Examining the impact of market orientation on service quality in shipping companies: the role of risk propensity

Angelos Pantouvakis and Maria Karakasnaki

Department of Maritime Studies, University of Piraeus, Piraeus, Greece

Abstract

Purpose – The purpose of this study is to investigate the relationship between market orientation and service quality in the context of shipping companies. Moreover, this study aims to explore the moderating role of risk propensity in the above-mentioned relationship.

Design/methodology/approach – A research study was carried out on a sample of 255 shipping companies located in Greece. Data were obtained through a structured questionnaire from the managing directors or other senior executives. Data were analyzed through exploratory and confirmatory factor analyses, while the hypothesized relationships were determined through regression analyzes.

Findings – The analysis of the empirical data shows that intelligence generation and responsiveness have a positive and significant impact on the service quality of shipping companies. Also, the findings showed that this relationship is influenced by the degree of risk propensity, revealing, thus its moderating role on the market orientation – service quality link.

Originality/value – The current study contributes to the literature by examining for the first time the moderating role of risk propensity in the relationship between market orientation and service quality. Additionally, this is the first study that attempts to investigate the way the dimensions of market orientation predict service quality in the context of shipping companies.

Keywords Service quality, Market orientation, Risk

Paper type Research paper

1. Introduction

Since a long time ago, market orientation (MO) has been viewed by organizations as a means to advance firm performance (Jaworski and Kohli, 1993) and gain a competitive advantage (Narver and Slater, 1990). Yet recent studies demonstrate that MO is also a powerful means to offer high service quality (SQ) (Sampaio *et al.*, 2019). The rationale behind this argument is that market-oriented organizations manage to develop the necessary skills to better detect the demands of their target markets, enhance customer value and ultimately increase the level of SQ (Gounaris *et al.*, 2003). Despite the existing literature on the association between MO and SQ, there is a lack of studies regarding the influence of risk propensity in this relationship.

The role of risk propensity is rather important as the existence of some degree of risk is inherent in the implementation of any business initiative (Tay and Morgan, 2002). Even in the first attempts of developing theoretical frameworks of MO (Kohli and Jaworski, 1990), the importance of top managers' attitudes toward risk was emphasized. Being market-oriented implies being responsive to changing market needs, which, in turn, implies being open to innovation that goes hand-in-hand with

taking risks (Kohli and Jaworski, 1990; Jaworski and Kohli, 1996). According to the early theories of MO, managers' unwillingness to accept risks can lead to limited organizational responsiveness to market changes (Jaworski and Kohli, 1996).

However, the way risk propensity influences the relationship between MO and its outcomes (in our case SQ) has not been adequately examined. Surprisingly only a limited investigation of its moderating role in the MO-performance relationship has been conducted (Singh, 2009; Subramanian et al., 2009). Thus, further exploration is needed as in many cases organizations need to be willing to undertake large and risky resource commitments to adjust their services to the market needs and to ensure that their MO plans will yield high SQ.

Moreover, there is a large number of studies on MO in different sectors of the economy in general and in the transport chain in particular (Molander, 2018). However, relevant studies in the context of shipping companies are rather limited (Tseng and Liao, 2015; Pantouvakis, 2014; Pantouvakis et al., 2017). These limited studies have focused mainly on the relationship between MO and firm performance (Tseng and Liao, 2015) neglecting its significant contribution to SQ, which has been revealed in studies conducted in other business sectors (Lam et al., 2012).

Specifically, maritime transport lies at the center of globalized trade, as more than four-fifths of world merchandise trade is carried by sea [UNCTAD (United Nations Conference on Trade and Development), 2019]. However, nowadays, the global shipping environment is characterized by a high degree of uncertainty (UNCTAD [UNCTAD (United Nations Conference on Trade and Development), 2019] and an increase in customer demands for high-quality shipping services (Yuen and Thai, 2015). In this context, shipping companies need to invest resources in large and often risky projects to adapt their service offerings to new customer demands and provide high SQ (Yuen and Thai, 2015). MO can assist shipping managers toward increasing SQ (Lam et al., 2012). MO may also be viewed as the means for better planning and flexibility to more effectively anticipate changes and apply the appropriate response measures, which constitute central issues that are now highlighted in the maritime transport agenda [UNCTAD (United Nations Conference on Trade and Development), 2019]. Exploring these ideas further through the present study would enhance empirical-based evidence in the field regarding the nature of the relationship between MO and SQ.

The purpose of our study is twofold. First, we address the scarcity of scholarly research and we attempt to offer insight on the under-researched area on the effects of MO in the shipping company environment (Tseng and Liao, 2015), by investigating the impact of MO dimensions on shipping SQ. We follow academic voices that argue in favor of taking a disaggregated approach to MO (Murray et al., 2007), making it, thus, possible to analyze the differential effect of MO dimensions on shipping SQ. Our study differentiates itself from a previous study, which attempted to simultaneously investigate the concepts of MO and SQ in shipping companies (Pantouvakis, 2014). Pantouvakis (2014) created homogenous groups of shipping companies based on their aggregated MO, SQ and performance scores, without clearly addressing which dimensions of MO shape SQ.

Second, we investigate the moderating role of risk propensity in the relationship between MO and SQ. The effectiveness of MO is contingent on top managers' risk propensity, especially in uncertain environments (Subramanian et al., 2009) such as that of the shipping industry. Thus, we argue that shipping managers' preferences for cautious actions vis-a-vis a bold, aggressive posture to market opportunities may determine the effectiveness of MO to produce high shipping SQ. There is enough

justification to address this aim, as the concept of risk – albeit included in the early endeavors of MO theorization (Kohli and Jaworski, 1990) – has not received adequate research attention as far as its moderating effects in the link among MO and organizational outcomes are concerned.

2. Literature review and research

2.1 The concept of market orientation

MO reveals a company's tendency to implement the marketing concept. Since the early 1990s, diverse definitions of MO have been proposed in the literature. MO is "the organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments and organization-wide responsiveness to it" (Kohli and Jaworski, 1990, p. 6). Narver and Slater's (1990) cultural perspective of MO is comprising three behavioral components, namely, customer and competitor orientation and inter-functional coordination. Moreover, a third integrationist perspective was also proposed by Homburg and Pflesser (2000), who developed a multilayer model of market-oriented organizational culture that integrated norms and artifacts of market-oriented behaviors.

