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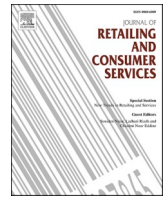
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Understanding the link between customer feedback metrics and firm performance

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ABSTRACT

Practitioners utilise customer feedback metrics (CFM's) to monitor business performance. However, the influence of CFM's on firm performance has been ignored. Thus, this paper aims to examine the effects of CFM's on firm performance. Our study collected data about CFM's, marketing efforts, and financial performance over the period 2005–2020 from American Customer Satisfaction Index. The present study used a multiple regression panel analysis to investigate the influence of different CFMs (i.e., SAT, Top-2-Box, NPS proportion, NPS value, and CES) on firm performance (i.e., gross margin, sales growth, and Tobin's Q), moderating by operating environment factors (i.e., munificence, power, and dynamism). Our results revealed that Top-2-box is the best predictor CFM's to compare firms in online booking, hotels, and online shopping industries, while consumer satisfaction is the best predictor for electronic and fixed telecom industries. CES is the best CFM's to compare companies in restaurants industries. Moreover, NPS is the best metric to compare different companies in holiday parks industries. The results provide considerable managerial implications for effective use of resources regarding investing in most suitable CFM's to enhance firm performance.

1. Introduction

In the present business environment, in-order to retain customers, firms have to differentiate themselves to gain competitive advantage. Since the attention on customer relations created a shift from transactional to relationship marketing (Gummesson, 2017; Ji and Prentice, 2021; Schmitz et al., 2020; Sun and Kim, 2013), various researchers have utilised CFM's to monitor firm performance and in the process created benchmarks based on CFM's to help businesses retain their customers and improve firm performance (e.g., Abdelmoety et al., 2022;

Kim and Lee, 2020; Sun and Kim, 2013; Tueanrat et al., 2021).

De Haan et al. (2015) labelled CFM's, comprising consumer effort score (CES) (Dixon et al., 2010), net promoter score (NPS) (Reichheld, 2003), consumer satisfaction (Aboul-Dahab et al., 2021; Morgan and Rego, 2006). These metrics are the best predictor of firm performance, motivating leading firms in different fields to utilise them (Agag, 2019; Fis and Cetindamar, 2020). Academic studies defy these promises (e.g., Agag et al., 2022; Singh and Jang, 2020; Yi et al., 2021). Academic studies suggested purchase intentions and consumer satisfaction (e.g., Fornell, 1992; Goić et al., 2021; Sun and Kim, 2013), while consultants

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suggested consumers recommendation (e.g., Eger and Mićik, 2017; Reichheld, 2003). Meantime, in practice, the firms use “Top 2 Box” satisfaction (Agag and Eid, 2019; Raassens and Haans, 2017; Zhang et al., 2021).

However, based on CFM’s literature, there lies a research gap to accurately identify the best metric for driving firm performance. Moreover, the application of CFM’s is only limited towards specific contexts, settings and industries, because these studies utilise different

Table 1
Literature review on the consequences of CFM’s.

Study	CFM’s considered	Outcomes	Mechanisms	Level of analysis	Study context	Key findings
Crosby et al. (1990)	Relationship quality (customer satisfaction and trust)	Behavior (anticipation of future interactions) and Performance (sales effectiveness)	CFM’s → Behavior	Customer level	Life insurance (B2C)	Relationship quality (satisfaction and trust) has a positive influence on a customer’s anticipation of future interaction with the salesperson. It does not have an impact on sales effectiveness.
Anderson and Sullivan (1993)	Customer satisfaction and service quality	Behavior (Repurchase intentions)	CFM’s → Behavior	Customer level	Various: Swedish Customer Satisfaction Barometer (B2C)	Repurchase intentions are positively influenced by the level of customer satisfaction and by service quality (through satisfaction). High satisfaction insulates firms from changes in quality and satisfaction.
Olsen (2002)	Customer satisfaction and service quality	Behavior (Repurchase loyalty)	CFM’s → Behavior	Customer level	Seafood products (B2C)	There is a strong positive relationship between customer satisfaction and loyalty. Service quality influences loyalty through its impact on satisfaction.
Agustin and Singh (2005)	Customer satisfaction, trust, and relational value	Behavior (share of wallet, repeat purchase and spending)	CFM’s → Behavior	Customer level	Retail clothing and airline travel (B2C)	Customer satisfaction and trust have positive effects on loyalty. Satisfaction presents a decreasing rate of return, while trust is associated with an increasing rate of return.
Homburg et al. (2005)	Customer satisfaction	Behavior (Willingness to pay)	CFM’s → Behavior	Customer level	Restaurant and education (B2C)	Customer satisfaction has a positive effect on willingness to pay. The relationship is non-linear (concave for low levels of satisfaction, convex for high levels of satisfaction).
Anderson and Mansi (2009)	Customer satisfaction	Performance (Credit ratings and cost of debt)	CFM’s → performance	Firm level	Various: American Customer Satisfaction Index (B2C)	Higher customer satisfaction is associated with higher credit rating (a 1% increase in the satisfaction index leads to a 6% increase in credit rating) and lower cost of debt (firms with high customer satisfaction have a 2% lower cost of debt, or savings of about \$5 million).
Tuli and Bharadwaj (2009)	Customer satisfaction	Performance (Shareholder value –stock returns risk: systematic and idiosyncratic risk)	CFM’s → performance	Firm level	Various: American Customer Satisfaction Index (B2C)	A positive change in customer satisfaction results in negative changes in overall and downside systematic risk and overall and downside idiosyncratic risk.
Luo et al. (2010)	Customer satisfaction	Performance (Firm value –abnormal return, systematic risk, idiosyncratic risk)	CFM’s → performance	Firm level	Various: American Customer Satisfaction Index (B2C)	Customer satisfaction has a direct and positive effect on abnormal returns and a direct and negative effect on risk. Customer satisfaction also leads to better and less dispersed analyst recommendations, which again improve firm value.
De Haan et al. (2015)	Customer satisfaction, Net promoter scores, Customer Effort Score	Customer retention	CFM’s → customer retention	Customer level	Various: American Customer Satisfaction Index.	The results indicate that the top-2-box customer satisfaction performs best for predicting customer retention and that focusing on the extremes is preferable to using the full scale. However the best CFM does differ depending on industry and the unit of analysis (i.e., comparing customers or firms with one another).
Fornell et al. (2016)	Customer satisfaction	Performance (Shareholder value –stock returns)	CFM’s → performance	Firm level	Various: American Customer Satisfaction Index	Stock returns on customer satisfaction are significantly above the market. During a period of 15 years, the cumulative returns on satisfaction were 518%, compared with 31% for the S&P 500.
Petersen et al. (2018)	Satisfaction, Service quality, Loyalty intentions.	Profitability	CFM’s → profitability	Firm level	Two distinct contexts, a B2B high-tech firm and a B2C telecommunications firm.	The results demonstrate that these unobservable CMMs have a significant and multi-dimensional impact on customer behavior and customer profitability. Furthermore, we compute the increases in customer behavior and customer profitability that each firm can expect due to increases in CMMs to help firms improve resource allocation and make better decisions about how much (and when) to invest in CMMs.

research settings, units of analysis, methodologies, and dependents factors. This represent a critical gaps in marketing literature for several reasons. First, while previous studies have suggested that CFM's work as an instrument for developing deeper customer relationships (e.g., Agag et al., 2020; Morgan et al., 2005; Raassens and Haans, 2017; Thakur, 2019), however, research lacks in-terms of identifying which CFM's help the firms to develop and protect consumer relationships (Agag and Eid, 2020; De Haan et al., 2015). Second, the ability to identify CFM's that drive firm performance can help to develop an effective marketing control system for monitoring performance and setting goals (Agag and Colmekcioglu, 2020; Morgan and Rego, 2006; Shokouhyar et al., 2020), and enable managers to take immediate reformative action where necessary (Fornell, 1992; Kim et al., 2020; Morgan and Rego, 2006). Third, previous studies in the accounting context revealed that by accurately forecasting the best applicable CFM's not only can enhance firm performance, but also provide investors with valuable information besides the accounting information, and thus provide contributions to the financial markets efficient functioning (Agag and El-Masry, 2016; Lee et al., 2022; Petersen et al., 2018).

Our study aims to provide insights into the influence of different CFM's (CES, SAT, Top-2-Box, CES, NPS value, and NPS proportion), including which customer feedback metric a company should monitor, how to explain changes in CFM's, and how this varies at the firm and industry levels. Therefore, the present study contributes the following to the marketing literature: first, our study investigates the impact of different CFM's on financial performance at two various levels firm and industry levels in various contexts. The heterogeneity of consumers was distinguished to identify an appropriate CFM for customer management level. Whereas our study also recognises firm heterogeneity to identify an appropriate CFM for driving firm performance. Second, the present study is the first to utilise NPS and CES consistent with Reichheld (2003) and Dixon et al. (2010) approach. These two metrics were introduced recently as key CFM's. Finally, the present study predicted actual financial performance by examining the usefulness of CFM's in predicting the financial performance, conversely, previous studies that examine only correlations (e.g., Agag and El-Masry, 2017; Chen, 2011; Keiningham et al., 2007; Quach et al., 2021).

