Interaction impacts of corporate social responsibility and service quality on shipping firms' performance

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ABSTRACT

The interaction impacts of corporate social responsibility (CSR) and service quality (SQ) on customer satisfaction, job satisfaction, and financial performance are investigated in the context of shipping. Interviews were conducted, and surveys were administered on 156 shipping firms with operations in Singapore. The collected data were analysed using structural equation modelling. The results showed that: (1) customer and job satisfaction fully-mediate the link between corporate level associations (i.e. CSR and SQ) and shipping firms' financial performance; (2) CSR and SQ complement each other in driving job and customer satisfaction; (3) the interaction between CSR and SQ produces synergistic effects on customer satisfaction but compensatory effects on job satisfaction. The results suggest that the decision to implement CSR is contingent on the motivation of a firm as well as its current SQ capability. This paper contributes to the literature by reconciling the conflicting views on managing SQ performance and corporate social performance based on stakeholder theory, economic theory of complementarities and perceived value theory.

1. Introduction

In view of rising competition and demand for green or socially responsible services, shipping firms are inclined to implement corporate social responsibility (CSR) and service quality (SQ) concurrently in an attempt to boost their business performances (Lagoudis et al., 2006; Shin and Thai, 2015). There is sufficient evidence to show that delivering superior quality in shipping services leads to a chain of organisational benefits such as customer satisfaction, customer loyalty, and improved financial performances (Cheng and Choy, 2013; Panayides, 2003; Yuen and Thai, 2015). However, the relationship between CSR and a firm's financial performance has been mixed and subjected to numerous debates (Drobetz et al., 2014; Margolis et al., 2009). The key objective of this study is therefore to examine the interactions between CSR and SQ, and their effects on performance outcomes through the theoretical lenses of stakeholder theory, economic theory of complementarities and perceived value theory.

Scholars who are averse to CSR practice argued that CSR dilutes the primary purpose of conducting businesses and drains valuable resources from an organisation as it confers little financial benefits (Friedman, 2007). Sprinkle and Maines (2010) pointed to opportunity costs that are often neglected by existing correlational studies and argued that this would result in erroneous and inflated positive correlations. Hong et al. (2012) drew attention to financial expenditure on CSR disclosure alone that equates to hundreds of millions in the US which would outweigh or negate the finite contribution of CSR.

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On the other hand, scholars who favour the practice of CSR argued that there are financial benefits if CSR was managed strategically and not altruistically (Husted and de Jesus Salazar, 2006). Chang and Yeh (2016) proposed that practising strategically-chosen CSR activities contributes to firms' competitive advantages and creates synergistic value for the stakeholders. Similarly, Lin and Wong (2013) found that shipping companies are generally strategically or economically motivated in their CSR implementation; for example, the implementation of environmental activities tend to be primarily motivated by cost-saving potential. On the other hand, the effectiveness of mitigating environmental impacts is secondary considerations for shipping companies. As highlighted by Husted and de Jesus Salazar (2006), such economic-centric implementation of CSR activities do nevertheless result in greater social and environmental outputs.

In response to the rather mixed association between CSR activities and a firm's financial performance, recent studies have introduced mediators and contingencies to their analyses (Carroll and Shabana, 2010; Yuen et al., 2017a). For instance, Barnett and Salomon (2012) found that the effect of CSR activities on a firm's financial performance is contingent on stakeholder influence capacity which was defined as a firm's ability to identify, respond to, and profit from opportunities to improve stakeholder relationships through CSR. In another study, Yuen et al. (2016b) found that the relationship between CSR and a shipping firm's business performance is contingent on its continuous improvement capacity and the pace and consistency of improvement.

The recent literature has provided a better nomological understanding of the relationship between CSR and a firm's performance, and some explanations to its mixed results. However, the existing literature has not probed into the possibility of whether CSR complements or trades off with other resources of a firm. The degree of congruency between CSR and these resources can explain the mixed results found between CSR and a firm's performance. According to the economic theory of complementarities, synergy or trade-off can arise from the interaction between a firm's resources. Synergy is generated when the resources are mutually-reinforcing whilst trade-off is generated when the resources are conflicting. This study focuses on the interaction between CSR and service quality (SQ). The latter is selected as it has been a critical resource in influencing a firm's performance. In particular, this study examines the complementarities of CSR and SQ, and investigates their effects on a firm's performance which include customer satisfaction, job satisfaction, and financial performance.

In this study, the shipping industry is chosen as the unit of analysis due to the mounting pressure exerted by the regulators, customers, and public to practice CSR (Fafaliou and Aroni, 2016; Yang, 2018). The shipping industry is often criticised for being a laggard in implementing social and environmental initiatives (Yuen and Lim, 2016). Hence, this study can provide timely insights into shipping firms' pursuit of superior financial performance. Shipping firms invariably encounter trade-offs in deploying scarce organisational resources, particularly, in their decisions to invest in CSR which can improve overall stakeholder satisfaction, or to invest in SQ which can strengthen their existing logistics capabilities. Such either-or decision is aggravated by shipping firms competing on all segments of business operations simultaneously, i.e. in shipping markets to sell their services, in labour markets to attract and retain quality seafarers and shore-based talents, and in financial markets to attract investors. It is thus important to understand how investments in CSR and SQ contribute to performance outcomes relating to the key aspects of customer satisfaction, job satisfaction, and financial performance.

Through this study, several important questions in relation to the strategic management of shipping firms can be addressed, one of which concerns trade-offs. For example, can a shipping firm that delivers superior quality services compensate for its low involvement in CSR? Conversely, can a shipping firm that is highly involved in CSR compensate for its lacklustre service quality? This study also examines whether synergies can be realised from the performances of both SQ and CSR on the bases of job satisfaction, customer satisfaction, and most importantly, financial performance.

The remaining parts of the paper are organised as follows. First, the independent as well as interaction effects of SQ and CSR on performance outcomes are reviewed and specified, followed by a discussion on the methods employed for data collection. Subsequently, the hypotheses of this study are tested using structural equation modelling. Finally, the results as well as the implications are discussed. The limitations of the study and recommendations for future research are also presented.