In our study, the three components of MO, as proposed by Kohli and Jaworski (1990) are used. Intelligence generation pertains to the search for and collection of information and addresses not only customers' stated needs and preferences but also their future ones and the exogenous factors (e.g. competition or technology) that have an impact on those needs (Vaikunthavasan et al., 2019). Organizations can follow both formal (e.g. market research) and informal (e.g. discussion with partners) ways to generate this intelligence (Kohli and Jaworski, 1990).

This intelligence must be effectively disseminated to all departments throughout the company (Jaworski and Kohli, 1993). Thus, appropriate organizational mechanisms should facilitate the communication of market information among organizational members, the cross-functional sharing of intelligence and the coordination of departmental activities (Vaikunthavasan et al., 2019). Responsiveness, "is the action taken in response to intelligence that is generated and disseminated" (Kohli and Jaworski, 1990, p. 6). Responsiveness concerns, for instance, selection of customer segments, development and promotion of products or services, etc (Kohli and Jaworski, 1990). Responsiveness describes both response design, which refers to the development of plans and response implementation, which concerns the execution of these plans (Jaworski and Kohli, 1993).

2.2 Market orientation in the shipping sector

Although the concept of MO is growing in popularity, the literature on the adoption of the concept of marketing in general and of MO in particular by shipping companies is rather limited. However, the literature reveals several waves of development on similar – albeit distinct – concepts. In this regard, the literature began with analyzing customers' selection criteria in the maritime context (Panayides and Cullinane, 2002), then carried onward to SQ and satisfaction research (Durvasula et al., 1999) which has more recently given way to a limited number of studies investigating MO in shipping organizations (Tseng and Liao, 2015; Pantouvakis, 2014; Pantouvakis et al., 2017).

These limited studies have recognized the relevance of MO as a tool for operating under conditions of intense competition in the maritime environment (Tseng and Liao, 2015). Through effective MO, the shipping company finds itself in a position to address the

different needs of customers for the carriage of goods by sea (Plomaritou *et al.*, 2011). The implementation of MO encompasses the collection of market information, which may refer to the analysis of the shipping business environment (for example, exchange rates or oil prices), understanding the needs of charterers or shippers in the different shipping market segments (e.g. tanker segment, container shipping industry, bulk sector), assessing competition, etc (Plomaritou *et al.*, 2011; Tseng and Liao, 2015). The dissemination of this information would assist in effective reacting to customer needs through the involvement of all organizational departments in the shipping company (e.g. operations, chartering, supply, etc.) and it facilitates shipping companies to stay ahead of the competition (Tseng and Liao, 2015).

Then, if shipping companies manage to be responsive through offering new services such as designing appropriate sailing routes to reduce transport cost or offer emergency services to respond to requirements (i.e. flexible container leasing contracts) (Tseng and Liao, 2015), they will ensure commitment on behalf of customers and long-term relationships with them. Interactions with the customers can influence transport SQ (Plomaritou *et al.*, 2011) and assist shipping firms in ensuring sustainable performance (Pantouvakis *et al.*, 2017). MO brings benefits in terms of market and financial performance, as well as transport service in shipping companies (Pantouvakis *et al.*, 2017; Tseng and Liao, 2015).

2.3 Market orientation and service quality

The provision of high SQ as a key outcome of MO has appeared in the marketing literature (Lam *et al.*, 2012). SQ is commonly viewed as the discrepancy between customers' perceptions and expectations regarding the service provided (Parasuraman *et al.*, 1988), while it has been associated, for example, with customer satisfaction (Hapsari *et al.*, 2017), leadership (Trivellas and Dargenidou, 2009), customer knowledge (Tseng and Wu, 2014) or customer behavioral responses (Giovanis *et al.*, 2018).

Past studies have sought to understand the theoretical links between MO and SQ (Lam *et al.*, 2012) and argued that developing a service-driven MO model is a step toward such an aim (Voon, 2006). Organizations continuously strive to gather information on customers' needs and then adjust their marketing strategies to meet and/or exceed these needs. These market-oriented activities then aim to minimize the gap between managers' and customers' perceptions or increase SQ (Chang and Chen, 1998).

Specifically, intelligence generation on customers, competitors, stakeholders, technology, regulations or legislation, assists organizations to place an emphasis on their customer needs and interests, and therefore they manage to create superior value for them (Chung, 2019). These organizations are more effective toward grasping new opportunities and serving their customers and the fulfillment of current and future needs of customers are prerequisites to offer the desired level of SQ (Voon, 2006). Intelligence dissemination or circulating market-based intelligence within the organization and cross-departmental cooperation could contribute to the better serving of customer needs (Chung, 2019). All departments play their role in serving the customer, and thus all departments must emphasize SQ inside a market-driven company (Voon, 2006). Prior research has shown that the orientation of an organization toward inter-functional cooperation, as part of its MO, has a positive effect on SQ (Voon, 2006).

Responsiveness and a firm's ability to understand its competitors' actions and respond to competitive challenges could lead to the creation and delivery of relatively better or superior value for its customers (Voon, 2006). The response action to information gathering has a crucial role in the service provision (Józsa, 2017). Coordinated responsiveness to the

customer, in conjunction with a focus on exogenous factors, which affect customer needs and competition should improve SQ (Sampaio *et al.*, 2019).

To sum up, MO positively influences SQ (Sampaio *et al.*, 2019) and market-oriented organizations ensure that they provide adequate services to their customers and meet their expectations, strengthening, thus SQ (Gounaris *et al.*, 2003). This finding has been corroborated in different organizational settings (Slåtten *et al.*, 2018) such as tourism organizations (Bigné *et al.*, 2005), the hospitality industry (Sampaio *et al.*, 2019), public service organizations (Józsa, 2017) or retail stock brokerage firms (Chang and Chen, 1998).

