
Editorial

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The International Association of Maritime Economists Conference (IAME 2012 Taipei) was jointly organised by the Shipping, Port, and Logistics Research Center of Kainan University, Chinese Maritime Research Institute in Taiwan, and Jungseok Research Institute of International Logistics and Trade of Inha University in Korea. More than 240 delegates from 35 countries including local participants attended the conference and presented highly qualified papers which have been selected after well-structured review process. The theme of IAME 2012 was 'Challenges in the shipping and port industry in

the context of the global economy'. The editorial team of this special issue announced the call for papers on the theme of 'Towards dynamic capabilities in shipping operations' one year before the IAME conference.

Dynamic capabilities can be defined as a firm's ability to integrate, build and reconfigure internal and external competences under rapidly changing environments. *Dynamic capabilities* for shipping companies are therefore necessary in order to face today's internationally competitive businesses and environmental challenges. The capabilities to read and timely respond to the challenges and to build up strategic assets have become more important for shipping companies. The IAME 2012 Conference tried to achieve them among scholars and businessmen in the shipping, port and logistics industries from the viewpoint of a broad spectrum of strategic management and operations so that we could devise effective measures and feasible solutions under uncertain financial and natural environments.

The editorial team has selected six best papers to address the theme of this special issue. The first paper selected for inclusion within this special issue is 'Optimising containership speed and fleet size under a carbon tax and an emission trading scheme' by Jae-Gon Kim, Hwa-Joong Kim, and Paul Tae-Woo Lee. Although sea transport is more environmentally friendly than land and air transport modes, the International Maritime Organization (IMO, 2009) data and Haites (2009) revealed that international shipping contributes to about 3% of global carbon emissions and carbon dioxide emissions from sea transport are gradually increasing, which is becoming one of the main contributors to global climate change. The IMO and government agencies have proposed options to regulate these carbon emissions. However, empirical studies are scarce. Supposing that the IMO may choose either a carbon tax or an emission trading scheme in the near future to regulate greenhouse gas (GHG) emissions, the paper suggests two non-linear programming models of the above two options to determine the ship speeds, fleet sizes, and ships to be newly chartered, operating on multiple shipping routes.

The paper provides two models to minimise bunker consumption cost, ship operating cost, ship charterage, and a carbon tax or the revenue/cost of selling/buying GHG emissions permits and solved the two problems by two Lagrangian heuristics. The applicability of the heuristics is evaluated by a case study with the data from the literature and a shipping company in Korea. The empirical study includes the three types of ship with 3000-TEU, 5000-TEU, and 10000-TEU ship sizes.

The authors report that as for the carbon tax model and emission trading scheme model, the heuristic is a viable tool for determining the ship speed, ship number, and number of chartered ships in shipping firms when the carbon tax and emission trading scheme are chosen by the IMO, respectively. In the former case, an increase in both the bunker price and the carbon tax leads to reduce the ship speed and as a result, to expand total fleet size comprising of increased existing ship numbers and more chartered ships, and vice versa when charterage increases. Under the latter case, the effect of CO₂ price and emission limit on ship speed, ship numbers, and chartered ship numbers is not significant under actual CO₂ market prices. The authors' findings imply that the emission trading scheme may be a less-effective instrument than the carbon tax in reducing CO₂ emissions from ships under actual CO₂ market prices in recent years, and point out the fact that many maritime countries support a carbon tax model.

The second paper 'Ethical leadership and ethical climate in the container shipping industry' by Chin-Shan Lu, Szu-Yu Kuo, and Yi-Tai Chiu. Business ethics have been recognised as having a critical influence on business success in the long-term. Ethics

have been defined as, “moral standards of what is good and right behaviour” [McCann and Holt, (2009), p.211]. Ethical behaviour in the work environment can influence whether a business succeeds or fails (Gonzalez-Padron et al., 2008). While a large number of previous studies have demonstrated the importance of ethical leadership and ethical climate within organisations (Deshpande and Joseph, 2009; DeConinck, 2011; Goldman and Tabak, 2010), there seems to be a dearth of studies on ethical climate and ethical leadership in the container shipping context. Therefore, this paper examines the effect of ethical leadership on ethical climate in the container shipping context. Using data collected from 147 container shipping firms in Taiwan, exploratory factor analysis identified four dimensions underlying ethical climate attributes: rules, independent thinking, law and ethical code, and caring. A structural equation model is employed to examine the relationship between ethical leadership and ethical climate, and indicated that ethical leadership has a positive influence on ethical climate. This paper points out the important issue of business ethics in shipping operations.

The third paper ‘Evaluating modal shift policies for inland container transport in Korea: a GIS-based approach’ by Hyunwoo Lim and Sanglin Lee. This paper is to some extent interrelated to the above first paper in terms of green transport. Arguing that an integrated intermodal transport system can contribute to achieving environmental sustainability in terms of low energy use and low emissions per ton-kilometre basis, the authors attempt to construct an intermodal freight transport network based on geographic information system (GIS) for modelling export and import container flow and evaluating modal shift policies in South Korea. It is an innovative and eclectic approach to reduce gas emission with a help of a fusion technology in modelling a realistic transport network, such as Geospatial Intermodal Freight Transportation (GIFT) model developed by Winebrake et al. (2008) covering road, rail and waterway networks with locations of transshipment facilities in North America. This model is useful to search for optimal transport routes from an origin to a destination in terms of time, cost, or CO₂ emissions.