2.0. Theoretical framework

This section is divided into four parts. The first part (Section 2.1) discusses the independent effect of SQ on shipping firms' performance, which includes customer satisfaction, job satisfaction, and financial performance. The second part (Section 2.2) discusses the independent effect of CSR on shipping firms' performance. The third part (Section 2.3) elaborates the relationships between shipping firms' performance. Finally, the fourth part (Section 2.4) discusses the interaction effects of SQ and CSR on shipping firms' performance.

2.1. The effect of SQ on shipping firms' performance

SQ is a measure of corporate capability and is defined as customer assessment of the overall excellence or superiority of a service (Parasuraman et al., 1988). This assessment involves a comparison of customer expectations with customer perceptions of a service performance. Since SQ is an abstract construct which comprises both technical outcomes and functional processes (Grönroos, 1984), it is often decomposed into observable dimensions for customer evaluation. The content of these dimensions were noted to vary across contextual factors, which include the types of industry (Ladhari, 2009).

In the context of the shipping industry, SQ can be viewed as a differentiation strategy that differentiates a shipping firm from its competitors (Lobo, 2010). The bases or dimensions for SQ differentiation are logistical due to the nature of the industry (Tuan, 2012). These include time-related logistics performances, customer service experience, and safety and security of shipments (Thai et al.,

2014).

The relationship between SQ and performance outcomes has been well explained and specified by the satisfaction-profit-chain model (Schneider and White, 2004). It is a theoretical framework that links customers' perception of SQ attributes, customer satisfaction, and financial outcomes. Scholars have acknowledged that there is no direct relationship between SQ and a firm's financial performance. However, the relationship is mediated by customer satisfaction, which is the outcome of evaluating SQ attributes. According to the disconfirmation paradigm theory, a customer is satisfied (or dissatisfied) when the perceived quality of a service exceeds (or falls below) an individual's expectation (Szymanski and Henard, 2001). Consequently, a satisfied customer has greater tendencies to exhibit positive behavioural intentions such as repurchasing or recommending a service to others, which contributes financially to a firm. Therefore, the following hypothesis is proposed:

H₁. *Service quality has a positive (a) direct effect on customer satisfaction; and (b) indirect effect on a firm's financial performance via customer satisfaction.*

The existing literature also suggests that SQ has a direct, positive influence on job satisfaction. Organisational identity theory states that organisational identification is the alignment of individual and organisational value as well as the perception of oneness with and belongingness to the organisation (Conroy et al., 2017). Applying the theory to the context of job selection and job satisfaction, a firm's reputation in the trade, attributed by its strong corporate capability, for example, strong SQ capability, can attract and satisfy high self-esteem individuals (Cole and Bruch, 2006; Greening and Turban, 2000). In addition, since highly effective and capable firms are linked with growth and employee retention, the aspect of better job security may be an important contributor to job satisfaction (Berens et al., 2007).

Job satisfaction is known to correlate with numerous organisational benefits. Spector (1997) categorised these benefits into lower absenteeism, lower turnover intention, and improved motivation and productivity at work. Consequently, such positive work behaviour can be translated to financial benefits from the reduction in absenteeism and turnover which are both costly to a firm. In general, lower absenteeism and turnover provide cost-savings to a firm as less resources have to be spent on covering the work of an absentee, and on selecting and training a suitable, new candidate in filling a job vacancy. Hence, the following hypothesis is put forward:

H₂. *Service quality has a positive (a) direct effect on job satisfaction; and (b) indirect effect on firm's financial performance via job satisfaction.*

2.2. The effect of CSR on shipping firms' performance

Although numerous studies have been conducted on the relationship between CSR and a firm's financial performance, the results have been found to be mixed (Margolis et al., 2009). Fu and Jia (2012) argued that the relationship is complex due to the presence of intervening (or mediating) variables which have not been adequately studied by the existing literature.

The recent literature has analysed the intervening variables from the stakeholders' perspective. Stakeholder theory states that the needs of shareholders cannot be met or the economic performance of a firm cannot be maximised without satisfying, to some degree, the needs of other stakeholders such as customers, employees, suppliers, and the public (Sen and Cowley, 2013). There is a growing consensus that stakeholders have to be satisfied with the CSR initiatives of a firm before any improvements in financial performance can be realised (Galbreath and Shum, 2012; Valentine and Fleischman, 2008; Yuen et al., 2017b).

Peloza and Shang (2011) argued that CSR activities have varied influence on satisfaction. For example, as compared to philanthropic activities, a customer derives greater satisfaction when CSR is incorporated into a product (e.g. the use of greener materials). Similarly, an employee derives greater satisfaction from CSR activities when they are directly targeted at improving the employee's work environment or the tangible or intangible benefits received by the employee. Therefore, it is important that the activities are analysed and tailored to the needs of the stakeholders prior to their implementation (Bhattacharya et al., 2009).

The strategic prioritisation of CSR activities to cater to stakeholders' needs is consistent with the recent argument for building the business case for CSR (Carroll and Shabana, 2010). Lee (2008) observed that the emphasis of CSR has shifted from being altruistic to strategic in which greater congruency between social performance and business performance has been pursued by organisations today (Du et al., 2010). Therefore, despite the mixed results found between CSR and financial performance, the current paper argues that positive financial performance can be realised when CSR is carefully aligned with stakeholders' needs. In other words, stakeholders have to be satisfied with the CSR activities of a firm before positive business returns can be realised. Attributing to the scope of this study, which limits stakeholders to only customers and employees, the following hypotheses are proposed:

H₃. *Corporate social responsibility has a positive (a) direct effect on customer satisfaction; and (b) indirect effect on a firm's financial performance via customer satisfaction.*

H₄. *Corporate social responsibility has a positive (a) direct effect on job satisfaction; and (b) indirect effect on a firm's financial performance via job satisfaction.*

2.3. The relationship between job satisfaction, customer satisfaction, and financial performance

In general, a firm's performance can be assessed by both leading and lagging indicators (Wu and Liao, 2014). Lagging indicators

are metrics that measure end-state objectives or desired outcomes. They comprise all financial performance metrics such as profit and revenue. On the other hand, leading indicators are defined as a set of metrics that predicts financial performance or outcomes. In this context, leading indicators refer to both job satisfaction and customer satisfaction. As mentioned earlier, job satisfaction predicts financial performance since employees who are satisfied at work will tend to exhibit positive behaviours such as improved productivity and lower absenteeism, which have subsequent positive effects on the financial performance of a firm (refer to H_{2b} and H_{4b}). Similarly, customer satisfaction has positive effects of financial performance as customers who are satisfied with the products or services of a firm will tend to exhibit positive behaviours such as through repurchase or positive word of mouth which subsequently have positive influence on the future revenue and hence, financial performance of the firm (refer to H_{1b} and H_{3b}).