Since 1980s, academics have studied CFM's (e.g., CES, SAT, Top-2-Box, CES, NPS value, and NPS proportion) from the lens of relationship marketing. By integrating CFM's with relationship marketing, firms can achieve several benefits. For example, strong customer relationships can be achieved by having positive CFM's which will subsequently yields strong financial/non-financial results for the firm (Alsuwaidi et al., 2022; Petersen et al., 2018; Kaura, 2013; Talwar et al., 2020) whereas, this will also provide competitive advantage to the firm (Agag et al., 2019; McKenna, 1993; Petersen et al., 2018; Ryu and Park, 2020). Table 1 provides summary of academic research regarding implications of CFM's. Although the valuable outcomes of CFM's that these studies show, the detailed literature indicate significant research gaps. First, understanding the outcomes of CFM's continues fragmented, demonstrating only an incomplete understanding about their effect on firm performance. To the best of authors knowledge, limited studies to date have investigated the effect of different CFM's on firm performance. Second, prior studies concentrated on the effect of CFM's on profitability at the individual level. Nevertheless, an examination of the firm and industry level influences is crucial to explain how the return on marketing to a firm is affected by CFM's. Third, prior research examined CFM's at only one point time. Nevertheless, Palmatier et al. (2013) revealed that CFM's are dynamic which requires a longitudinal method to measure their influences on firm performance over time. Fourth, most of these studies examined the outcomes of CFM's either at the customer level or firm level. However, prior research ignored the drivers of CFM's. Thus, our study covers this gap by investigating the influence of marketing efforts on CFM's. Finally, prior research exploring the link between CFM's and firm performance, have paid more attention to one metric (customer satisfaction). Nevertheless, different CFM's capture

variance aspects of the link, and have different consequences (De Haan et al., 2015; Leon and Choi, 2020). Therefore, it's necessary to examine multiple CFM's to obtain actual understanding of their different effect on performance and their relative importance in determining firm performance. Based on these identified research gaps, the present research builds a model at the firm level to explain the influence of different CFM's on firm performance.

In order to cover this research gap, our paper explores the importance of different CFM's in driving financial performance in various situation, to enhance our understanding of these CFM's and to assist companies' managers in selecting the best CFM's based on various situations. Specifically, this research examines the link between marketing efforts, customer feedback metrics, and firm performance, therefore, it helps companies to incorporate information about consumers views and opinions into their consumer management strategies to understand its effects on firm performance, distinguish between consumers, and assign resources more efficiently. Thus, this paper examines the direct influence of CFM's on firm performance that can assist companies in resources allocation decisions and in guying marketing effectiveness.

In this paper we contribute to the literature in four key areas. First, we strengthen to the theoretical foundations of customer feedback metrics related research by proposing the use of three models that explicitly investigate the relationship between marketing efforts, CFMs, and firm performance. These models provide a theoretical foundation is rooted in the consumer profitability models (Agag and Eid, 2020). Second, we contribute to the empirical research on the link between CFMs and firm performance by evaluating the descriptive accuracy of the proposed models and by providing useful insights into the efficacy of CFMs. Third, we contribute to the empirical research in sixteen different industries, by providing insights into the way that CFMs, marketing efforts, interact with firm performance. Finally, we propose sound methodological artefacts so that our study is both replicable and comparable to related studies.

We structured our paper into four parts. We developed a critical literature review and developed our conceptual framework. We developed the utilised methodology and the data analysis. We also demonstrated our study findings, discussion, and implications.

2. Background

2.1. Conceptualizing customer feedback metrics (CFM's)

In recent years, CFM's has gained significant importance within the field of Marketing. Different classifications of metrics are provided by academics. For example, Farris et al. (2006) has classified this metric as share-of-mind. However, within the domain of marketing, researchers have also labelled these metrics as CFM's (Morgan and Rego, 2006). As CFM's provide indicators concerning future business growth and opportunities therefore, from the managerial perspective, significant importance is given towards understanding and implementing appropriate metrics, which can deliver future rewards (Petersen et al., 2018). Within the domain of consumer behaviour, researchers have conducted various studies to understand the impact of CFM's. For instance, Gustafsson et al. (2005) and De Haan et al. (2015) established a positive relation among the CFM's and customer purchase intentions. Moreover, amid growing concern towards marketing accountability, researchers paid more attention to explain the link among CFM's, customer loyalty, intentions and how this impact firm performance (Fornell et al., 2016; Mjahed Hammami et al., 2021; Otto et al., 2019). It is thus critical for practitioner to understand and implement CFM's appropriately within their firms.

Most common feedback metrics used by managers includes customer overall satisfaction, behavioural loyalty and Top-2-Box (Morgan et al., 2005; Reichheld, 2003). It is therefore important to understand and effectively implement various CFM's, by doing so, managers can further enhance the firm future profitability. Furthermore, Stewart (2009) has

assessed the important aspects of CFM's in-terms (1) relevancy (address pending actions), (2) Predictability (future outcome can be predicted accurately), (3) objective (quantitative procedures are supported), (4) reliable (demonstrate stable attributes over time), (5) Simplicity, (Results can be interpreted easily), and (6) transparent (open to independent audit). Based on the results attained through these metrics, not only firm future effectiveness can be calculated but also managers can effectively adapt measures for improving business performance. It is therefore vital for the managers to implement CFM's within their organisations.

Prior studies have utilised different metrics to predict consumer behaviour and firm performance in the marketing field. Our study classified these metrics based on the time span and how these metrics can be used (e.g., Agag and Eid, 2020; Bolton et al., 2004; Dixon et al., 2010). Regarding the time span, our study distinguished between these metrics according to the present, the past, and the future focus. For example, net promoter score (NPS) focuses on the future because it describes customers willingness to recommend a company based on customers future preferences towards the firm. Customer effort score (CES) reflects past focus while, customer satisfaction represents a more present focus. The second category focuses on how these metrics are used. Practitioners should look at the proportion of individuals responding either positively or negatively at the value of the metrics. Top-2-box customer satisfaction represents an example of this, which focuses on the percentage of consumer that seek to select the highest and the lowest scores related to customer satisfaction (Agag and Eid, 2020; Barnes et al., 2021; De Haan et al., 2015; Lee et al., 2020; Luong et al., 2021; Spaid and Matthes, 2021).

"NPS" is designed by Reichheld (2003) and provides a comprehensive understanding towards measuring loyalty, which eventually leads towards predicting company future growth. In addition, "net promoter score" (NPS) is commonly used as a marketing metric to measure customer loyalty built on loyalty question "How likely is that you would recommend our company to a friend or colleague?" Based around the acquired responses, customers are categorised as "promoters, passives or detractors" (Reichheld, 2003). According to (Reichheld, 2006) within the three consumer categories, promoters are most likely to recommend the company products, brands or services to others whereas detractors do not act as company ambassadors and thus are not involved in recommending company's products. Reichheld (2003) also claims that NPS is one of the most accurate metrics to predict company's future growth. Whereas, there is also a significant link between NPS and firm performance in various industries. However, these claims are being criticised among the researchers (Baehre et al., 2022). Additionally, it is debated that consumer satisfaction in comparison with NPS provides better indication of the company growth rate (Ferguson et al., 2021; Keiningham et al., 2007; Celik and Yakut, 2021; Furrer et al., 2021; Mishra and Samu, 2021). Whereas Van Doorn et al. (2013) compared the NPS against other indices, it was noted that all the metrics performed equally the same and showed weak performance in-terms of predicting future growth. Furthermore, until date, the NPS metric is most commonly used metric by the managers in various industries (Alyahya et al., 2022; Butt et al., 2021; De Haan et al., 2015; Kacprzak and Dziewanowska, 2020). However, the academic literature is scant concerning the use of NPS metric within the different industries and therefore our study aims to fill this gap by analysing the NPS scores in-terms of predicting future business growth across different industries industry. However, NPS is not the only CFM available to managers. Other metrics which are also used are known as Top-2-box metric and Customer Effort Score (CES).

In-order to improve consumer satisfaction and loyalty, it is noted that during the service interactions firms need to delight the existing customers by providing superior services than competitors (Alyahya et al., 2023a; Lee and Park, 2019). However, it is argued by Dixon et al. (2010) that providing superior services does not always result in having loyal customers. Based on their survey from 100 service heads, it was noted that 89 adopted a strategy based on delighting consumers. Whereas on the contrary to the service heads, 84% of the customers

surveyed highlighted the fact that they did not experience any service delight during their recent interaction with the firm. One of the reasons highlighted by Dixon et al. (2010) for this service expectation gap is that in-order to gauge customer satisfaction level, the customer services organisations were using customer satisfaction score as a metric to understand customers experiences with the firm, which according to Dixon et al. (2010) is an inappropriate metric and does not provide accurate results concerning customer satisfaction. Keeping this in mind, a new metric is developed by Dixon et al. (2010) known as Customer Effort Score (CES).