However, to the best of the authors' knowledge, only one study has been undertaken that sought to investigate MO along with the SQ concept in shipping organizations (Pantouvakis, 2014). Pantouvakis (2014) using a sample of Greek shipping organizations attempted to create distinct clusters based on the respondents' average summated scores on MO, SQ and performance. The author did not seem to clearly examine how individual MO dimensions predict SQ in shipping companies. As a consequence, a closer re-inspection of their dynamics in this context becomes imperative. In line with the theoretical and empirical evidence on the MO – SQ link as described above, we submit the following hypothesis:

H1. Research *H1.* MO (i.e. intelligence generation, intelligence dissemination, responsiveness) has a positive influence on the SQ of shipping companies.

2.4 Risk propensity and its role in the relationship between market orientation and service quality

In the field of management, risk can be defined as the "unpredictability in decision outcomes" (Das and Teng, 2001, p. 517) and is associated with undertaking specific tasks that have uncertain consequences (Das and Teng, 2001). Inherent to the notion of risk are the concepts of managerial attitudes toward risk-taking (Das and Teng, 2001) or risk propensity (Brush, 2003). Risk propensity refers to a person's attitude to take or to avoid certain risks (Sitkin and Weingart, 1995). Zhang *et al.* (2019) argued that risk-taking propensity is the "cross-situational tendency to engage in behaviors with a prospect of negative consequences such as loss, harm or failure" (p. 153). Top managers' propensity to risk is closely related to their eagerness to allocate resources to take a business opportunity and undertake specific projects that have uncertain results (Luo *et al.*, 2018). A risk behavior characterized by a strong propensity to take risks or contrarily by denial to admit that there exist great business risks, can influence the success of business strategies and the mechanism through which the implementation of business plans yields the intended results.

In the early 1990s, Kohli and Jaworski (1990), during their attempt to theorize MO, introduced risk as an important antecedent that influences the level of MO adoption in an organization. The authors proposed that as the level of top managers' risk aversion increases, the level of MO would decrease. A few years later, the same authors (Jaworski and Kohli, 1993) empirically proved that the risk posture of top management precedes the responsiveness dimension of MO. As then, top managers' attitudes to risk have been the subject of various studies in the MO literature.

Some authors have demonstrated that being risk-averse results in establishing strong customer interactions and strong relationships with existing customers, avoiding uncertainties and in higher levels of MO (Johnson *et al.*, 2012). Singh (2009) found that companies should pursue MO strategies for improving business performance when they have a low tolerance for risk. On the other hand, organizations that are characterized by a high aversion to risk are unlikely to fully exploit new ideas that emerge from the implementation of MO and may miss the chance to satisfy unexpressed customer needs

(Bhuian *et al.*, 2005). Neneh (2019), focusing on women-owned businesses, found that the association between customer orientation and performance is moderated by risk-taking, with the relationship becoming more positive as risk-taking increases. Market intelligence may bring to light new opportunities for targeting unexploited market segments, which are not currently served by competitive organizations. So, managers need to take bold steps and embrace some degree of risk for entering into these new markets. Organizations that follow a consistent pattern in avoiding risk do not take advantage of the arising opportunities to understand and then satisfy their customers' latent needs but only their expressed ones (Subramanian *et al.*, 2009). As a result, firms either take the wrong signals from the market or are unable to transform customer demands to a high SQ. Thus, managers need to be risk-tolerant to build market-oriented organizations and accept that errors and failures may occur (Tay and Morgan, 2002).

Following this inconsistency, other authors have argued in favor of the adoption of constructive risk-taking (Bhuian *et al.*, 2005), which may lead organizations to continually reconfigure their intelligence generation sources and direct their intelligence-gathering endeavors to lower the company's exposure to risk. This allows the organization to generate additional insight while controlling their exposure to risk (i.e. affecting the quality of intelligence generation) (Bhuian *et al.*, 2005). As risk propensity increases beyond medium levels, MO may cease to be implemented constructively.

To sum up, mixed empirical evidence implies that there is not a definite answer to "how much" risk is the best for MO to generate positive outcomes. However, its moderating effect is evident especially when the business environment is characterized by instability and uncertainty (Subramanian *et al.*, 2009) such as in the case of the shipping industry (Thanopoulou and Strandenes, 2017). We consider risk propensity as a factor that influences the way an organization performs market intelligence activities (Subramanian *et al.*, 2009), and hence, their relationship with SQ. Thus, we posit that:

H2. Research *H2*. Managers' risk propensity moderates the relationship between MO (i.e. intelligence generation, intelligence dissemination and responsiveness) and SQ in shipping companies.

The two examined hypotheses are depicted in Figure 1.

3. Material and methods
3.1 Research design
For the purposes of our cross-sectional study, we conducted a large-scale survey in March 2018 of the Greek shipping companies (about 600 in 2018 [1] according to Petrofin research) that are involved in the global transfer of goods by sea. Greece is the largest ship-owning country in terms of cargo-carrying capacity (350m dwt), controlling about 18% of the
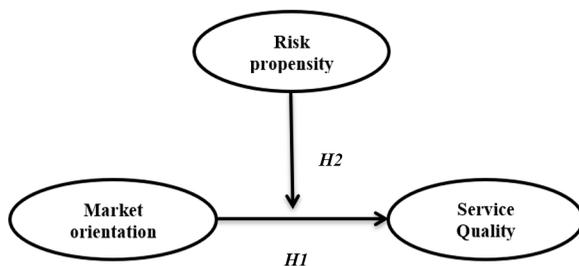

Figure 1.
Hypotheses under examination

world's total dead-weight tonnage [UNCTAD (United Nations Conference on Trade and Development), 2019].

A panel of managers (managing directors or other senior executives), who were selected on the basis of their expertise and familiarity with the applied policies (Sekaran, 2003), was invited to pilot the questionnaire prior to the survey. Data collection was conducted by trained interviewers and involved personally administered questionnaires, which allowed for clarifications on the spot, getting sincere answers from the respondents and anonymity (Sekaran, 2003). At first, targeted respondents were approached via emails and phones. After the arrangement with those who agreed to participate in the survey, the interviewers made personal visits to the companies. Respondents filled-in the questionnaire on the spot and returned it to the interviewers on the same day.