The current paper proposes that job satisfaction has a positive effect on customer satisfaction based on the theory of emotional contagion (Ashkanasy and Dorris, 2017; Homburg and Stock, 2004). The concept of emotional contagion originates from social psychology and refers to the transfer of emotions from an individual (i.e. sender) to another (i.e. receiver). It has been applied to study interpersonal interaction, and in the context of firms' employees interacting with customers. During interpersonal interactions, the emotions of an employee can transfer to the customer. To a large extent, the emotions of employees are positively correlated with their satisfaction at work. For instance, a highly stressful or dissatisfied employee will exhibit elevated level of emotion tension that will be felt by customers and affect their satisfaction with a service or a product. On the contrary, highly satisfied employees will portray to be more balanced and pleased while servicing their customers, which has a positive influence on customer satisfaction. Therefore, based on the theory of emotional contagion, the following hypothesis is proposed.

H_5. *Job satisfaction has a positive effect on customer satisfaction.*

2.4. The interaction effect of SQ and CSR on shipping firms' performance

In general, interaction effects are determined by the complementarities or fit of two elements, resources, business units or variables (Milgrom and Roberts, 1995). A positive interaction suggests synergy whereby the joint value of both elements (a) and (b) is greater than the sum of their individual values. This is denoted by the following formulae where Value (a, b) > Value (a) + Value (b). A negative interaction suggests trade-off or compensatory effect. It is denoted by the following formulae where Value (a, b) < Value (a) + Value (b). The existence of interaction effects can be explained using the economic theory of complementarities (Tanriverdi, 2006; Tanriverdi and Venkatraman, 2005). According to the theory, a set of resources is complementary when the returns of a resource increase with respect to the levels of returns of other resources. In this regard, the resources are distinct yet interdependent. They mutually support and reinforce each other, and their interaction creates super-additive value synergy.

A review of the existing literature on the interactions between SQ (i.e. corporate ability) and CSR has revealed a contradiction. While some scholars argued that their interaction is compensatory, others have suggested that their interaction is synergistic.

Studies that support the compensatory effect have argued on the basis of value-orientation. For instance, Golob et al. (2008) found that the value-orientations of individuals can be classified into self-enhancement and self-transcendent groups. Self-enhancement individuals who are linked with power and self-achievement are willing to compromise the social and environmental performance of a firm for stronger economic performance whereas self-transcendent individuals who are linked with universalism and benevolence are willing to compromise the economic performance of a firm for stronger social and environmental performance (Peloza and Shang, 2011). Their findings suggest that both concepts compensate each other which result in negative (cannibalistic) interactions.

On the contrary, studies which support a synergistic interaction argued that the effect of CSR will be augmented only when a firm is perceived to be capable of delivering high SQ (He and Li, 2011; Yuen and Thai, 2017). The utility of CSR was suggested to diminish when SQ is low due to the perception that a firm is compromising its core business. The arguments suggest that both concepts synergise with each other, and their joint contribution is greater than the sum of their individual effects which suggest positive (mutually-reinforcing) interactions.

To reconcile the identified contradiction, this study posits that the interaction between SQ and CSR is contingent on the utility perceived by stakeholder groups. Perceived value theory states that satisfaction or value is derived from an individual's evaluation of the attributes of a company and its associated services or products. The amount of value differs across individuals based on their perceived relevance or utility of these attributes (Green and Peloza, 2011; Yuen et al., 2016a). Applying the theory to this context, the current paper argues that the perceived value or utility of CSR and SQ differs across stakeholders who possess a unique set of needs or expectations towards a firm and its services. The study of Berens et al. (2007) provides anecdotal support for this proposition as it was found that the utility and expectations of CSR vary with stakeholders.

This study proposes that the interaction is synergistic when both SQ and CSR are focal and produce non-replicative effects on satisfaction. This proposition is based on the argument that satisfying various needs that are important in an evaluation is likely to result in synergies due to positive valence, or excitement (Dahlgaard et al., 2008). Conversely, this study posits that an interaction is compensatory when both effects are non-focal and replicative. Satisfying similar needs which are also peripheral in an evaluation may be perceived as redundant, which can result in trade-offs.

From the customer's perspective, the interaction between SQ and CSR is proposed to be synergistic since both are focal and offer unique value propositions to customers. SQ primarily satisfies customers' functional needs whereas CSR satisfies customers' psychosocial needs through social or environmental enhancement. Due to the unique effects of SQ and CSR, customer satisfaction could be augmented as important needs of a customer, which include functional and psychosocial needs, are fulfilled at high levels.

From the employee's perspective, the interaction between SQ and CSR is posited to be compensatory. Although CSR offers some unique functional benefits to employees such as greater training opportunities and higher salaries, the remaining aspects of CSR and

SQ are non-focal and produce replicative effects on satisfying employees' needs. First, both (CSR and SQ) concepts are non-focal since there are other stronger predictors of job satisfaction such as job characteristic, autonomy, locus of control, and person-job fit (Spector, 1997). Second, both concepts produce replicative effects on job satisfaction since they appeal to the social identity or status of the employees based on their self-image and self-esteem (Greening and Turban, 2000). In this case, the amount of job satisfaction being associated with working for a highly effective business organisation may compensate for its lack of involvement in CSR, or vice versa. Based on the above discussion, the following hypotheses are postulated.

