7.5	6	18.2		
2007	11	8.3	6	16.5	57	7.9	6	17.2		
2008	18	7.6	6	17.9	50	7.6	6	18.0		
2009	11	8.4	7	16.3	50	7.5	7	18.1		
2010	21	8.3	6	16.5	1	12.0	12	11.4		

Year	Rotterdam, Netherlands - Montreal, Canada				nautical miles: 3,134	Montreal, Canada - Rotterdam, Netherlands				nautical miles: 3,134
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	74	7.9	7	16.6	Too few voyages observed					
2007	10	7.7	7	17.0						
2008	67	8.2	7	15.9						
2009	75	8.0	7	16.3						
2010										

Year	Southampton, U.K. - New York, USA				nautical miles: 3,077	New York, USA - Southampton, U.K.				nautical miles: 3,077
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	63	7.7	6	16.6	Too few voyages observed					
2007	73	7.9	7	16.3						
2008	53	7.8	6	16.5						
2009	47	7.9	7	16.2						
2010	47	7.4	6	17.2						

Year	Thamesport, U.K. - Charleston, USA				nautical miles: 3,665	Charleston, USA - Thamesport, U.K.				nautical miles: 3,665
	Voyages	Avg. Days	Minimum	Speed		Voyages	Avg. Days	Minimum	Speed	
2006	Too few voyages observed				3	10.0	10	15.3		
2007										
2008					34	10.8	9	14.2		
2009					38	11.4	9	13.4		
2010					24	10.9	10	14.0		

## Slow Steaming Trends in the Major East-West Trades, 2006 through 2010

**Table XIII.F Transatlantic Trade (continued)**

	Inbound				Outbound			
	Thamesport, U.K. - Halifax, Canada			nautical miles: 2,656	Halifax, Canada - Thamesport, U.K.			nautical miles: 2,656
Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum	Speed
2006	Too few voyages observed				5	5.6	5	19.8
2007					21	6.5	6	17.1
2008					32	6.8	6	16.3
2009					13	6.5	5	16.9
2010								
<hr/>								
	Tilbury, U.K. - Philadelphia, USA			nautical miles: 3,345	Philadelphia, USA - Tilbury, U.K.			nautical miles: 3,345
	Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum
2006	Too few voyages observed				53	8.1	7	17.2
2007					57	8.4	7	16.6
2008					48	8.4	7	16.6
2009					30	8.8	8	15.8
2010					19	8.2	7	17.0
<hr/>								
	Valencia, Spain - Montreal, Canada			nautical miles: 3,549	Montreal, Canada - Valencia, Spain			nautical miles: 3,549
	Year	Voyages	Avg. Days	Minimum	Speed	Voyages	Avg. Days	Minimum
2006					8	9.9	9	15.0
2007	2	9.5	9	15.6	19	10.4	8	14.3
2008	1	11.0	11	13.4	33	10.8	9	13.7
2009	23	9.1	7	16.2	35	9.9	7	15.0
2010	8	8.9	7	16.7	22	9.4	7	15.8

*Note: All voyage transit times are calculated on the basis of "last port out, first port in."*

*Source: Data Extracted and Compiled from Lloyd's Voyage Records, June, 14, 2011*

## Appendix XIV

# Glossary of Acronyms

ACCOS	Advisory Commission on Conferences in Ocean Shipping
AMC	Antitrust Modernization Commission
BAF	Bunker Adjustment Factor
BCO	Beneficial Cargo Owner
BUT	Butterfly Service Pattern
CAF	Currency Adjustment Factor
CCI	Consumer Confidence Index
CCS	Competition Commission of Singapore
CDA	Carrier Discussion Agreements
CKYH	COSCO/KL/YMUK/Hanjin Worldwide Slot Allocation and Sailing Agreement
CR4	Top-4 firm concentration ratio
CR5	Top-5 firm concentration ratio
CRA	Charles River Associates
CRS	Congressional Research Service
DD	Difference-In-Differences Estimating Methodology
DG Comp	EU Directorate-General for Competition
DOJ	US Department of Justice
DOT	US Department of Transportation
EC	European Commission
EIS	Exchange of Information System
ELAA	European Liner Affairs Association
ETE	End-To-End Service Pattern
EU	European Union
FAK	Freight-All-Kinds
FEFC	Far Eastern Freight Conference
FEU	Forty-foot Equivalent Units
FMC	US Federal Maritime Commission
FTC	US Federal Trade Commission
GDP	Gross Domestic Product

## Appendix XIV

GDSM	General Department Store Merchandise
GRI	General Rate Increase
HHI	Herfindahl-Hirschman Index
IP	Identity Preservation (commodities)
Kg	Kilogram
KMI	Korea Maritime Institute
LWC	Local Working Committee
MES	Minimum Efficient Scale
MSII	Market Share Instability Index
NITL	National Industrial Transportation League
NOI	Notice of Inquiry
NVOCC	Non-Vessel-Operating Common Carrier
OECD	Organization for Economic Cooperation and Development
ORC	Origin Review Committee
OSRA	Ocean Shipping Reform Act of 1998
PCI	Productivity Commission Inquiry
PDM	Pendulum Service Pattern
PIERS	Port Import Export Reporting Service
PSS	Peak Season Surcharge
RPC	Revenue Policy Committee
RTW	Round-the-World Service Pattern
SCP	Structure, Conduct and Performance Analytical Framework
SMA	Single Market Assessment
TAA	Trans-Atlantic Agreement
TACA	Trans-Atlantic Conference Agreement
TEU	Twenty-foot Equivalent Units
THC	Terminal Handling Charge
TSA	Transpacific Stabilization Agreement
VOCC	Vessel-Operating Common Carrier
VSCG	Voluntary Service Contract Guideline
WTSA	Westbound Transpacific Stabilization Agreement