CES primarily focuses on the service interaction in-terms of solving consumer problems quickly and easily. Based on the customer complaints analysis, it was noted that customers find it frustrated to contact company repeatedly in-order to get their issues resolved. Therefore, by applying the CES metric managers can resolve such issues, and in process enhance customer loyalty towards their companies. CES metrics use scales rating from 1 to 5 where 5 represents very high effort to solve customer problems. In-order to analyse the impact of CES on customer loyalty, Dixon et al. (2010) has compared this new metric against "customer satisfaction" (SAT) and "net promoter score". It was noted that CES was the best predictor of customer loyalty. "CES is measured by asking a single question How much effort did you personally have to put forth to handle your request" and is measured on a scale from "1 (very low effort) to 5 (very high effort)". It was noted that customers with low effort were most likely to remain with the same company and demonstrated intentions to repurchase from the same firm. However, within the literature, concerning loyalty and purchase intentions, CES as a metric does not have effect on the firm performance (Agag and Eid, 2020; Kuppelwieser et al., 2021).

Top 2 Box is another metric used by managers to understand customer satisfaction scores and their loyalty towards the firm (Morgan and Rego, 2006; Otto et al., 2019). Within the metric the focus is on the top 2 box scores from a scale of 1–5. Based on the research by Shamah et al. (2018) it is noted that only highly satisfied customers show loyalty in-terms of repeat purchase, paying price premium and recommending the firm product or service to others. Similarly, it is also suggested to convert satisfied who ranked as 4 on the 5 Likert scale into highly satisfied and thus the firm should devote its resources towards focusing on the top extremes of the consumers in-order to maximize future growth (Agag and Eid, 2020; Peng et al., 2019).

2.2. Customer feedback metrics (CFM's) and firm performance

Nowadays, practitioners pay more attention to make marketing more financially accountable by creating a direct link between CFM's and firm performance (Alyahya et al., 2023b; Kumar and Shah, 2009; Lee and How, 2019; Petersen et al., 2018). Prior research used different measures of business performance such as cash flows, Tobin's q, stock price, and return on investment to examine the link between these measures and CFM's. The findings of these studies revealed a positive link between CFM's (most frequently consumer satisfaction) and firm performance. The CFM's are directly linked with the company performance and help to predict future growth based on the results achieved (Alnawas and Hemsley-Brown, 2019; Bendle et al., 2019; Burnham and Leary, 2018; Hanssens et al., 2014; Liu et al., 2021; Tran and Nguyen, 2020). However, based upon the different range of metrics available, it is important that marketing managers should be able to understand and interpret the results. If unable to do so, it is highlighted that firm may find it difficult to achieve customer centric approach (Jang et al., 2018; Lim et al., 2021; Shah et al., 2006; Park and Nicolau, 2019; Selim et al., 2022), which negatively affects the firm performance in-terms of its marketing mix (Mintz and Currim, 2013). Moreover, the use of metrics also depends upon the firms strategic and market orientation which will further guide the managers in-terms of adopting a particular metrics (Agag and Eid, 2020; De Haan et al., 2015; Shaalan et al., 2022b).

Recently, academic literature has shifted towards establishing direct

link between the CFM's and the firm performance outcomes. For instance, [Hult et al. \(2019\)](#) find that the stock value gap can be minimised by having enhanced customer satisfaction. Similarly, it is noted by [Otto et al. \(2019\)](#) that one-point increase in consumer satisfaction can increase the firm cash flow by \$55 million. As CFM's are closely related to firm performance, however depending upon the metric used within the firm, unit of analysis is also deemed important, and therefore are differentiated based on two dimensions. According to [Bolton et al. \(2004\)](#) one of the dimensions is termed as backward-looking (including present) whereas [Zeithaml \(2000\)](#) has coined the second dimension as forward-looking which focus on consumer future plans and therefore suggest way for the firm to improve its performance within the market. For example, NPS is forward looking metric which indicates consumers ability to recommend the firm to others which can ultimately impact the firm performance based on future occurrences ([De Haan et al., 2015](#); [Mecredy et al., 2018](#)). Whereas CES metric focus on the past and present performance of the firm by highlighting the firm service performance based on past customer experiences ([Agag and Eid, 2020](#); [Ji and Prentice, 2021](#); [Youssef et al., 2022](#)).

Alternatively, forward looking metric use consumer responses based on their answers concerning their recommendation of firm products to others. For example, NPS focuses on future desired responses of customers which can serve as an indicator through which firm can enhance and devise appropriate strategies to improve customer satisfaction ([De Haan et al., 2015](#)). Similarly, in-line with NPS, top-2-box metric is also used to predict future performance however, as opposed to NPS metric which consists of multiple scales, the scales used in top-2-box metrics uses extremes towards analysing consumer satisfaction rate ([Blessing and Natter, 2019](#)). The responses are taken as either satisfied or highly satisfied in-terms of predicting firm future performance. Also, using multiple scales can serve as good indicators in-order to drive future

growth rate of the firm ([Agag and Eid, 2020](#)).

Nevertheless, the appropriateness in-terms of predicting profits based on different measures within different metrics is questioned among the academics ([Bendle and Bagga, 2016](#); [Fazli-Salehi et al., 2022](#); [Rohden, and de Matos, 2022](#); [ShabbirHusain and Varshney, 2022](#)). For example, [De Haan et al. \(2015\)](#) investigated the impact of CFM's on three different levels, namely firm, industry and customer in-order to explain the influence of these individuals' levels on firm performance. The results indicated that NPS and top-2-box metric provides more accurate measures concerning customer satisfaction which can potentially be used to affect firm performance. This finding is supported by [Siering et al. \(2018\)](#) whereas, it is also noted that the backward-looking metric (CES) should not be used by managers because it does not provide accurate measure in-terms of customer satisfaction and therefore is not useful in many industries ([Ji and Prentice, 2021](#)).

Furthermore, in-terms of predicting future business growth, it is noted by ([Ji and Prentice, 2021](#)) that all the metrics provide weak results concerning predicting future business growth based on the evaluation of customer satisfaction metrics. The same notion is backed by ([Petersen et al., 2018](#)) who argued that academic literature does not provide enough insights concerning the use and application of CFM's in predicting business performance. As there are mixed results concerning the impact of CFM's within the academia, it is therefore important to conduct our research to further understand how valuable different CFM's are in driving firm performance in different industries.

To understand the critical role of CFM's in predicting firm performance, we developed a model on the relationships between these metrics, marketing efforts, and firm performance (see [Fig. 1](#)). Our conceptual framework was developed based on prior research models of consumer profitability, which suggest that companies can invest in marketing initiatives to effect consumer behaviour, which in turn,

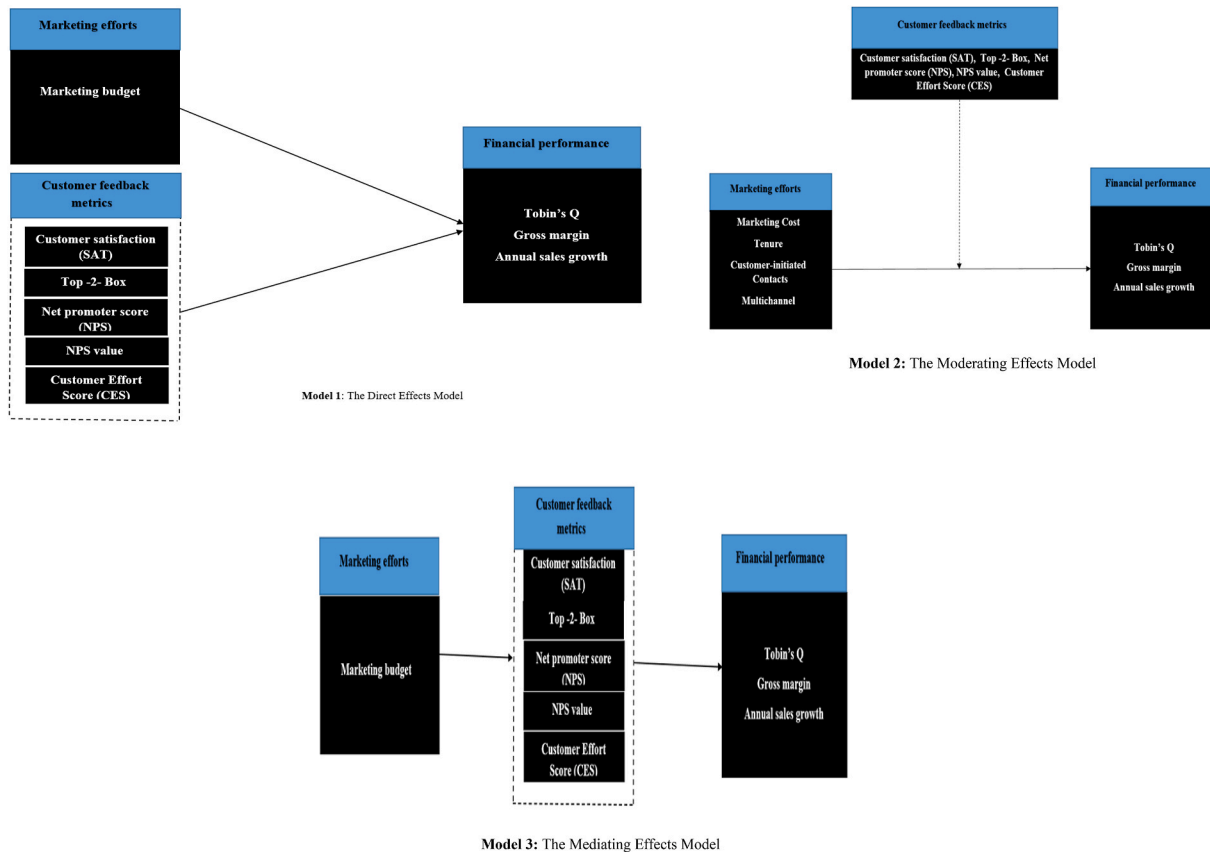


Fig. 1. The link between customer feedback metrics, marketing efforts, and performance. **Model 2:** The Moderating Effects Model. **Model 3:** The Mediating Effects Model.

impacts consumer profits and performance (e.g., Agag and Eid, 2020; Gupta et al., 2006; Kumar et al., 2022; Petersen et al., 2018; Verhoef, 2003). Thus, our study extends the customer profitability models to include CFM's to address the paucity of a theoretical model to investigate and understand the links among CFM's, marketing efforts, and firm performance.