H_6. *The interaction between corporate social responsibility and service quality produces a synergistic effect on customer satisfaction.*

H_7. *The interaction between corporate social responsibility and service quality produces a compensatory effect on job satisfaction.*

3.0. Research methodology

3.1. Establishing causality

Causality refers to the relationship between causes and effects. According to Bullock et al. (1994), causation is established when three requirements are fulfilled. First, the association between two variables should be correlated. Second, the effect of one variable to another should be isolated, ruling out extraneous variables. Third, temporal ordering should be established where a cause is shown to unambiguously precede an effect.

Since this study requires the examination of a network of hypotheses involving several latent constructs, structural equation modelling (SEM) is employed to estimate their correlations. However, similar to other statistical procedures, SEM does not allude to causation. As mentioned by Bullock et al. (1994), no statistical procedure can ensure the necessary conditions for establishing causality. However, the authors also stressed that it is impossible to know with absolute certainty whether a causal relation has been established. Therefore, they have suggested numerous guidelines that can be adopted by researchers to build the case of causality. Not limiting to the guidelines recommended by the authors, the following procedures were adopted to establish causality. They are (1) defining the scope of the research, (2) adopting a theory-driven approach to developing hypotheses, (3) establishing background conditions, (4) exercising care in operationalising latent constructs, and (5) keeping post hoc adjustments to a minimum.

With regard to the first procedure, defining the scope of the research is necessary due to the sizeable number (i.e. 30) of unidirectional links between the latent constructs that are required to be reviewed and discussed. As indicated in the title and introduction, the scope of the research is limited to analysing the independent and interaction effects of corporate level associations i.e. CSR and SQ on shipping firms' performance, which includes job satisfaction, customer satisfaction, and financial performance. This excludes the examination of reverse causality where shipping firms' performance influences CSR and SQ. Considering reverse causalities will result in insufficient degrees of freedom, causing the research model to be just- or under-identified, which subsequently leads to inadmissible solutions or parameter estimates (Diamantopoulos and Siguaw, 2000). This limitation is highlighted and recommended for future research in the conclusion of this study.

As for the second procedure, this study has adopted a theory-driven approach, rather than an empirical-driven approach to develop its hypotheses. For instance, the well-established, satisfaction-profit chain model was used to specify the causal links between SQ attributes, customer satisfaction, and financial performance (H_{1a} and H_{1b}). To establish the causal relationship between service quality, job satisfaction, and financial performance, organisational identity theory was introduced (H_{2a} and H_{2b}). To establish the causal links between CSR, customer satisfaction, job satisfaction, and financial performance, stakeholder theory was applied (H_{3a}, H_{3b}, H_{4a}, and H_{4b}). The relationship between job satisfaction and customer satisfaction was established based on emotional contagion theory (H_5). Finally, for the interaction effects of SQ and CSR on customer and job satisfaction, economic theory of complementarities and perceived value theory were introduced (H_6 and H_7).

With reference to the third procedure, this study has considered the background conditions of its research model with the use of mediators. In this study, both customer satisfaction and job satisfaction were identified as the mediators of the effects of CSR and SQ on financial performance. In addition, it has also tested functional equation assumptions by analysing the non-linear, interaction effects of CSR and SQ on customer satisfaction and job satisfaction.

As for the fourth procedure, this study has exercised care in operationalising its latent constructs. The indicators or measurement items of each of latent constructs were developed with strong reference to the existing literature. The indicators are elaborated in Section 3.2. In addition, prior to the survey administration, interviews were conducted to examine the clarity, readability, and validity of the indicators. As recommended by Bullock et al. (1994), this study has also used three or more indicators to operationalise each latent construct for measurement purpose.

Finally, the current study has avoided any post hoc adjustments to the model. After a model is adjusted in light of the data, the model loses its status as a hypothesis, and the model finally chosen represents a far less objective and stable representation (Bullock et al., 1994). Such adjustments, which are avoided in this study, are viewed to be empirical-driven rather than theory-driven.

3.2. Measures and survey design

To test the hypotheses, indicators were developed to operationalise each construct. The indicators were obtained from reviewing the extant literature. As shown in Table 1, 21 observed variables were used to operationalise the five constructs relating to CSR, SQ, customer satisfaction, job satisfaction, and financial performance. Latent variables that were operationalised by 'X' indicators are the

Table 1
Measurements for Constructs.

Constructs	Indicators	Supporting literature
Corporate social responsibility (CSR)	X1. My company provides training and education to develop employees' skillsets	Carroll and Shabana (2010)
	X2. My company donates to charitable organisations	Lu et al. (2009)
	X3. My company applies high standards for disclosure, accounting, auditing, and social and environmental reporting	Schreck (2009)
	X4. My company communicates complete and accurate information about our services to our customers	Lun et al. (2014)
	X5. My company practises eco-friendly activities	
Service Quality (SQ)	X6. My company provides on-time-delivery of shipments	Kang and Kim (2009)
	X7. My company maintains the condition and quality of shipments	Thai (2008)
	X8. My company ensures its claim handling procedures are easy and fast	Yuen and Thai (2015)
	X9. My company offers convenience in order placement	
	X10. Our employees exhibit promptness, reliability, and empathy towards customers	
Customer Satisfaction (CSAT)	Y1. Overall, customers are satisfied with our company's services	Gronholdt et al. (2000)
	Y2. My company's services have exceeded the expectations of our customers	
	Y3. My company's services are comparable to the ideal services that our customers have in mind	
Job Satisfaction (JSAT)	Y4. I am satisfied with my present work	Nagy (2002)
	Y5. I am satisfied with the present compensation and benefits	
	Y6. I am satisfied with the current opportunities for promotion	
	Y7. I am satisfied working with my superiors	
	Y8. I am satisfied working with my co-workers	
Financial Performance (FPERF)	Y9. Over the past three years, we have been experiencing positive return on assets	Santos-Vijande et al. (2012)
	Y10. Over the past three years, we have been experiencing profit growth	Spanos and Lioukas (2001), Acquaah and Yasai-Ardekani (2008)
	Y11. Over the past three years, we have been experiencing sales growth	

exogenous variables whereas those operationalised by 'Y' indicators are endogenous variables. A seven-point Likert scale which ranges from 1 (strongly disagree) to 7 (strongly agree) was used for each indicator.