Once the model is constructed, the authors attempt to analyse modal competition and congestion effects in the networks arising out of spatial variation in demand, transport costs, and infrastructure constraints and then to evaluate the effect of modal shift policies under three categories. They are incentive provision, change in transshipment time due to technological improvement, and rail link capacity increase due to infrastructure development, based on realistic network model in South Korea. It is acknowledged that this third paper contributes to developing an intermodal freight transport network based on GIS for modelling export and import container flow and evaluating modal shift policies, taking a South Korean case. If this paper approach could cover a comprehensive case a case having rail, road, and SSS modal shift, its significance could be augmented.

While the security assessment and management in anti-terrorism and maritime operations has been emphasised as important concerns within the maritime community. The fourth paper ‘Prioritising security vulnerabilities in ports’ by Zaili Yang, Adolf Koi Yu Ng, and Jin Wang, examines the vulnerabilities for prioritising activities and resources on port security investments and risk reduction processes. The authors argue that security measures should be assessed quantitatively and could not be simplistically examined based on subjective estimations from experts. Their study applies combination of fuzzy Bayesian reasoning and analytical hierarchy process (AHP) analysis to carry out the vulnerability prioritisation under different threat modes in ports. Based on the study of Yang et al. (2009) study, the variables include damage capability,

recovery difficulty, damage probability, and security level of vulnerabilities. The study concludes that a stand-alone technique for prioritising critical systems such as port facilitates with high values and significant functions or as part of an integrated decision making method for evaluating the effectiveness of port security.

The shipping industry and port industry go hand in hand to achieve their own competitiveness having vertical and horizontal integration in the dynamic and globalised world. The fifth paper 'Measuring dynamic competitiveness among container ports: an autoregressive distributed lag approach' by Chien-Wen Shen, Heng-chi Lee and Ching-Chih Chou, discusses how to apply the autoregressive distributed lag (ARDL) approach for the analysis of port competitiveness by investigating the competitive relationships among the top 5 worldwide container ports of Singapore, Shanghai, Hong Kong, Shenzhen, and Busan. This paper overcomes the methodological limitations of the commonly used time series approach in the previous port studies of Yap and Lam (2006), Lam and Yap (2011), and Luo et al. (2012) which may cause inconsistent integration orders or large standard errors. Based on ARDL approach, the authors evaluate the long-run relationships by the bounds testing procedures with the considerations of three alternative models and estimated the short-run dynamics by the error correction form. Their work can provide maritime transport practitioners a practical tool for reliable port competition analysis and container demand forecasting.

The economic slowdown across the world triggered by the USA market since 2008 has reduced seaborne trade cargoes and, as a consequence, deteriorated revenues of ocean shipping companies. Decision-makers of those companies are concerned with how to deal with the critical market entry-exit decisions and the investment timing for asset allocation, responding to the recent financial tsunami. The market entry-exit time or investment timing is one of the most significant topics that owners should make a reasonable decision for the profit maximisation and company growth. The sixth paper 'Market entry, asset returns, and irrational exuberance: asset management anomalies in dry cargo shipping' by Emrah Bulut, Okan Duru, and Shigeru Yoshida, deals with the market entry-exit decisions and the investment timing for asset allocation from the point of business cycles in the dry cargo shipping, analysing return on equity (ROE) for the new building for Panamax and Handymax dry bulk carriers, respectively, with the monthly datasets between January 1980 and December 2010. Following scenario method and ROE calculation method, the authors assume a hypothesis which is related to reveal entry and exit decision for the shipping market, considering the ROE as one of the best indicators for the owner whether to enter market or not. Their proposed ROE estimation model shows that the ROE is the dependent variable in regression model and its correlation between other independent variables, such as time charter rate, new building price, second-hand price for five and ten years old Handymax and Panamax ships, their order-book volume and contracting volume.

The authors find two interesting results from their empirical test that there is a time lag between new building prices and the ROE, and the coefficient of new building price is positive which indicates that the conventional market entry estimations are significantly out of the statistical evidence and the second and that there is the period of prepositive time lag of market entry, being around 10 years for 6 years of operation periods and 4 years for 12 years of operation periods. Shimojo (1979) first used the 'prepositive term' to describe the impacts of time lag between contracting time and the shipment and explain market entry by the assessment of new building prices and the ROE. They concluded that because the ROE ratio is one of the widely used financial

indicators, the ROE is reflected in the regression model to find out the investment timing in the dry bulk shipping market. They also find that new building price as an independent variable is recognised as the highest correlation with the ROE, indicating possible time lags between the peak market and the market entry.

The above six papers address the focal points, such as green transport, security, ethical climate, dynamic container port competitiveness as a supply chain node for shipping companies, and ship investment in the uncertain business environment, to enhance dynamic capabilities of shipping companies operating in the globalised economies and currently in a highly troubled waters since 2008. We suppose that the findings, conclusions, and implications of the six papers selected from the IAME 2012 Taipei Conference would contribute to enriching and improving dynamic capabilities of the shipping companies.

Acknowledgements

We would like to take this opportunity to thank Dr. Y.H. Venus Lun, Professor T.C. Edwin Cheng, Dr. Kee-hung Lai, and Dr. Christina W.Y. Wong, editors of the *IJSTL* for their kindly support, help, and encouragement. Special thanks are also extended to all the contributors and the anonymous reviewers of the papers for their valuable time and efforts.

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