We take a look at how consumer feedback metrics can be used for customer management goals by comparing and contrasting data from different customers. Much earlier research have already analysed this extensively (e.g., Agag and Eid, 2020; De Haan et al., 2015). To what extent these variables can identify loyal from disloyal customers, and how those differences manifest themselves, can be gleaned from this level of study is what we learn. In this way, these indicators can be used to identify loyal and disloyal customers inside an organisation.

In the present research, we investigate how the company's competitive status might be analysed using consumer feedback measures. This type of detail has received more focus in prior investigations (e.g., De Haan et al., 2015; Jang et al., 2018; Rego et al., 2013; Van Doorn et al., 2013). When compared with its rivals, a business that excels at customer satisfaction is more likely to attract new business and keep existing customers happy, as satisfied customers are more likely to recommend the business to their friends. Because customers can easily transfer to the company with happier customers, positive word of mouth can have a negative impact on the retention and spending rates of competitors.

Based on the preceding discussion and the consumer profitability models, our suggested model tests three perspectives. The first hypothesis examines the direct influence of both marketing efforts and CFM's on firm performance, while, the second hypothesis examines the moderating influences of CFM's on the link among marketing efforts and performance. Furthermore, the third hypothesis examines the mediating role of CFM's on the link among marketing efforts and performance. Thus, we suggest the following hypotheses:

- H1.** Both marketing efforts and customer feedback metrics have direct and separate influences on firm performance.
- H2.** Customer feedback metrics moderate the relationship between marketing efforts and firm performance.
- H3.** Marketing efforts drive customer feedback metrics, which in turn will effect firm performance.

Our proposed conceptual model addresses the various perspectives in which marketing efforts can influence customer feedback metrics, and the mechanism that these influence its performance. Furthermore, the model investigates the influence of CFM on the firm short and long-term profitability. We seek to examine which one of these three models best fits our data for the sixteen industries. Furthermore, we used the operating environment as a control variable in the three models to isolate their impact on financial performance (Theodoulidis et al., 2017).

3. Research methods and data collection

3.1. Data collection and measures

To examine the role of CFM's in predicting firm performance, we collected data about the study variables (i.e., "NPS proportion, NPS value, SAT, Top-2 Box, and CES") from the "American Customer Satisfaction Index" (ACSI). This study used the ACSI database due to various reasons. First, the American Customer Satisfaction Index provides us with actual data that are consistent with the data available to firms' managers from their company "customer feedback systems". The companies included in the ACSI have a secondary data about their financial performance. Furthermore, American Customer Satisfaction Index has annual data from 800,000 U.S. customers. The final dataset consisted of 11,547 observations, demonstrating 668 firm over 16 years (from 2005 to 2020). These sixteen industries were selected because the necessary data was available. Table 2 shows an overview about the observations

Table 2
Number of initial observations by industry.

Industry	Firms	N	SAT	Top-2-box	NPS	NPS value	CES
Online shopping	42	484	5.83	0.51	-0.39	7.39	2.08
Banks	19	389	6.19	0.49	-0.25	6.21	2.76
Airlines	31	404	7.32	0.54	-0.41	6.88	3.10
Mobile telecom	48	463	5.29	0.48	-0.32	5.90	1.98
Drugstores	33	420	5.81	0.62	0.02	7.30	3.20
Energy	21	398	7.12	0.44	-0.41	6.59	2.76
Online booking	48	456	6.20	0.56	-0.27	5.88	3.98
Electronics	60	449	5.39	0.67	-0.39	7.54	2.73
Department stores	42	438	4.30	0.48	-0.21	7.30	1.09
Holiday parks	66	472	6.78	0.62	0.31	7.80	3.87
Gasoline	29	399	5.12	0.49	-0.29	6.36	2.22
Fixed telecom	17	383	5.47	0.55	-0.04	5.55	1.74
Hotels	61	468	6.20	0.61	-0.21	6.40	3.07
Restaurants	86	505	4.89	0.59	-0.37	5.48	2.66
Furnishing	11	379	5.71	0.60	0.18	7.30	3.52
Travel agencies	54	440	6.83	0.54	-0.30	6.61	2.51
Total	668	11,547	5.84	0.51	-0.22	6.92	2.74

number by industry.

Data about the dependent variables (i.e., company's gross margin, sales growth, and Tobin's Q) and control variables (i.e., dynamism, munificence, and power) were collected from each firm's annual reports and Compustat. To guarantee results that are relevant to a wide range of business issues encountered by investors and managers, firm performance was measured using three different measures such as company's gross margin, sales growth, and Tobin's Q (e.g., Awasthi and Kumar, 2022; Morgan and Rego, 2006). Finally, 11,547 observations (without violation of independence, normality, linearity, homoscedasticity, and multicollinearity) were selected for the company's gross margin, sales growth, and Tobin's Q. Thus, these three measures give indicators about the most critical factors of a company's long term (e.g., Tobin's Q) and short term (e.g., gross margin), utilising accounting information-focused measures (e.g., gross margin) and financial market-based information (e.g., Tobin's Q) and consumer market-based measures (e.g., sales growth).

The present study used operating environment as a control variables. Prior research asserted that the operating environment represents a critical variable when measuring firm performance (Jauch and Kraft, 1986; Theodoulidis et al., 2017). Furthermore, Berman et al. (1999) indicated that using operating environment as a control variable plays a significant role in isolating their effects on firm performance and capture the structural conditions for environmental uncertainty. In this study we measured the operating environment utilising three constructs: munificence, power, and dynamism (Berman et al., 1999; Theodoulidis et al., 2017). Table 3 demonstrates an overview about the study variables and measurements.

Heterogeneity one of this study challenge is related to the fact that we have panel data from firms in sixteen different industries. This means that we observe multiple observations for each customer over time. We take two different approaches in order to control for the potential of within firms' effects. We control for observed heterogeneity by introducing a set of variables (i.e., dynamism, munificence, power). We control for unobserved heterogeneity in sets of models by allowing for random effects.

3.2. Model formulation

The present study used a multiple regression panel analysis to explore the influence of different CFM (i.e., "NPS proportion, NPS value, SAT, Top-2-Box, and CES") on firm performance (i.e., gross margin, sales

Table 3
Measures and definitions.

Variable	Measures/definitions	Source
Average customer satisfaction score	<p>“Average customer satisfaction score is the arithmetic mean score on the three specific indicators used to estimate the ACSI latent satisfaction index. These are consumer responses to questions concerning overall satisfaction, expectancy disconfirmation, and performance versus their ideal product or service in the category (e.g., Fornell et al., 1996). While we utilise the average of the three items because of the superior measurement properties of multi-item scales, the correlation with the single “overall satisfaction” indicator is above 0.9, suggesting that the scale is also a good proxy for the single-item overall satisfaction metric used by many firms in practice. The mean and median average customer satisfaction scores for the firms in our data set over this time period were both slightly over 7.5 on a 10-point scale”.</p> <p>“We use the simple average of the three items because this is the metric most likely to be used by managers in practice. The correlation between the simple average and the ACSI latent variable is 0.985, and the results of our analyses hold whether using the mean of the three items or the latent variable”.</p>	<p>(Ittner and Larcker, 1998; Van Doorn et al., 2013; De Haan et al., 2015).</p>
Top-2-box customer satisfaction	<p>“Advocates suggest looking not at the value of the scale but at the proportion of people responding very positive and/or very negative. An example of this is the top-2-box customer satisfaction, which measures the proportion of customers filling in the two highest scoring points of the overall customer satisfaction scale (Morgan and Rego, 2006). Morgan and Rego (2006) show that this transformation serves as a good predictor of business performance.</p> <p>“Top 2 Box customer satisfaction score refers to the two highest-scoring points on the five-point scale that firms typically use to capture customer satisfaction. Because the ACSI uses 10-point satisfaction scales, we operationalized this metric as the proportion of customers surveyed that rated the firm in the top 4 points on the 10-point single-item “overall satisfaction” ACSI scale. The mean and median Top 2 Box customer satisfaction scores for the firms in our data set over</p>	<p>(Ittner and Larcker, 1998; Keiningham et al., 2007; Morgan and Rego, 2006; Van Doorn et al., 2013).</p>