Five indicators were used to operationalise CSR to reflect a shipping firm's responsibility towards various stakeholders which include employees (X1), the community (X2), shareholders (X3), customers (X4), and the environment (X5). The indicators were mainly adapted from Lu et al. (2009) who demonstrated that the indicators are reliable and valid in the context of shipping.

To measure SQ, five indicators were primarily adapted from Yuen and Thai (2015) who examined SQ in shipping. Accordingly, the indicators reflect various quality dimensions of shipping firms' services pertaining to the reliability of their shipments (X6), physical conditions of the shipment (X7), claim handling procedures (X8), order placement procedures (X9), and employees' responsiveness (X10).

For operationalising customer satisfaction, three indicators were directly adopted from the study of Gronholdt et al. (2000). Respectively, the three indicators measure customers' overall satisfaction (Y1), perception-expectation of the service (Y2), and comparability of the service with their ideal service in mind (Y3).

For measuring job satisfaction, this study employs the condensed version of the Job Description Index (JDI) which consists of five indicators reflecting various facets of job satisfaction (Nagy, 2002). These facets concern employees' satisfaction with the work itself (Y4), pay (Y5), promotion (Y6), superiors (Y7) and co-workers (Y8). Nagy (2002) demonstrated that using the five indicators compared favourably to the full JDI survey comprising 72 questions, and in some cases, accounted for incremental variance in self-reported job performance and intentions to turnover.

To measure financial performance, this study adopted three indicators from Acquaah and Yasai-Ardekani (2008) and Spanos and Lioukas (2001) to reflect a firm's return on assets (Y9), profit growth (Y10), and (3) sales growth (Y11) over the past three years. The inclusion of a three-year period minimises the influence of short-term variations on the reported financial ratio or measures.

Prior to the survey administration, the indicators were tested for content validity from the interviews with three senior managers from the shipping companies in Singapore. Specifically, the interviewees were asked to evaluate each indicator for clarity, readability, and accuracy. Indicators that do not meet any of the criteria were revised accordingly.

3.3. Data collection

The survey questionnaire was administered electronically between February 2015 and April 2015. The sampling frame for the survey administration was the Singapore Maritime Industry, Products and Services Directory. A total of 522 records can be obtained from the 'shipping companies' category, and a full population sampling was conducted.

Table 2
Distribution of demographic attributes of survey respondents.

Variable	Scale	n	%
Company type	Container	63	40.4
	Dry or liquid bulk	93	59.6
Department	Marketing	28	17.9
	Operations	87	55.8
	Technical	21	13.5
	Others	20	12.8
Industry experience	More than 10 years	75	48.1
	Between 5 and 10 years	69	44.2
	Less than 5 years	12	7.7
Gender	Male	114	73.1
	Female	42	26.9

The survey questionnaire was addressed to individuals who manage and have knowledge of their firms' CSR, SQ, corporate strategies, and financial situation. As the initial recipients of the invitations may not fit the criteria, it was requested that the recipients forward the questionnaire to a suitable candidate in their firms. Monthly reminder e-mails were sent to participants who have not responded. At the end of April 2015, 156 usable responses were received, resulting in a response rate of 30%. The profiles and characteristics of the sample are shown in Table 2.

To test non-response bias, the respondents were first divided evenly into categories of early and late respondents. Thereafter, each indicator was tested for mean differences between both categories. The results showed that there was no significant difference between the groups at 95% confidence level.

4.0. Results

4.1. Construct validity and reliability

Prior to the formal hypotheses testing, the indicators were first evaluated for construct validity and reliability. Construct validity is the extent to which a set of measurement items accurately reflects a latent construct or factor (Hair et al., 2010). In this study, confirmatory factor analysis (CFA) using AMOS 22.0 was performed to determine construct validity. The CFA results are presented in Table 3.

Table 3 presents the factor loadings (λ), Cronbach's alphas (α), composite reliabilities (CR), and average variance extracted (AVE). Both CR and AVE are indicators of convergent validity. According to Fornell and Larcker (1981), convergent validity exists

Table 3
CFA and scale reliability.

Constructs	Variables	λ	α	CR	AVE
CSR	X1	0.87	0.93	0.92	0.71
	X2	0.82			
	X3	0.79			
	X4	0.84			
	X5	0.88			
SQ	X6	0.78	0.94	0.93	0.72
	X7	0.92			
	X8	0.88			
	X9	0.77			
	X10	0.89			
CSAT	Y1	0.87	0.92	0.90	0.75
	Y2	0.88			
	Y3	0.84			
JSAT	Y4	0.78	0.87	0.86	0.56
	Y5	0.76			
	Y6	0.74			
	Y7	0.73			
	Y8	0.72			
FPERF	Y9	0.92	0.95	0.94	0.83
	Y10	0.93			
	Y11	0.89			

Notes: Model fit statistics: x^2 = 315.456, df = 188, x^2/df = 1.43, $p < 0.05$; CFI = 0.952, SRMR = 0.062, RMSEA = 0.051.

Table 4
Discriminant validity analysis.

Variable	CSR	SQ	CSAT	JSAT	FPERF
CSR	**0.71**				
SQ	0.01	**0.72**			
CSAT	0.14[*]	0.26[*]	**0.75**		
JSAT	0.09[*]	0.10[*]	0.11[*]	**0.56**	
FPERF	0.04[*]	0.01	0.13[*]	0.07[*]	**0.83**

Notes: Bolded values in the main diagonal represent AVE; values in the off-diagonal represent squared correlations.
   [*] Significant at p < 0.05.

when CR values are greater than 0.70 and AVE values are greater than 0.5. As shown in Table 3, the minimum values for CR and AVE are 0.86 and 0.56 respectively, which suggest adequate convergent validity. This is further supported by high λ values which are all above the recommended values of 0.7 (Afifi et al., 2003).

The factors' reliability was assessed using α statistic. The α values for CSR, SQ, customer satisfaction, job satisfaction, and firm's financial performance are 0.93, 0.94, 0.92, 0.87, 0.95 respectively, which suggest that the indicators are all reliable (Hair et al., 2010).