In total, 255 questionnaires were collected, that were suitable for further analysis corresponding to a 42% response rate. After conducting frequency analysis, it was verified that the sample sufficiently represents the population-based on industry segments (dry bulk, wet bulk and other types). The sample size is adequate, as it is in line with the generalized scientific guideline (i.e. 234) for sample sizes for a population size of 600 (Sekaran, 2003). Regarding the profile of the respondents, most of them (43%) work in the Operations department, 22% work in the Chartering department, while the remaining ones belong to various departments. Almost half of the shipping companies (49.8%) implement a quality management system based on ISO certification, while 38% of the firms use 200 to 500 people (both ashore and onboard ships) and 62% of them have over 500 total employees. In total, 43.3% of the shipping companies have 50 or fewer employees in the office and 54.5% of them use more than 50 people in the office.

3.2 Scale operationalization

The items for measuring MO, SQ and risk propensity (Appendix) were drawn from prior research and were modified and refined according to the feedback from experienced shipping professionals. MO was measured using the 32-item MARKOR scale proposed by Jaworski and Kohli (1993). In total, 10 items pertain to intelligence generation, 8 of them describe intelligence dissemination and 14 items correspond to responsiveness. The Cronbach's alpha value of the scale equals 0.754. SQ was operationalized with two items. Single item rating scales have been used in the literature to describe overall SQ (Pitt *et al.*, 1995). The Cronbach's alpha value of the two-item scale equals 0.608, which is deemed acceptable according to Hair *et al.* (2006).

The measurement instrument of risk propensity initially included eight items that were adapted from Brush (2003). However, during our preliminary analysis it was found that the scale had a rather low level of reliability, leading us to the final inclusion of three indicators (Cronbach's alpha value equals 0.773): "our business strategy is characterized by a strong tendency to take the risk," "our company prefers high risk – high return activities rather than low risk – low return activities" and "our company would be willing to undertake high-risk activities if the expected rewards were high enough to satisfy the risk taken." All items of constructs were measured on a seven-point Likert-type scale ranging from "strongly disagree" to "strongly agree." Finally, firm size, which is included as a control variable in our study, was measured as the number of office employees.

3.3 Methodology

We conducted confirmatory factor analysis (CFA) to evaluate the measurement model of MO and determine the good fit of the data and exploratory factor analysis (EFA) to identify the structure of the risk propensity scale. Hypotheses were tested through multiple

regression analyzes. Their use is deemed appropriate, as in our study one dependent variable (SQ) is being predicted in a single relationship by a set of independent variables (MO dimensions) (Hair *et al.*, 2006). In general, regression analysis is considered the most widely used dependence technique and can be applied in every aspect of business decision-making (Hair *et al.*, 2006).

4. Results and discussion

4.1 Market orientation

CFA was performed to test the measurement model of MO. Modifying the model in response to CFA output, certain items were deleted in the final model either due to low or insignificant standardized regression weights. The CFA results supported the three-dimensional structure of MO. All standardized regression weights were greater than 0.5 and statistically significant, attesting, thus the convergent validity of the measurement model. Moreover, the standardized residual covariances were below the absolute value of 2.5. Table 1 reports the goodness of fit statistics for the construct of MO. The values in Table 1 denote a very satisfactory fit and an acceptable representation of the hypothesized construct (Hair *et al.*, 2006). CFA results ascertained that MO in shipping companies is described by the dimensions of intelligence generation, intelligence dissemination and responsiveness.

4.2 Market orientation – service quality relationship in shipping companies (research H1)

A multiple regression analysis was run to evaluate the influence of MO on the SQ of shipping companies. The summated scales of the three dimensions of MO were treated as independent variables and were regressed on the summation of the two items that describe the construct of SQ (dependent variable). Firm size was used as a control variable. Table 2 reveals the correlations among the constructs, while Table 3 shows that intelligence dissemination does not seem to influence the dependent variable (standardized β equals 0.090 and is not significant). Intelligence generation (standardized β = 0.181) and responsiveness (standardized β = 0.302) have a strong, positive and significant impact on SQ, *partially confirming our research H1*. The control variable of firm size is statistically significant. The analysis did not reveal any problems associated with multicollinearity as tolerance is greater than 0.1 and the VIF value is less than 10 (Hair *et al.*, 2006).

The findings confirm the empirical evidence from the review of the literature (Lam *et al.*, 2012) that as the degree of MO increases, the overall SQ offered by shipping companies will improve. MO practices, which include, for example, the accumulation of knowledge on

Chi-square	120.644
df	61
p-value	0.000
Chi-square/df	1.978
GFI	0.932
AGFI	0.899
NFI	0.866
RFI	0.828
IFI–delta 2	0.929
TLI	0.907
CFI	0.927
RMSEA	0.062
AIC	180.644
ECVI	0.711

Table 1.
Goodness of fit
statistics for MO

current and prospective customers (i.e. intelligence generation), the division of the market to customer segments for new service development and the effective coordination of the different organizational functions (e.g. operations, chartering) (i.e. responsiveness) lead to a better understanding of customers' needs. Then, the company becomes capable to deliver high SQ (Gounaris *et al.*, 2003). A possible explanation of the non-significance of dissemination lies in the Greek maritime context of our study. People being used in a shipping company usually work in the same physical environment, share common offices and communicate with each other constantly, making the sharing of information, as well as interdepartmental coordination a daily and effective routine task. Updates and data availability may be also ensured through the presence of modern information systems that characterize the operations of shipping companies today. Also, other studies conducted in the Greek shipping industry showed that dissemination comes third in the priority ranking of the MO dimensions that should be implemented in turbulent environments, while dissemination also failed to predict certain aspects of shipping company performance (Pantouvakis *et al.*, 2017).