Table 3 (continued)

Variable	Measures/definitions	Source
	<p>this time period were marginally above 0.7, indicating that more than 70% of surveyed consumers rated the average firm in the Top 2 Boxes”.</p> <p>“Because some firms use Top Box scores (the proportion of their customers who are “very satisfied”), we also operationalized this using the proportion of each firm’s customers reporting scores of 9 or 10 on the ACSI’s overall satisfaction question and obtained very similar results to those obtained with the Top 2 Box measure”.</p>	
NPS (proportion)	<p>“The transformation to come to the official NPS also distinguishes between very positive, moderate, and very negative responses (Reichheld, 2003). Transformations can theoretically be defended because research has shown that customers mainly focus on extreme experiences and therefore the effects of CFMs can be rather non-linear (e.g., Streukens and De Ruyter, 2004; Van Doorn et al., 2013). Moreover, service marketing experts have pledged to delight customers, implying that customers will evaluate firms with extreme scores on the CFM scales” (Oliver et al., 1997).</p> <p>“How likely is it that you would recommend [company X] to a friend or colleague?” (0 = very unlikely, 10 = very likely). Respondents who gave a score of 0–6 are “detractors,” those who gave a 7 or 8 are “passives,” and those who gave a 9 or 10 are “promoters.” Subtracting the proportion of promoters by the proportion of detractors provides the NPS at the firm level (Reichheld, 2003). At the customer level, the NPS reduces to a value of –1 for detractors, 0 for passives, and +1 for promoters. At the firm (industry) level, this translates to a score ranging from –1 (only detractors) to +1 (only promoters)”.</p>	<p>(Reichheld, 2003; De Haan et al., 2015; Streukens and De Ruyter, 2004; Van Doorn et al., 2013; Oliver et al., 1997).</p>
NPS (value)	<p>“This is the untransformed NPS score (0–10 range) provided by the customer. At the firm (industry) level, this translates to the average NPS value given within the firm (industry)”.</p>	<p>(Reichheld, 2003; De Haan et al., 2015).</p>
Customer Effort Score (CES)	<p>“Did you try to contact [company X] with any kind of request?” (yes/no) If yes, the following question is asked: “How much effort did you personally have to put forth to handle your request?” (1 = very low effort, 5 = very high effort). At the individual customer level, we only have a</p>	<p>(Reichheld, 2003; De Haan et al., 2015).</p>

(continued on next page)

Table 3 (continued)

Variable	Measures/definitions	Source
Tobin's Q	dummy variable for the first question and a score in the 1–5 range for the second question. At the firm and industry level, we have the proportion of people who answered yes to the first question and the average score of the second question". Tobin's Q has been calculated as: Tobin's Q = (mkvalt + pstkl + dlc)/at (2) where mkvalt is the market value, calculated as shares outstanding * price of the stock, pstkl is the value of preferred stock, dlc is the current debt and at is the total assets.	(Berman et al., 1999; Theodoulidis et al., 2017).
Marketing efforts	The first variable we needed to identify is an instrumental variable, which can help us control for the potential endogeneity of marketing efforts by the firms. The ideal instrument is one that can help explain why firms are likely to increase (or decrease) marketing efforts to customers, but is unrelated to the performance at the specific firm. In this case we obtained the monthly marketing spend from the marketing departments of each firm that were given to allocate on all customers for that given month. We then used the marketing budget spent on these customers as an instrument of marketing effort. We believe that this is a good choice for an instrument since we expect that increases in the marketing budget to these customers is likely to be related to an increase in marketing spending on average across all customers since marketing budgets are set for all customers before allocating marketing efforts to individual customers. This provides some evidence that the marketing budget is a good instrument to use to help control for the potential endogeneity of marketing efforts.	Petersen et al. (2018).
Operating environment	For the purposes of this study, the operating environment was measured using three variables: munificence, dynamism and power (Berman et al., 1999). Munificence (MU) for year 2000 is the coefficient (slope) of the regression of industry-level sales for the 1995–1999 period. It was updated using a rolling window for every year in the data set until 2015. Dynamism (DY) is the standard error of the regression used to calculate munificence, divided by the mean of industry sales for the corresponding period. Finally, power (PO) was measured as	(Berman et al., 1999; Theodoulidis et al., 2017).

Table 3 (continued)

Variable	Measures/definitions	Source
	the four-firm concentration level, calculated as the percentage of sales generated by the top four firms relative to the total industry sales, also following the same rolling window basis. Each operating environment variable was calculated separately for each of the four industries in the study.	

growth, and Tobin's Q), moderating by operating environment factors (i.e., munificence, power, and dynamism). Prior research indicated that using panel analysis can give more informative data, specify the time-varying influences of explanatory factors, alleviate estimation biases, control for individual heterogeneity, and decrease multicollinearity issues (Chen, 2011; Theodoulidis et al., 2017).

$$FP_{i,t} = \alpha_i + \beta_1 CFM_{i,t} + \beta_2 OE_{i,t} + \beta_3 Mktg_{i,t} + \epsilon_{i,t} \tag{1}$$

“where the subscript i indexes the firm, t describes the time period” (t = 1 [2005], ..., t = 16 [2020]), FP_t refers to the dependent performance factor for year t, either gross margin, sales growth, or Tobin's Q, α_i is the “fixed firm-specific effect”, Mktg_{i,t} refers to the firm's marketing efforts to consumer i in time t, OE_{i,t} refers to the set of operating environment factors, ε_{i,t} refers to the “error term” of the model, and β₁, β₂, and β₃ are the model coefficients for the respective factors.

Equation two was utilised to explore the moderating effect of customer feedback metrics on the link between marketing efforts and financial performance.

$$FP_{i,t} = \alpha_i + \beta_1 CFM_{i,t} + \beta_2 OE_{i,t} + \beta_3 Mktg_{i,t} + \beta_4 Mktg_{i,t} \cdot CFM_{i,t} + \epsilon_{i,t} \tag{2}$$

The present study also examines industry heterogeneity by using the following equation. Table 4 demonstrates the variables definitions in this equation.

$$FP_{ijk} (\eta_{FP,ijk}, \pi_{FP,ijk}) \logit(\pi_{FP,ijk}) = \alpha_{x,0k} + \alpha_{x,1k} \cdot CFM_{x,ijk} - \overline{CFM}_{x,ijk} + \alpha_{x,2k} \cdot (\overline{CFM}_{x,ijk} - \overline{CFM}_{x,k}) + \epsilon_{x,3ijk} \tag{3}$$

For standard regression assumptions, different tests were conducted such as heteroskedasticity, normality test, and Ramsey's (1969) RESET test. The results indicated no issues regarding these assumptions violations. Furthermore, the Wu-Hausman F test and the Durbin-Wu-Hausman test were conducted for validating the study variables endogeneity (Lu et al., 2018; Sajons, 2020). Both tests indicated

Table 4
Variable definitions.

Variables	Definitions
$CFM_{x,ijk}$	Score on CFM x for customer i of firm j in industry k.
$\overline{CFM}_{x,ijk}$	Average score on CFM x for firm j in industry k.
$\overline{CFM}_{x,k}$	Average score on CFM x in industry k.
$\alpha_{x,0k}$	Captures the industry-level heterogeneity.
$\alpha_{x,1k}$	Captures the effect of differences between customers within the same firm.
$\alpha_{x,2k}$	Captures the effect of differences between firms within the same industry.

Note.

We investigate per industry which CFMs are useful for customer management within the firm (i.e., have a significant α_{x,1k}) and which CFMs are useful to compare the focal firm's competitive position with its competitors within the same industry (i.e., have a significant α_{x,2k}). Furthermore, we indicate per industry which CFM is the most useful (i.e., have the highest significance level) for these two levels of analyses.

satisfactory results, demonstrating that “NPS value, NPS proportion, CES, SAT, Top-2-Box, and marketing efforts” are endogenous at the 95% confidence level.

4. Analysis and results

4.1. Descriptive statistics

Table 5 demonstrates the descriptive statistics of the study constructs (CFMs, FP, marketing efforts, and operating environment constructs) for sixteen industries. The statistics show that the mean and median of consumer satisfaction are both over 8.5 on a 10-point Likert scale. The mean and median of Top-2-Box consumer satisfaction are almost 0.8, indicating that almost 80% of respondents rated the firms in the Top 2 Boxes. The results indicated that the mean of respondents who revealed a complaint is 18% and the median is 19%. NPS mean and median are around 0.4, Tobin’s Q was around \$2.7 billion while the median was around \$2.6 billion. Table 5 also shows the mean of gross margin among the firms was greater than 47% and the median was 43%.

Companies can use these descriptive statistics to conduct a comparison among industries. For example, Berman et al. (1999) revealed that a service industry has capital intensity (231.7) greater than manufacturing sector (7.9), that can be justified by the massive investments of the service sector in fixed assets buildings. Furthermore, the service industry demonstrates munificence (MU) (1.5) greater than manufacturing sector (0.01), that can be justified by the sales increase in the service sectors over the years comparing to the manufacturing sector (Theodoulidis et al., 2017).