The discriminant validity of the model was assessed by comparing the AVE of each factor with its squared inter-construct correlations. According to Fornell and Larcker (1981), the AVE of a factor should exceed its squared correlations. As shown in Table 4, this criterion is satisfied, and discriminant validity is thus supported.

4.2. Hypotheses test

For the purpose of studying interaction effects, the structural model was converted into a path model using total-item aggregation. Total-item aggregation is a parcelling technique which involves averaging each of the construct's indicators to form a scale. The end result is that an observed scale is used to represent a latent construct (Coffman and MacCallum, 2005). After performing parcelling, the scores of the exogenous scales, which include SQ and CSR, are centred with reference to their means. According to Field (2013), this procedure is necessary for studying the interactions as it minimises multi-collinearity and improves the interpretability of results.

The proposed hypotheses were empirically tested using structural equation modelling. The results were standardised and are depicted in Fig. 1. Maximum likelihood was used as the mathematical function to estimate the parameters of the model. The chi-square value of the path model is insignificant ($x^2 = 5.846$, df = 3, x^2/df = 1.95, p > 0.05) which indicates no significant difference between the implied and observed data matrices. The other fit indices are also within acceptable range (GFI = 0.988, CFI = 0.979, SRMR = 0.034, RMSEA = 0.078) (Hu and Bentler, 1999).

The modification indices were analysed to identify other significant paths which were omitted from the model. The modification indices indicated that freeing any more paths is not recommended since it will not significantly improve model fit. This indicates that
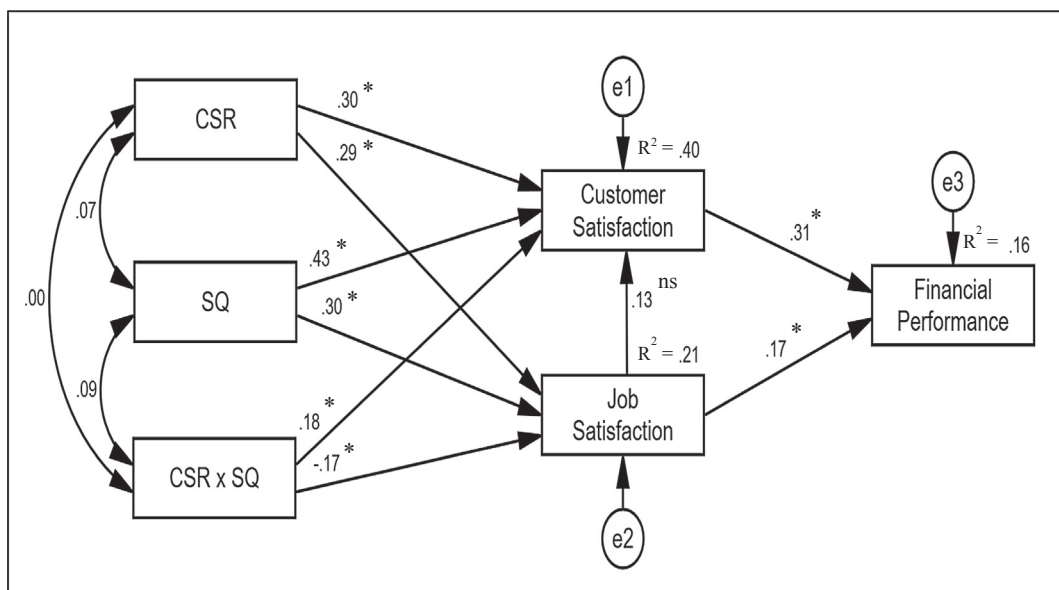
Fig. 1. Path model estimates. Notes: Model fit statistics: $x^2 = 5.846$, df = 3, x^2/df = 1.95, p = 0.12; GFI = 0.988, CFI = 0.979, SRMR = 0.034, RMSEA = 0.078; All parameter estimates are standardised; [*]significant at p < 0.05; [ns] not significant at p > 0.05; R^2 squared correlation.
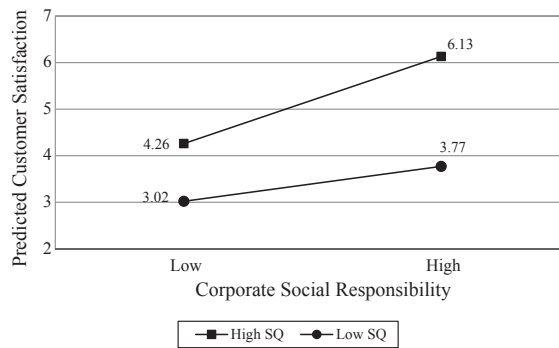
Fig. 2. Regression of customer satisfaction on CSR at two levels of SQ.

the theoretical model presented in Fig. 1 is parsimonious.

The multiple-squared correlations (R^2) of job satisfaction, customer satisfaction, and financial performance are 0.21, 0.40, and 0.16, respectively. According to the guidelines recommended by Cohen (1988) and Falk and Miller (1992), the R^2 values are considered acceptable. Furthermore, the R^2 corroborate with Yeung and Ennew (2001) who regressed various financial performance on customer satisfaction in several sectors. In the transport sector, the R^2 of their regression models ranged from 0.002 to 0.34. Based on the above guidelines and comparison, it is noted that the model depicted in Fig. 1 possesses sufficient explanatory power.

The individual paths of the model were also evaluated. As can be seen in Fig. 1, the link between SQ and financial performance is fully-mediated by both customer satisfaction and job satisfaction. This provides support for H_1 and H_2. Similar results can be seen for the link between CSR and financial performance. The link is also fully-mediated by customer satisfaction and job satisfaction which support H_3 and H_4. The effect of job satisfaction on customer satisfaction is positive but not statistically significant ($\beta = 0.13$, $t = 0.064$, $p > 0.05$). Therefore, H_5 is not supported.

The interaction between SQ and CSR has generated a positive, significant effect on customer satisfaction ($\beta = 0.16$, $p < 0.05$), implying the support for H_6. This positive interaction indicates that the joint effect of SQ and CSR is greater than the sum of their individual effects. A simple slope analysis was conducted to illustrate their effects on customer satisfaction. The result is shown in Fig. 2.