4.3 Risk propensity moderation in the market orientation – service quality relationship (research H2)
First, EFA results revealed one factor comprising the three items of risk propensity (total variance explained equaled 66.662%). The standardized factor loadings were greater than 0.5 and the KMO value equaled 0.648, which is considered acceptable according to Hair *et al.* (2006). Then, to test for the moderating effect of risk propensity, we used subgroup analysis (Zhang *et al.*, 2012), in which the total sample is divided into distinct subgroups and then the

	Intelligence generation	Intelligence dissemination	Responsiveness	SQ	Risk propensity
Intelligence generation	1	0.606***	0.451***	0.383***	0.008 (ns)
Intelligence dissemination	0.606***	1	0.590***	0.389***	−0.11 (ns)
Responsiveness	0.451***	0.590***	1	0.447***	0.002 (ns)
SQ	0.383***	0.389***	0.447***	1	−0.109 (ns)
Risk propensity	0.008 (ns)	−0.11 (ns)	0.002 (ns)	−0.109 (ns)	1

Notes: *** significant at the 0.01 level, ns: non-significant

Table 2.
Correlations

	Service quality (dependent variable)				
Independent variables	β	SE	Standardized β	t	Sig.
Control variable					
Firm size	0.319	0.135	0.130	2.355	0.019
Market orientation dimensions					
Intelligence generation	0.053	0.020	0.181	2.589	0.010
Intelligence dissemination	0.025	0.022	0.090	1.168	0.244
Responsiveness	0.089	0.020	0.302	4.388	0.000

Notes: Adj. R^2 = 0.245, std. error of the estimate = 1.06596, F-value = 21,340, sig. 0.000

Table 3.
Multiple regression analysis results

same methodology of data analysis is used in each individual subgroup (Hair *et al.*, 2006; Zhang *et al.*, 2012). We created three different groups representing the low, medium and high levels of risk propensity, respectively. The multiple regression results are shown in Table 4. No multicollinearity problems were detected.

The results reveal that intelligence generation constitutes the sole MO dimension that predicts SQ (standardized $\beta = 0.286$, Adj. $R^2 = 0.273$) in the case of low levels of risk propensity, while responsiveness is the dimension that generates high levels of SQ (standardized $\beta = 0.247$, Adj. $R^2 = 0.251$) when a high propensity to risk is evident in the shipping corporate environment. The control variable of firm size is only statistically significant in the latter group. However, in specific organizational situations characterized by moderate attitudes toward risk, higher levels of both intelligence generation (standardized $\beta = 0.311$) and responsiveness (standardized $\beta = 0.370$) result in improved SQ in shipping companies (Adj. $R^2 = 0.294$). The above Adj. R^2 values indicate sufficient explanatory power (Schlegelmilch *et al.*, 1996). The results support the role played by risk propensity when analyzing the interrelationships among the three dimensions of MO and the overall level of SQ, which leads to the *support of our research H2*.

The findings are particularly interesting because they prove that the effectiveness of MO to produce higher SQ is contingent on the varying levels of managerial propensity to risk. The findings can be explained by considering industry conditions. In shipping organizational contexts, in which managers tend to exhibit risk-averse attitudes (low-risk propensity), solid management systems are needed to offer high shipping SQ to customers. These systems primarily emphasize the collection of customer information, the internal execution of market and data analyzes, as well as the information processing on customers' demands, competitors' moves or newly established shipping regulations. Organizations manage to minimize their losses and offer SQ only by collecting information to make sure they stay in the right direction for satisfying existing customer needs. The tendency to adopt risk-averse behaviors may be evident when stable environments are perceived

Risk propensity levels	Market orientation dimensions (independent variables)	Service quality (dependent variable)		Standardized		
		β	SE	β	t	Sig.
Low-risk propensity ($n = 71$)	Firm size	0.009	0.221	0.004	0.043	0.966
	Intelligence generation	0.067	0.028	0.286	2.440	0.017
	Intelligence dissemination	0.048	0.029	0.229	1.658	0.102
	Responsiveness	0.038	0.030	0.171	1.249	0.216
	Notes: Adj. $R^2 = 0.273$, std. error of the estimate = 0.88553, F-value = 7.568, sig. 0.000					
Medium risk propensity ($n = 82$)	Firm size	−0.203	0.292	−0.069	−0.694	0.490
	Intelligence generation	0.103	0.043	0.311	2.400	0.019
	Intelligence dissemination	0.004	0.048	0.011	0.076	0.940
	Responsiveness	0.126	0.040	0.370	3.171	0.002
	Notes: Adj. $R^2 = 0.294$, std. error of the estimate = 1,23530, F-value = 9.417, sig. 0.000					
High-risk propensity ($n = 99$)	Firm size	0.754	0.198	0.341	3.810	0.000
	Intelligence generation	0.015	0.035	0.051	0.424	0.673
	Intelligence dissemination	0.042	0.035	0.147	1.216	0.227
	Responsiveness	0.076	0.034	0.247	2.266	0.026
	Notes: Adj. $R^2 = 0.251$, std. error of the estimate = 0.96196, F-value = 9.220, sig. 0.000					

Table 4.
Regression results within subgroups of low, medium and high-risk propensity

(Subramanian *et al.*, 2009) and there is enough time for intelligence to be internally generated. In the shipping industry context, when these conditions are perceived, there is time to produce intelligence inside the company, which seems to be enough for increasing shipping SQ.

However, in organizations in which shipping managers are characterized by high-risk propensity, the key to improved SQ lies in the immediate organizational response to market changes and the adjustment of the service portfolio to customer needs. Responsiveness to customer wants is about being "fast and right" (Meehan and Dawson, 2002, p. 27). The risk-taker operates in an uncertain and turbulent environment. The effective and decisive responsiveness to changes in the turbulent environment may be a better choice than spending time to communicate with the customers, conduct unnecessary market research and distribute this information to organizational members (Pantouvakis *et al.*, 2017). The value of being right about customers depends on the speed or response production and quick decision-making (Meehan and Dawson, 2002).