Table 6 indicates the correlation matrix that provide us with initial insights. Regarding the Tobin’s Q, the top-2-Box shows the greatest relationship with Tobin’s Q, consistent with the non-linear association between top-2-Box and Tobin’s Q revealed in prior studies (e.g., De Haan et al., 2015). For the gross margin, of the five CFM’s, NPS value associates best; This association is comparable in size to that of consumer satisfaction. Moreover, CES had a significant effect on gross margin, demonstrating that customers who made requests are willing to effect negatively on the firm performance. NPS and top-2-Box offers the greatest correlation with sales growth. Both marketing budget and marketing cost have a significant positive effect on performance (Tobin’s Q, gross margin, and sales growth) and CFM (SAT, Top-2-Box, CES, NPS proportion, and NPS value). Regarding the operating environment factors, all operating environment factors had a significant influence on Tobin’s Q except Dynamism. Gross margin and sales growth were influenced significantly by all operating environment factors. Furthermore, operating environment factors were related to CFM’s (SAT, Top-2-Box, CES, NPS proportion, and NPS value).

Table 5
Descriptive Statistics (11,547 observations).

Variable	Mean	Median	Std. dev.	Min	Max
Firm performance					
Tobin’s Q	2.741	2.660	4.184	1.383	10.280
Gross margin	0.479	0.435	0.207	-0.532	0.736
Annual sales growth	0.389	0.342	1.745	-0.480	2.409
Customer feedback					
NPS (proportion)	0.417	0.408	0.216	0.237	0.840
NPS value	7.836	6.694	2.410	6.703	9.026
CES	0.174	0.182	0.135	0.031	0.429
SAT	8.601	8.573	0.640	7.204	9.217
Top-2-Box (proportion)	0.818	0.831	0.162	0.664	0.870
Marketing efforts					
Marketing cost	0.261	0.237	0.106	0.219	0.420
Marketing budget	640.28	626.90	419.21	365.47	825.10
Operating environment					
Munificence (MU)	0.043	0.037	0.024	0.017	0.084
Dynamism (DY)	1.820	1.394	0.803	0.518	2.861
Power (PO)	0.009	0.006	0.020	0.003	0.052

Table 6
Constructs correlations.

Variable	Correlations												
	Tobin’s Q	Gross Margin	Sales growth	NPS (proportion)	NPS value	CES	SAT	Top 2 Box	Munificence	Dynamism	Power	Marketing cost	Marketing budget
Tobin’s Q	1.000												
Gross Margin	0.528	1.000											
Sales growth	0.397	0.471	1.000										
NPS (proportion)	0.474	0.570	0.560	1.000									
NPS value	0.463	0.456	0.445	0.539	1.000								
CES	0.389	0.634	0.403	0.490	0.452	1.000							
SAT	0.428	0.566	0.428	0.551	0.580	0.495	1.000						
Top 2 Box	0.347	0.463	0.480	0.484	0.417	0.470	0.443	1.000					
Munificence	0.360	0.610	0.507	0.519	0.583	0.401	0.549	0.477	1.000				
Dynamism	0.209	0.320	0.120	0.128	0.235	0.446	0.127	0.332	0.128	1.000			
Power	0.302	0.120	0.268	0.437	0.289	0.200	0.293	0.483	0.209	0.344	1.000		
Marketing cost	0.120	0.393	0.208	0.120	0.345	0.471	0.436	0.485	0.347	0.125	0.453	1.000	
Marketing budget	0.402	0.208	0.430	0.408	0.328	0.234	0.230	0.234	0.209	0.339	0.488	0.317	1.000

4.2. Panel regression results

Table 7 demonstrate the panel regression analysis results. The unstandardized regression coefficients is indicated in the first column and the robust standard errors in parentheses is indicated in the second column. Moreover, operating environment factors were incorporated as control factors.

Model 1a considers a restricted model and it focuses on examining the direct influences of customer feedback metrics on firm performance (Morgan and Rego, 2006). Model 1b is the full model and it represents the direct influences of both customer feedback metrics and marketing efforts on firm performance, including operating environment as control variables. Models 1 and 2 can be utilised to test the first hypothesis (H1), which suggests that marketing efforts and customer feedback metrics each have direct influences on firm performance. The findings revealed that of the five factors of customer feedback factors, three are significant for Tobin's Q: NPS (proportion), SAT, and Top-2-Box; two for gross margin: SAT and Top-2-Box; and four for sales growth: SAT, Top-2-Box, NPS proportion, and NPS value).

Furthermore, operating environment and marketing budget have significant influence on firm performance. Regarding hypothesis 2, model 2 examines the moderating influences of CFMs on the link between marketing efforts and firm performance. Model 2 demonstrates all the constructs in model 1b (full model and the interactions between marketing efforts and customer feedback metrics constructs. For Tobin's Q, none of the CFMs constructs have a direct influence but it changed when including the interactions with marketing efforts. In this case, satisfaction and Top-2-Box have a positive interaction with marketing efforts. For gross margin, a significant influence of marketing efforts was found and a significant influence of the interactions between NPS, SAT, and marketing efforts. Finally, for sales growth, we found two weak interactions: an interaction between marketing efforts and NPS value, and a significant positive interaction between marketing efforts and SAT.

Model 3 investigates the link between marketing efforts and firm performance, mediated by customer feedback metrics. It is a restricted model that includes only marketing efforts and operating environment as control variables to test hypothesis 2. Customer feedback metrics were incorporated in the full model, Model 1b. Since constructs that are significant in model 3 (marketing budget for Tobin's Q, gross margin, and sales growth) become significant in model 1b, or constructs that were not significant in model 3 were significant in model 1b. Our results support the direct influence of customer feedback metrics (Model 1) and the moderating influence (Model 2) on the link between marketing efforts and firm performance.

From the panel regression results of the selected industries shown in Table 7, we find support for the consumer profitability models (e.g., Agag and Eid, 2020; Gupta et al., 2006; Kumar et al., 2022; Petersen et al., 2018; Verhoef, 2003), namely, Model 2 (moderated model) and Model 1 (direct effects model).

In all three models, the wider environmental conditions for the specific industry are captured with operating environment variables that are defined at industry level and help to isolate their effects on firm performance (Petersen et al., 2018). Furthermore, the operating environment captures the structural conditions for environmental uncertainty and, thus, it is measured at industry level (Agag and Eid, 2020). Moreover, for the wider sector characteristics, as captured by the operating environment, some sectors (i.e., restaurant, hotels, airlines) shows a much higher munificence than others (i.e., department stores, furnishing) (1.5 versus 0.01), which can be explained by the fact that these sectors (i.e., restaurant, hotels, airlines), especially the restaurant industry, is performing much better in terms of increasing sales over the years.

4.3. Industry heterogeneity

Our study used equation (2) in order to examine the predictive power of various customer feedback metrics across the sixteen industries. The final dataset included 82,850 observations at the customer level and 11,547 observations at the firm level, representing 668 firms over 16 years (from 2005 to 2020). Tables 8 and 9 provide us with insight about the performance of CFM at both the consumer and firm levels for each industry. The predictive ability of CFM's in predicting performance may vary between industries. Table 8 shows CFM's performance at the customer level for the different industries. The results indicated that at least one of CFM's were found to be related to performance for the sixteen industries. Top-2-box was found to be related to performance for all industries and performed best for driving performance for airlines, hotels, and casinos industries. Customer satisfaction was found to have a significant impact in ten sectors and is the best driver of customer feedback metrics in airlines, mobile telecom, hotels, holiday parks, and travel agencies. Based on our classification of customer feedback metrics, this demonstrates that in some industries where customers do not have frequent buying (i.e., airlines and hotels) consumer satisfaction is the best predictor of firms' performance. This means that customer positive experience in the present is the main predictor of business performance in these sectors.

Table 9 shows CFM's at the firm levels for each industry. The results indicate whether CFM's were critical to compare different companies within specific sector. The findings demonstrate that Top-2-box is the best predictor CFM's to compare firms in online booking, hotels, and online shopping industries, while consumer satisfaction is the best predictor for electronic and fixed telecom industries. CES is the best CFM's to compare companies in restaurants industries. Moreover, NPS is the best metric to compare different companies in holiday parks industries.

4.4. Combining metrics analysis

Each metric of the customer feedback metrics measures different dimension and has its unique focus. For instance, CES focuses on the past, customer satisfaction and Top-2-Box focus on the present, while NPS value and official NPS focus on the future. Therefore, managers can achieve better predictions about business performance by combining customer feedback metrics. Table 10 demonstrates the findings of a combination of customer feedback metrics. A combination of Top-2-Box and consumer satisfaction and a combination of NPS and official NPS do not enhance business performance due to the multicollinearity between the dimensions. We followed Agag and Eid (2020) procedure, so that we can differentiate the CFMs' effect on firm performance at various levels of analysis.