On the other hand, the interaction between SQ and CSR has generated a negative, significant effect on job satisfaction ($\beta = -0.17$, $p < 0.05$), which supports H_7. This negative interaction implies that the joint effect of SQ and CSR is lesser than the sum of their individual effects, which suggest trade-offs. Fig. 3 illustrates the results of the simple slope analysis.

4.3. Endogeneity test

A possibility exists that job satisfaction may be endogenously influenced by financial performance, which may lead to biased and inconsistent results (Greene, 2003). To examine the potential endogeneity bias, a two-stage least squares regression (2SLS) with instrumental variables was adopted (Liu et al., 2016).

To conduct the 2SLS regression, instrumental variables for job satisfaction must be identified. In this study, service quality (SQ) and corporate social responsibility (CSR) were identified as potential instrumental variables because they were reported to be directly correlated with job satisfaction and not with financial performance (Al-Hawari and Ward, 2006; Saeidi et al., 2015). The effects of SQ and CSR on financial performance were frequently reported in the literature to be mediated by factors such as perceived value, satisfaction, reputation, loyalty, attitude, and behavioural intentions. In addition, firm size and sector were also selected as instrumental variables as they were reported to influence job satisfaction (Artz, 2008; Gazioglu and Tansel, 2006) and not financial
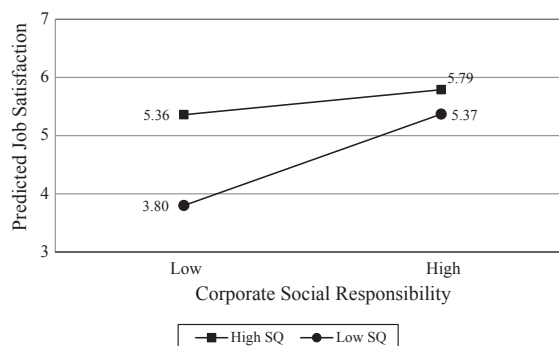

Fig. 3. Regression of job satisfaction on CSR at two levels of SQ.

performance (Coad et al., 2017; Lopez et al., 2016).

For the first stage of the 2SLS regression, job satisfaction was regressed on all four instrumental variables. Based on the regression model, the predicted values of job satisfaction and residual of each observation were calculated. For the second stage of the 2SLS regression, financial performance was regressed on the predicted value of job satisfaction. The beta-coefficient was positive and significant ($\beta = 0.28$, $p < 0.05$).

After conducting the 2SLS regression, a Durbin-Wu-Hausman post-estimation test of endogeneity was performed (Davidson and MacKinnon, 1993). Specifically, an augmented regression was conducted by regressing financial performance on job satisfaction, the four instrumental variables, and the residual obtained from the first stage 2SLS regression. The beta coefficient of the residual was insignificant ($\beta = 0.149$, $p > 0.05$). This indicates that the endogeneity test associated with job satisfaction was insignificant, and thus the null hypothesis that the construct is exogenous (i.e. not being influenced by financial performance) cannot be rejected. Accordingly, it can be concluded that job satisfaction is unlikely to be influenced by financial performance.

5.0. Conclusion

5.1. Discussion of results

As shown in Fig. 1, the model suggests that the effect of SQ on financial performance is fully-mediated by customer and job satisfaction. This finding is consistent with the satisfaction-profit-chain model whereby customers must be satisfied with the SQ of a firm before it can benefit financially through enhanced repurchase intentions and positive word-of-mouth. Similarly, the finding is also consistent with organisational identity theory which suggests that the satisfaction of employees can be enhanced by their employer's strong SQ capability, which improves the employer's reputation in the trade. Subsequently, satisfied employees could lead to improved financial performance of their employer due to improved productivity, lower absenteeism as well as attrition rates.

The model also suggests that the effect of CSR on a firm's financial performance is fully-mediated by customer and job satisfaction. This finding corroborates the recent literature which introduces stakeholder theory to explain for the mixed results found between CSR and a firm's financial performance (Freeman, 2010). Since stakeholders such as customers and employees have to be satisfied prior to any financial performance improvements, it is thus crucial that CSR activities are analysed and aligned with stakeholders' interests (Bhattacharya et al., 2009), and are implemented to their satisfaction.

The model indicates that job satisfaction has no significant, positive effect on customer satisfaction. This is not consistent with emotional contagion theory which suggests that the positive or negative emotions of an employee can transfer to the customer during interpersonal interactions. A plausible explanation could be due to the business-to-business nature of the shipping industry. Interpersonal interactions between employees and customers play a lesser role in the process of engaging a shipping service as compared to other business-to-consumer services. In addition, customers of business-to-business transactions are often more pragmatic where functional values are viewed to be more important than interpersonal relationships with the salesperson or employees of the service providers. This explains for the non-significant relationship between job satisfaction and customer satisfaction.

The positive partial effects found on SQ and CSR indicate that they both complement each other in driving customer satisfaction and job satisfaction. CSR has a total effect of 0.15 on a firm's financial performance whereas SQ has a total effect of 0.20 on a firm's financial performance. The proposition that both CSR and SQ complement each other in driving stakeholders' satisfaction is further supported in Figs. 2 and 3 where pursuing high SQ and CSR simultaneously results in maximum satisfaction of stakeholders ($\hat{Y}_{customersatisfaction} = 6.13$ and $\hat{Y}_{jobsatisfaction} = 5.79$) and, subsequently, financial performance. This finding supports the mainstream literature on the business case for CSR (Carroll and Shabana, 2010). Whether a firm is capable (high SQ) or not capable (low SQ), there are commercial benefits for implementing CSR.