On the other hand, when a less conservative attitude is diffused in the organization (medium risk propensity), then more complete MO plans should be put in place. These plans will encourage not only the systematic collection of customer preferences on shipping services and of information on market players such as brokers or carriers (i.e. intelligence generation) but also the implementation of response actions and plans to stakeholder-related changes (i.e. responsiveness). Between the two extremes of the risk propensity continuum, shipping managers need to adapt among these two MO dimensions for higher SQ. The absence of a significant contribution of intelligence dissemination may be attributed to the specific context of the Greek shipping industry as described before. Overall, the above findings indicate that within the context of the maritime industry, different levels of risk propensity require a different utilization of MO practices for SQ.

5. Conclusions

Despite an awareness of the existence of MO as a way of attaining a competitive advantage in various business sectors, it is only recently gaining importance as a viable business strategy in the context of the shipping industry. According to the study findings, higher levels of shipping SQ can be obtained by focusing on the dimensions of intelligence generation and responsiveness, while different dimensions of MO account for varying levels of SQ after low, medium and high levels of risk propensity are considered.

Shipping managers that have a low level of risk propensity tend to be conservative and may dedicate their efforts toward serving existing markets. The adoption of risk-averse behaviors is linked with stable environmental perceptions and in such conditions, having the necessary time to produce intelligence seems to be the key for increasing shipping SQ. The risk-taker operates in uncertain environments. High-risk propensity requires quick responsiveness to environmental changes and the value of being right about customers depends on the speed of this responsiveness. Among the two extremes in the risk continuum, it seems that the focus should lie on both intelligence generation and responsiveness for SQ prediction. When having a moderate tendency to take risks, shipping managers find the balance between producing and responding to information, which, in turn, yields high levels of shipping SQ.

5.1 Theoretical and managerial implications

From an academic point of view, our study makes two contributions. So far in the literature, the limited existing studies have focused on evaluating the direct effect of MO on shipping company performance. Our study extends the literature and assesses the individual impact

of the three components of MO on the level of shipping SQ. Second, following Kohli and Jaworski's (1990) early theorization of MO, in which they introduced risk as a crucial factor for determining MO levels, we investigated the role of risk propensity as a moderator in the relationship between MO and SQ for the first time in the literature. Therefore, our study expanded the relevant research on the moderating forces which influence the relationship between MO and organizational outcomes. Researchers could benefit from the present study, as they can use the hypothesized relationships as a basis for the design and conduct of future studies.

From a managerial viewpoint, we suggest that shipping managers who aim to improve the levels of SQ need to focus on MO. It is recommended to shipping managers to develop systems to gather information on shipping market trends, competitors' or charterers' requirements and then to acquire the right capabilities for interpreting and responding to this market information. Our findings can assist managers in understanding the importance of MO for increasing shipping SQ. It may be more valuable to put more resources on systems for gathering customer and market data in situations of low-risk preference behaviors. Also, it may be more appropriate to invest in building strong organizational mechanisms of quick response to competitor moves and customer preferences in high-risk taking cases. For example, adjusting strategies through new ship characteristics, new ports of call or new business partnerships can bring quality benefits when managers prefer to take bold actions toward risk. The moderate posture to risk may require bringing forward a more comprehensive approach to MO for high SQ. This approach is characterized by a diverse set of activities such as shipping market analysis and evaluation, customer surveys, meetings with brokers or participation in shipping forums (to *generate* market intelligence), as well as market segmentation or interdepartmental cooperation (to encourage organizational *responsiveness* to market intelligence).

5.2 Limitations and suggestions for future research

The present study also has certain limitations that can offer directions for future possible research. First of all, our study is cross-sectional in nature using data collected at one point in time; future researchers could conduct longitudinal studies for a more in-depth understanding of the examined relationships over time. Also, our study drew evidence from the Greek shipping industry. Future researchers could replicate this study using data from various countries. SQ was measured with the use of only two subjective items. Although the use of similar scales is encountered in the literature, future studies could view SQ as a multidimensional construct. We relied on quantitative data obtained from responses in close-ended questions (use of Likert type scales). Future studies could take a mixed-method approach. We used the managers' level of risk propensity as a moderator in our study. Future studies may consider other moderating variables such as different management styles or managers' environmental perceptions.

Note

1. www.petrofin.gr/petrofin-research/

References

Bhuian, S.N., Menguc, B. and Bell, S.J. (2005), "Just entrepreneurial enough: the moderating effect of entrepreneurship on the relationship between market orientation and performance", *Journal of Business Research*, Vol. 58 No. 1, pp. 9-17.

Bigné, J.E., Andreu, L., Küster, I. and Blesa, A. (2005), "Quality market orientation: tourist agencies' perceived effects", *Annals of Tourism Research*, Vol. 32 No. 4, pp. 1022-1038.

Brush, G.J. (2003), "The risk preferences of entrepreneurial firms: measurement issues and behavior", in *ANZMAC 2003 Conference Proceedings, Adelaide*, Australia, pp. 764-772.

Chang, T.Z. and Chen, S.J. (1998), "Market orientation, service quality and business profitability: a conceptual model and empirical evidence", *Journal of Services Marketing*, Vol. 12 No. 4, pp. 246-264.

Chung, H.F.L. (2019), "How guanxi networking matters in the relation between market orientation and innovation in Asian emerging economies – the case of Markor", *Journal of Business and Industrial Marketing*, Vol. 34 No. 4, pp. 836-849.

Das, T.K. and Teng, B.S. (2001), "Strategic risk behaviour and its temporalities: between risk propensity and decision context", *Journal of Management Studies*, Vol. 38 No. 4, pp. 515-534.

Durvasula, S., Lysonski, S. and Mehta, S.C. (1999), "Testing the SERVQUAL scale in the business-to-business sector: the case of ocean freight shipping service", *Journal of Services Marketing*, Vol. 13 No. 2, pp. 132-150.

Giovanis, A., Pierrakos, G., Rizomyliotis, I. and Binioris, S. (2018), "Assessing service quality and customer behavioral responses in hospital outpatient services", *International Journal of Quality and Service Sciences*, Vol. 10 No. 2, pp. 98-116.