Our results indicate that the highest Gini coefficient (0.191) when combining SAT, Top-2-Box, and NPS. These results revealed that managers could achieve better predictions about business performance by combining these metrics (i.e., NPS, SAT, and Top-2-Box). Regarding the hit rate, the hit rate enhances by combining SAT with Top-2-Box. Therefore, using a combination of customer feedback metrics is not necessary for the hit rate. With regard to the top-decile lift, a combination of Top-2-Box and CES achieve the best predictions. Therefore, combining Top-2-Box with CES could achieve incremental power.

5. Discussion and conclusion

5.1. Key findings

CFM's as an area of study has consistently captured the attention of researchers and practitioners, particularly over the last decade where increasing interest has been observed within the area of research (e.g., Agag and Eid, 2020; Morgan and Rego, 2006; Van Doorn et al., 2013; De Haan et al., 2015; Otto et al., 2019; Shaalan et al., 2022a). Much of this interest has been limited to the effectiveness and utility of these metrics.

Table 7
Results of fixed-effects panel regressions.

	<i>Model 1a</i>			<i>Model 1b</i>			<i>Model 2</i>			<i>Model 3</i>		
	Tobin Q	Gross margin	Sales growth	Tobin Q	Gross margin	Sales growth	Tobin Q	Gross margin	Sales growth	Tobin Q	Gross margin	Sales growth
Constant	7.931** (1.103)	0.630** (0.136)	0.497** (0.105)	7.931** (1.103)	0.417** (0.106)	0.308** (0.101)	7.931** (1.103)	0.417** (0.106)	0.308** (0.101)	8.217** (1.203)	0.704** (1.046)	0.329** (0.542)
Operating environment												
Dynamism (DY)	5.571** (2.590)	0.093 (0.124)	0.052 (0.108)	5.571** (2.590)	0.093 (0.124)	0.052 (0.108)	5.571** (2.590)	0.093 (0.124)	0.052 (0.108)	4.967** (1.208)	0.104 (0.045)	0.2009 (0.321)
Munificence (MU)	-0.769 (0.310)	-0.017 (0.013)	-0.036 (0.026)	-0.769 (0.310)	-0.017 (0.013)	-0.036 (0.026)	-0.769 (0.310)	-0.017 (0.013)	-0.036 (0.026)	-0.438 (0.216)	-0.152 (0.406)	-0.057 (0.031)
Power (PO)	-6.805*** (3.861)	-0.419 (0.501)	-0.610 (0.573)	-6.805*** (3.861)	-0.419 (0.501)	-0.610 (0.573)	-6.805*** (3.861)	-0.419 (0.501)	-0.610 (0.573)	-7.740*** (4.036)	-0.563 (0.217)	-0.420 (0.043)
Customer feedback metrics												
NPS (proportion)	0.570*** (2.038)	0.825** (0.104)	0.319** (0.036)	4.084*** (2.610)	0.107 (0.003)	0.561** (0.107)	3.429** (1.920)	5.402*** (2.036)	2.308** (1.056)			
NPS value	0.692** (0.176)	0.513** (0.216)	0.491** (0.177)	0.102 (0.004)	0.106 (0.007)	0.743** (0.143)	0.691** (0.201)	0.475** (0.105)	0.319** (0.146)			
CES	0.120 (0.049)	0.165 (0.067)	0.201 (0.050)	0.151 (0.092)	0.190 (0.083)	0.106 (0.030)	0.540** (0.210)	0.341** (0.137)	0.731** (0.235)			
SAT	8.073*** (2.619)	3.946*** (1.820)	6.905*** (3.008)	7.830*** (1.984)	5.048*** (0.894)	3.490*** (1.430)	6.403*** (2.102)	8.432*** (3.026)	6.237*** (1.287)			
Top-2-box	4.984** (0.705)	2.861*** (1.052)	1.993** (1.780)	1.973** (0.605)	4.804*** (0.843)	2.054** (0.930)	4.036** (0.682)	2.065** (0.410)	4.126** (1.047)			
Mrktb	4.043** (0.016)	0.070 (0.048)	0.318* (0.097)	4.361** (0.649)	1.659** (1.395)	2.306** (1.107)	3.073** (0.410)	0.0437 (0.236)	0.251* (0.203)			
Interactions												
Mrktb x NPS	1.490 (1.025)	0.257* (0.210)	0.019 (0.104)									
Mrktb x NPS value	2.034* (0.108)	0.023 (0.001)	0.207* (0.019)									
Mrktb x CES	1.025 (0.013)	0.037 (0.021)	0.059 (0.056)									
Mrktb x SAT	2.015* (1.076)	0.315* (0.031)	0.172* (0.005)									
Mrktb x Top-2-box	2.710* (0.037)	0.034 (0.002)	0.016 (0.017)									
Model Statistics												
F	17.39	14.60	11.27	16.08	18.90	13.68	11.70	8.41	6.90	12.43	5.217	3.902
Prob > F	0	0	0	0	0	0	0	0	0	0	0	0
R2-within	0.58	0.39	0.51	0.49	0.61	0.54	0.56	0.50	0.41	0.34	0.21	0.19
R2-between	0.16	0.005274	0.12	0.15	0.00940	0.14	0.17	0.00341	0.15	0.13	0.0034	0.11
R2-overall	0.14	0.000792	0.11	0.12	0.000210	0.12	0.13	0.00065	0.13	0.10	0.0002	0.1
Sigma_u	0.086	1.36	0.098	0.074	1.45	0.065	0.060	1.42	0.070	0.037	1.023	0.004
Sigma_e	0.041	0.57	0.035	0.080	0.58	0.040	0.031	0.59	0.041	0.0061	0.43	0.027
Rho	0.87	0.83	0.84	0.88	0.82	0.85	0.89	0.86	0.82	0.68	0.71	0.64

Note: N = 11,547. Number of companies in the sample is 668. Unstandardized regression coefficients are shown. Robust standard errors are in parentheses.

***p < 0.1, **p < 0.01, *p < 0.05.

Table 8
Customer feedback metrics performance per industry at the customer level (Obs = 82,850).

Industry	SAT	Top-2-box	NPS	NPS value	CES
Online shopping	0.982	1.000	0.793		
Banks			1.000	0.884	
Airlines	1.000	0.987	1.000		
Mobile telecom	1.000			0.981	
Drugstores					0.983
Energy	0.877				
Online booking	0.988	1.000	0.889	0.995	
Electronics					
Department stores			0.957	0.794	
Holiday parks	1.000	1.000			
Gasoline		0.971	0.993		
Fixed telecom	0.780	0.988		1.000	0.877
Hotels	1.000		1.000		
Restaurants	0.982		0.889		
Furnishing				0.788	
Travel agencies	1.000	0.893	1.000		
Significant	10/16	7/16	8/16	6/16	2/16
Best performing	5/10	3/16	4/16	1/16	0/16

Table 9
Customer feedback metrics performance per industry at the firm level (Obs = 11,547).

Industry	SAT	Top-2-box	NPS	NPS value	CES
Online shopping	0.881	1.000			0.881
Banks			0.788	0.992	
Airlines		0.799			
Mobile telecom					
Drugstores	0.997		0.890	0.889	
Energy					0.966
Online booking		1.000		0.884	
Electronics	1.000		0.995		
Department stores					
Holiday parks				1.000	
Gasoline		0.884	1.000		
Fixed telecom	1.000				
Hotels		1.000		0.880	
Restaurants		0.973			1.000
Furnishing	0.990				
Travel agencies				0.795	
Significant	5/16	6/16	4/16	6/16	3/16
Best performing	2/10	3/16	1/16	1/16	1/16

Recent calls for marketing accountability have thus highlighted the existing gaps in knowledge related to CFM’s. The gap in question relates to a lack of understanding surrounding the relationship between customer feedback metrics and firm performance (Petersen et al., 2018). Thus, the present study aims to bridge this existing gap in knowledge by developing an integrative model focused on determining the influence of

Table 10
Predictive performance multi-customer feedback metrics models.

		SAT	Top-2-Box	NPS proportion	NPS value	CES
SAT	Gini coefficient	0.137				
	Top-decile lift	2.095				
	Hit rate	0.518				
Top-2-Box	Gini coefficient	0.126	0.147			
	Top-decile lift	2.190	1.826			
	Hit rate	0.527	0.670			
NPS proportion	Gini coefficient	0.149	0.148	0.150		
	Top-decile lift	2.061	1.629	2.092		
	Hit rate	0.528	0.561	0.578		
NPS value	Gini coefficient	0.162	0.162	0.176	0.169	
	Top-decile lift	1.827	1.702	1.927	1.826	
	Hit rate	0.570	0.518	0.513	0.537	
CES	Gini coefficient	0.170	0.158	0.191	0.162	0.168
	Top-decile lift	2.104	2.490	1.825	1.920	1.783
	Hit rate	0.518	0.507	0.512	0.593	0.561

different customer feedback metrics on firm performance. Coupled with this, our study developed an empirical application of the model in order to better understand how CFM’s contributes to firm performance and profitability. Furthermore, We investigate the impact of marketing efforts on CFMs in order to help businesses enhance resource allocation and make informed decisions about how much (and when) to invest in CFMs.