However, although it has been shown that the effects of SQ and CSR are complementary, the results suggest that either of the effect is to some extent moderated by the performance of the other which is consistent with the economic theory of complementarities. In addition, the nature (i.e. direction or sign) of the moderation or interaction was found to be dependent on the outcome criterion. For instance, when customer satisfaction was used as the outcome criterion, the interaction between SQ and CSR is positive (i.e. synergistic). As shown in Fig. 2, when SQ performance is high, the marginal increase in customer satisfaction is higher due to steeper predictive slope. Conversely, when job satisfaction was used as the outcome criterion, the interaction is negative. In other words, SQ or CSR can fairly compensate for the effect of the other. As shown in Fig. 3, the predicted job satisfaction when either SQ or CSR is high ($\hat{Y} = 5.36$ or 5.37) is almost equivalent to the predicted job satisfaction when both SQ and CSR are high ($\hat{Y} = 5.79$). Overall, the differences in the interactions are quite consistent with Berens et al. (2007) who found that the utility and perception of CSR vary with stakeholders. This finding is also consistent with perceived value theory proposed by this study. In this context, the current study suggests that satisfaction or value derived from the evaluation of a firm's SQ and CSR, which are attributes defining the firm, differs across stakeholder groups based on their perceived relevance or utility of these attributes. CSR and SQ are both focal and unique in customers' service evaluation and therefore could result in synergies due to the satisfaction of customers' needs on multiple dimensions (i.e. functional and psychosocial needs), leading to positive valance and excitement. Conversely, CSR and SQ show replicative or trade-off effects on job satisfaction, suggesting employees' indifference towards both SQ and CSR when implemented at high levels. The implementation of either SQ or CSR sufficiently compensates for the other with respect to influencing employees' job satisfaction.

5.2. Theoretical and managerial implications

Theoretically, this study makes a number of contributions to the literature. First, it enriches the literature with the application of several theories such as satisfaction-profit-chain model, organisational identity theory, stakeholder theory, emotional contagion, economic theory of complementarities and perceived value theory to develop its research model. These theories have contributed to specifying how the constructs in the research model relate to each other.

Next, it tests and confirms that stakeholders' satisfaction plays a central role in mediating the effects of corporate level associations (i.e. SQ and CSR) on a firm's financial performance. This finding aligns with stakeholder theory which indicates that stakeholders must be satisfied with the SQ or CSR of a firm before positive financial performance can be realised. To some extent, this explains for the mixed results found between CSR and a firm's financial performance. In addition, this study further contributes to the existing literature by showing that CSR and SQ have varied effects on the satisfaction of stakeholders' groups (i.e. employees and customers) of an organisation.

Thirdly, it simultaneously specifies and examines the effects of SQ and CSR on the leading and lagging performance indicators. In the existing literature, the leading and lagging performance indicators are often operationalised as a single construct. The deliberate separation of these performance indicators provides greater insights into the directions and magnitudes of the relationships between the constructs in the research model. This provides a better nomological understanding of their relationships. Furthermore, due to the positive, partial effects of SQ and CSR on these performance indicators, this finding clarifies and supports the notion that being capable i.e. providing excellent SQ and participating in CSR are not contradictory. Instead, it makes business sense to invest in CSR to improve a firm's financial performance.

Perhaps, the most important theoretical contribution of this study is that it reconciles the conflicting views concerning the relationship between CSR and a firm's financial performance from a new theoretical lens. Anchored on the economic theory of complementarities, this study rationalises that the fit between CSR and SQ could address the differences in the results found between CSR and a firm's financial performance. In particular, it identifies the conditions in which negative and positive interactions would occur based on perceived value theory. From examining their effects on service and job satisfaction, the results are aligned with the paper's proposition that the nature of interaction between CSR and SQ is contingent on their utility perceived by stakeholders' groups. Therefore, the results imply that the decision to implement CSR should be made with reference to the motivation of a shipping firm (the specific stakeholder group that a firm is intending to satisfy) as well as the current SQ capability of the shipping firm.

From the managerial perspective, it is important that shipping firms recognise the benefits of CSR in addition to being capable of delivering high quality shipping services. In fact, from the customers' perspective, it makes greater sense to implement CSR for a high-performing shipping firm due to their synergistic effect on customer satisfaction together with SQ. Therefore, CSR should be integrated into the strategies of shipping firms.

Whilst there are numerous CSR activities that could be implemented, shipping firms should select those that are most relevant to or aligned with the interests of stakeholders. This can be achieved through stakeholder analysis where CSR activities are implemented based on multiple assessment criteria such as the priorities of stakeholders, their impact on economic performance (i.e. return on investments), and their potential synergies with the operations and resources of a firm. For instance, investing in efficient ship engines may improve a shipping firm's environmental performance, and at the same time result in operational efficiency due to lower fuel consumption.

5.3. Limitations and future research

This study has a few limitations. Firstly, the scope of this research has been limited to the shipping industry, which is predominantly a business-to-business industry. In this case, majority of the customers are business units rather than individual consumers. Therefore, further studies should be conducted on other industries such as business-to-consumer industries to cross-validate the results.

Secondly, this study has made no distinction between bulk and container shipping firms due to insufficient sample size for sub-group analysis. It is reasonable to expect some differences in the estimates of both sample groups since their operating structures and value orientations are different; the former is relatively more cost-oriented whereas the latter is service-oriented. This study suggests further analysis on their attitudes towards CSR and the individual effects of each CSR dimension on the performance outcomes. Conducting these prospective studies will provide additional implications to the strategic management of CSR in shipping.

Thirdly, this study has limited its scope in studying the effects of CSR and SQ, which represent the corporate level associations of a shipping company, on business performance, which includes job satisfaction, customer satisfaction, and financial performance. Future research can consider analysing other corporate associations or contextual factors such as company culture, company value or culture of society.

As indicated in the title and introduction, the scope of the research is limited to analysing the independent and interaction effects of corporate level associations i.e. CSR and SQ on shipping firms' performance, which includes job satisfaction, customer satisfaction, and financial performance. This excludes the examination of reverse causality where shipping firms' performance influences CSR and SQ. Due to the use of cross-sectional data, causality of the constructs cannot be confirmed. Future research can employ temporal separation of the antecedent and outcome construct during data collection to further strengthen the case of causality.

Lastly, this study has limited its scope to analysing both the independent and interaction effects of corporate level associations such as CSR and SQ on shipping firms' performance. Reverse causalities are not considered in this study due to data and model constraints i.e. limited degrees of freedom to estimate the research model. Therefore, future research could account for reverse causalities such as the effects of shipping firms' performance on CSR and SQ.

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