Gounaris, S.P., Stathakopoulos, V. and Athanassopoulos, A.D. (2003), "Antecedents to perceived service quality: an exploratory study in the banking industry", *International Journal of Bank Marketing*, Vol. 21 No. 4, pp. 168-190.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006), *Multivariate Data Analysis*, 6th ed., Pearson Prentice Hall, Upper Saddle River, NJ.

Hapsari, R., Clemes, M.D. and Dean, D. (2017), "The impact of service quality, customer engagement and selected marketing constructs on airline passenger loyalty", *International Journal of Quality and Service Sciences*, Vol. 9 No. 1, pp. 21-40.

Homburg, C. and Pflesser, C. (2000), "A multiple-layer model of market-oriented organizational culture: measurement issues and performance outcomes", *Journal of Marketing Research*, Vol. 37 No. 4, pp. 449-462.

Jaworski, B.J. and Kohli, A.K. (1993), "Market orientation: antecedents and consequences", *Journal of Marketing*, Vol. 57 No. 3, pp. 53-70.

Jaworski, B.J. and Kohli, A.K. (1996), "Market orientation: review, refinement, and roadmap", *Journal of Market-Focused Management*, Vol. 1 No. 2, pp. 119-135.

Johnson, J.L., Martin, K.D. and Saini, A. (2012), "The role of a firm's strategic orientation dimensions in determining market orientation", *Industrial Marketing Management*, Vol. 41 No. 4, pp. 715-724.

Józsa, T. (2017), "The antecedents of market orientation and its effect on customer satisfaction and service quality: the case of Hungarian municipal public service provisions", *International Review on Public and Nonprofit Marketing*, Vol. 14 No. 3, pp. 391-407.

Kohli, A.K. and Jaworski, B.J. (1990), "Market orientation: the construct, research propositions, and managerial implications", *Journal of Marketing*, Vol. 54 No. 2, pp. 1-18.

Lam, S.Y., Lee, V.H., Ooi, K.B. and Phusavat, K. (2012), "A structural equation model of TQM, market orientation and service quality: evidence from a developing nation", *Managing Service Quality: An International Journal*, Vol. 22 No. 3, pp. 281-309.

Luo, B., Zheng, S., Ji, H. and Liang, L. (2018), "Ambidextrous leadership and TMT-member ambidextrous behavior: the role of TMT behavioral integration and TMT risk propensity", *The International Journal of Human Resource Management*, Vol. 29 No. 2, pp. 338-359.

Meehan, S. and Dawson, C. (2002), "Customer responsiveness: getting it fast and right through impatience and intolerance", *Business Strategy Review*, Vol. 13 No. 4, pp. 26-37.

Molander, S. (2018), "Changing roles and new perspectives: towards market orientation in public transport", *Transportation*, Vol. 45 No. 6, pp. 1811-1825.

Murray, J.Y., Gao, G.Y., Kotabe, M. and Zhou, N. (2007), "Assessing measurement invariance of export market orientation: a study of Chinese and non-chinese firms in China", *Journal of International Marketing*, Vol. 15 No. 4, pp. 41-62.

Narver, J.C. and Slater, S.F. (1990), "The effect of a market orientation on business profitability", *Journal of Marketing*, Vol. 54 No. 4, pp. 20-35.

Neneh, B.N. (2019), "Customer orientation and performance of women-owned businesses: a configurational approach", *Journal of Small Business Management*, Vol. 57 No. sup2, pp. 218-243.

Panayides, P.M. and Cullinane, K.P. (2002), "The vertical disintegration of ship management: choice criteria for third party selection and evaluation", *Maritime Policy and Management*, Vol. 29 No. 1, pp. 45-64.

Pantouvakis, A. (2014), "Market orientation and service quality: opponents or colleagues", *International Journal of Quality and Service Sciences*, Vol. 6 Nos 2/3, pp. 98-111.

Pantouvakis, A., Vlachos, I. and Zervopoulos, P.D. (2017), "Market orientation for sustainable performance and the inverted-U moderation of firm size: evidence from the Greek shipping industry", *Journal of Cleaner Production*, Vol. 165, pp. 705-720.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988), "SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality", *Journal of Retailing*, Vol. 64 No. 1, pp. 12-40.

Pitt, L.F., Watson, R.T. and Kavan, C.B. (1995), "Service quality: a measure of information systems effectiveness", *MIS Quarterly*, Vol. 19 No. 2, pp. 173-187.

Plomaritou, E.I., Plomaritou, V. and Giziakis, K. (2011), "Shipping marketing and customer orientation: the psychology and buying behavior of charterer and shipper in the tramp and liner market", *Management: Journal of Contemporary Management Issues*, Vol. 16 No. 1, pp. 57-89.

Sampaio, C.A., Hernández-Mogollón, J.M. and Rodrigues, R.G. (2019), "Assessing the relationship between market orientation and business performance in the hotel industry–the mediating role of service quality", *Journal of Knowledge Management*, Vol. 23 No. 4, pp. 644-663.

Schlegelmilch, B.B., Bohlen, G.M. and Diamantopoulos, A. (1996), "The link between green purchasing decisions and measures of environmental consciousness", *European Journal of Marketing*, Vol. 30 No. 5, pp. 35-55.

Sekaran, U. (2003), *Research Methods for Business: A Skill-Building Approach*, John Wiley and Sons, Inc., New York, NY.

Singh, S. (2009), "How market orientation and outsourcing create capability and impact business performance", *Thunderbird International Business Review*, Vol. 51 No. 5, pp. 457-471.

Sitkin, S.B. and Weingart, L.R. (1995), "Determinants of risky decision-making behavior: a test of the mediating role of risk perceptions and propensity", *Academy of Management Journal*, Vol. 38 No. 6, pp. 1573-1592.

Slåtten, T., Lien, G. and Svensson, G. (2018), "The value of cultivating norms for market orientation in professional service firms", *International Journal of Quality and Service Sciences*, Vol. 10 No. 3, pp. 316-330.

Subramanian, R., Kumar, K. and Strandholm, K. (2009), "The relationship between market orientation and performance under different environmental conditions: the moderating effect of the top management team's risk taking behavior", *Academy of Strategic Management Journal*, Vol. 8, pp. 121-135.

Tay, L. and Morgan, N.A. (2002), "Antecedents and consequences of market orientation in chartered surveying firms", *Construction Management and Economics*, Vol. 20 No. 4, pp. 331-341.

Thanopoulou, H. and Strandenes, S.P. (2017), "A theoretical framework for analysing long-term uncertainty in shipping", *Case Studies on Transport Policy*, Vol. 5 No. 2, pp. 325-331.

Trivellas, P. and Dargenidou, D. (2009), "Leadership and service quality in higher education", *International Journal of Quality and Service Sciences*, Vol. 1 No. 3, pp. 294-310.

Tseng, P.H. and Liao, C.H. (2015), "Supply chain integration, information technology, market orientation and firm performance in container shipping firms", *The International Journal of Logistics Management*, Vol. 26 No. 1, pp. 82-106.

Tseng, S.M. and Wu, P.H. (2014), "The impact of customer knowledge and customer relationship management on service quality", *International Journal of Quality and Service Sciences*, Vol. 6 No. 1, pp. 77-96.

UNCTAD (United Nations Conference on Trade and Development) (2019), *Review of Maritime Transport*, United Nations publication, Geneva, ISBN 978-92-1-112958-8.

Vaikunthavasan, S., Jebarajakirthy, C. and Shankar, A. (2019), "How to make higher education institutions innovative: an application of market orientation practices", *Journal of Nonprofit and Public Sector Marketing*, Vol. 31 No. 3, pp. 274-302.

Voon, B. (2006), "Linking a service-driven market orientation to service quality", *Managing Service Quality: An International Journal*, Vol. 16 No. 6, pp. 595-619.

Yuen, K.F. and Thai, V.V. (2015), "Service quality and customer satisfaction in liner shipping", *International Journal of Quality and Service Sciences*, Vol. 7 Nos 2/3, pp. 170-183.

Zhang, D.C., Highhouse, S. and Nye, C.D. (2019), "Development and validation of the general risk propensity scale (GRiPS)", *Journal of Behavioral Decision Making*, Vol. 32 No. 2, pp. 152-167.

Zhang, D., Linderman, K. and Schroeder, R.G. (2012), "The moderating role of contextual factors on quality management practices", *Journal of Operations Management*, Vol. 30 Nos 1/2, pp. 12-23.

Appendix. Measurement items

Market orientation

In our company [. . .][. . .]:

- We meet with our clients at least once a year to find out what services they will need in the future.
- Our staff interacts directly with our customers to learn how we can serve them better.
- In our company, we perform (internally) continuous market research.
- We are "slow" to detect changes in the preferences of our customers on our services.*
- We often investigate (at least once a year) the opinions of our customers on the quality of the services we offer.
- We often talk or communicate with those who can influence our end-customers (brokers, carriers, etc.).
- We also collect market information from unofficial sources e.g. conversation or dinner with members of the market, participation in special events (Posidonia, Marine Money, etc.).
- All departments are involved in the generation of "knowledge" and gather information about our competitors.
- We are "slow" to detect major changes in our industry (e.g. changes in competition, technology, regulations, legislation, etc.).*

- We periodically review the possible effects of the changes of the broader business environment to our customers (e.g. changes in financial condition, changes in legislation, etc.).
- A lot of informal discussions take place within the company for the tactics and strategies of our competitors.
- We often (at least every quarter) organize interdepartmental meetings to discuss market trends and the latest developments.
- A large amount of time is dedicated to updating all parts of the company for the future needs of our customers and markets.
- Very often reports and newsletters with information about the market (specialized reports, gazettes, special forms, etc.) are distributed internally within our company.
- When something important happens to one of our major customers or in our market, all the departments of our company will be informed in a very short time.
- Data regarding the services we offer to our clients is available on a regular basis in all the departments of the company.
- Communication between departments dealing with sales (e.g. chartering), production (e.g. operations or technical) or support (e.g. insurance, financial) is minimal for issues relating to market "trends."*
- When one department finds out something important about competitors, it is slow to alert other departments. *
- It takes us forever to decide how to respond to our competitors' price changes.*
- The division of the shipping market to customer segments and the development of the proper per segment specialization act as a "guide" to the development of our new services and the acquisition of productive resources.
- For various reasons, we tend to ignore changes in our customers' needs.*
- We frequently review the development efforts of our services to ensure that they are in line with our customers' needs.
- Our business plans are driven more by technological developments than by market research.*
- All our departments work together regularly to plan a response to changes occurring in the market.
- The services we offer are more dependent on what we have for sale (e.g. type of vessel) than the actual needs of the market.*
- If one of our competitors launches a new strategy to attract customers then we will respond immediately.
- The activities of different departments in the business (operations, chartering, etc.) are well coordinated.
- We do not pay much attention to our customer complaints.*
- Even if we come up with a new growth strategy, we may not be able to implement it in time.*
- We immediately respond to significant pricing changes in our competitors.
- When we realize that our customers are unhappy with the quality of services we offer, we will take immediate corrective actions.
- When we realize that our customers want us to change the way we provide a service, we make efforts towards that direction.

* reverse coded item.

Service quality

- Overall, I believe that we offer high service quality to our customers.
- Overall, I believe that we are informed about customer demands on the quality of our services.

Risk propensity:

- Our company prefers stability in its business transactions and relationships (e.g. long-term relationships with dealers, suppliers, customers) even if this means reduced business performance.
- A high-risk decision is always accompanied by extensive research of market conditions.
- Our company takes risks only in business areas that are experienced in.
- Our business transactions are always performed with a high degree of attention.
- Our business strategy is characterized by a strong tendency to take risks.
- Our company prefers high risk – high return activities rather than low risk – low return activities.
- Our company is "considered" very conservative in its business transactions.
- Our company would be willing to undertake high-risk activities if the expected rewards were high enough to satisfy the risk taken.

Corresponding author
Maria Karakasnaki can be contacted at: mkarakasnaki@gmail.com