Empirical research has consistently assessed and evaluated the performance of feedback metrics (e.g., Agag and Eid, 2020; Raassens and Haans, 2017; Wang and Kim, 2017; Owen, 2019) and whilst the academic community continues to further understand of this tool, practitioners have been more concrete in their conclusions, regarding feedback metrics as the most effective and superior indicators of business performance (Otto et al., 2019; Wamba et al., 2019).

The findings of our analysis confirm and support our initial hypotheses, in as much that the adoption of various CFM’s (i.e., NPS, SAT, NPS proportion, and Top-2-Box satisfaction) are closely correlated with high levels of firm performance (i.e., Tobin’s Q, gross margin, and sales growth). These findings support prior research conducted by Morgan and Rego (2006) who argued for the use of CFM’s in enhancing the firm performance. Furthermore, we find that the prediction capacity of CFM’s varies based on the industry to which they are applied. Based on the empirical nature of our study, it is critical to note that our results have not yet been reported nor examined within existing research. From this, we can conclude that no one feedback metric can be applied across industries when predicting business performance. To better achieve this end, it would be necessary to apply a combination of CFM’s as doing so would result in greater precision. Managers are thus advised to apply a combination of metrics should they be interested in predicting firm performance.

One area in which our findings contradict prior research relates to the observation of the Net Promoter Score (NPS). Unlike Keiningham et al. (2007), Morgan and Rego (2006), we find that the Net Promoter Score (NPS) is context dependent and thus not always incorrect. Our results indicated that the NPS is indeed an effective driver of firm performance. We find further associations between indicators of firm performance (i.e. Tobin’s Q, gross margin, and sales growth) and customer satisfaction. For example, it emerges that a significant relationship exists between consumer satisfaction and Top-2-Box and Tobin’s Q performance. Further differences in relation to prior research emerges where Top-2-Box, sales growth and customer satisfaction are concerned; as unlike Reichheld (2003) we find a solid relationship between customer satisfaction, Top-2-Box, and sales growth. Other significant relationships are noted between gross margins and customer satisfaction, in keeping with research offered by Morgan and Rego (2006). This finding is especially noteworthy as it highlights just how critical it is for firms to ensure customer satisfaction, whilst further emphasising the importance of doing as the effects remain long lasting.

Existing research casts an in-depth examination of customer complaining behaviour, its antecedents and drivers (Anderson, 1998; Singh, 1988; Morgan and Rego, 2006; Raassens and Haans, 2017). This study emerges as one of the first to narrow this focus to just one sector as we specifically examine the relationship between CES and firm performance across different industries. Previously, Fornell and Wernerfelt (1988) had revealed that by closely observing consumer complaints, it was possible to better manage consumers who were “at risk” therefore acknowledging and documenting complaints was identified as being crucial by the authors. Interestingly, amongst the participating firms that make-up our research sample, we find that managers were yet to hear and note any consumer complaints. This is proceeded by a lack of management effort to reduce any negative impact that consumer complaints could have on firm performance. Momentarily returning to existing research which regard customer complaints as a poor predictor of satisfaction (TARP, 1986), the present study counters this by establishing links among CES, customer satisfaction, and Top-2-Box scores, revealing the former as a suitable performance indicator.

5.2. Theoretical implication

The present study offers two-fold contributions to the study of customer relationship management. It adds to both literature of marketing as well as broadens our understanding of CFM's within the context of firm performance. The paper indicates both the relationship between marketing investments and financial impacts/outcomes of these decisions as well as enhances understanding of how CFM's directly impact financial outcomes of a firm (Raguseo and Vitari, 2018; Srinivasan and Hanssens, 2009). This is especially important given that thus far academic research has largely ignored CFM's and their role in generating returns within a firm. Other areas that have also been neglected up until now include the implications of these metrics and how they utilised during resource allocation decisions (Bhattacharya et al., 2021; Otto et al., 2019). In order to provide deeper insights regarding the importance of CFM's, our study has integrated these metrics into the individual consumer profitability model for driving firm performance and thus provides further details towards the role played by CFM's.

Second, several studies have investigated different CFM's, and their contributions to the firm performance (Fis and Cetindamar, 2020; Morgan et al., 2005; Raassens and Haans, 2017; Reichheld, 2003). Nevertheless, these studies have given more attention to one metric (consumer satisfaction) and none of them have examined the effect of different CFM's on firm performance in the long and short terms. Thus, our study results fill this vital gap by exploring the effect of different customer feedback metrics on firm performance at the customer and firm levels.

Third, our research responded to the call by Kumar and Shah (2009) and Lemon and Verhoef (2016) on marketing financial accountability by developing the association between customer feedback metrics and firm financial performance. Nowadays, companies invest large amounts of resources in enhancing CFM's (Petersen et al., 2018), indicating return on marketing investment becomes a top priority. This research provides us with a clear understanding of the link between firm investments in these metrics and its effects on firm financial performance. Fourth, we used a unique actual data about different CFM's and firm performance in the short and long terms which reflect the validity of the findings. Thus, our study findings can be compared with future research findings to enhance the future studies quality in this specific research area.

Finally, our study also contributes to the association between NPS and firm performance in various ways. While prior research examined the influence of NPS at a customer level, nevertheless, our research is the first to investigate the link between NPS and firm performance at the firm level. Developing this relationship is crucial, as prior research revealed that NPS is the most widely used predictor of CFM's in the systems of firms' consumer feedback (Chandon et al., 2005).

5.3. Practical implications

The findings of this study provide us with meaningful and valuable insights into the predictive power of different CFM's for business performance across different industries at the firm and industry levels. Therefore, managers of these industries and other industries should acknowledge the significant role of customer feedback metrics in improving firms' performance in the short and long terms. Table 11 demonstrates a summary of the main managerial takeaways from the present research.

The findings reveal customer feedback metrics have a positive impact upon business performance. Our study builds upon this by specifically highlighting which of these CFM's can be applied across control systems within firms in order to boost financial performance both in the short and long term. Five key CFM's are thus positioned (“NPS proportion, NPS value, CES, SAT, and Top-2-Box”) by this study as being able to successfully predict firm performance. Our study also elaborates on the net promoter score; firstly, by not only highlighting how this positively influences variables such as annual sales growth and gross margin, rather it also brings to attention the positive influence this has on Tobin's Q.

Taking into consideration (Brown et al., 2005), observations that

Table 11
Summary of managerial implications.

Strategic decision	Managerial implications from the suggested model
Marketing accountability	Our suggested model enables managers in the selected industries (hotels, airlines, casinos, and restaurants) make investments in programs to build customer feedback metrics more accountable by deriving their contribution to firm performance and business growth.
Investments in programs to build customer feedback metrics	Our suggested model managers evaluate the investment appeal of different relationship building programs by projecting the contribution to profitability of these investments and comparing it with the cost of implementing the program.
Leveraging customer feedback metrics to improve performance	Through the decomposition of the impact of customer feedback metrics on firm performance, firms can identify the extent to which their investments in customer feedback metrics affect performance. This can help them understand the sources of marketing success and promote activities that leverage the impact of customer feedback metrics on firm performance.
Which customer feedback metrics to invest in	An improved understanding of the different impact on performance of different customer feedback metrics may help firms better design their relationship building programs to improve specific aspects or components of the firm performance (e.g., Tobin Q, or sales growth).
Customer selection and resource allocation	The proposed model indicates the need to integrate customer feedback metrics into the customer profitability model to improve customer selection and resource allocation decisions (e.g., customers with higher customer feedback metrics are more responsive to marketing activities and necessitate a lower level of marketing resources).
Managing customer relationships at the individual level and firm level	Our individual-level model enables firms make decisions at the customer-level to improve the relationships with the best customers and maximize each customer's lifetime value. While, it enables firm make decisions at the firm-level to tell which consumer feedback metrics are most suitable for competitive positioning.

consumer recommendations following a purchase yield the most benefits for firms, we add that monitoring performance and setting goals on NPS worthwhile. As such, the empirical findings allow for the development of more effective and robust marketing control systems which ultimately will allow firms with performance enhancing opportunities (Donada et al., 2019).

The findings of this research further highlight the fact that there is no link between CES and the firm performance within sixteen industries. As such, despite enhancing CES scores, there appeared to be no positive impact on firm performance within these sixteen industries. If these findings are to be granted consideration, then, customer satisfaction should not be ignored in sole favour of CES. Firms should refrain from relying on CES as the sole feedback metric, at least where the industry is concerned. In regard to goal setting and performance monitoring, we find that these should be based on a consumer feedback “scorecard” surrounding net promoter score “(NPS) (proportion), NPS value, customer effort score (CES), customer satisfaction (SAT), and Top-2-Box”.

Because of this, businesses can boost certain parts of their customer profitability model by investing in programmes that construct particular CFMs. Firms might, for instance, boost the efficiency of their marketing campaigns by investing in customer satisfaction programmes. Business owners can use our methodology to see how investments in CFMs might affect consumer behaviour and profitability. Companies can learn more about the many channels via which their investments convert into customer profitability by dissecting the full impact of CFMs on profitability into its component parts (behavioural effect, marketing effectiveness effect, and marketing efficiency effect).

We note that larger firms such as multinational corporations are able to derive two-fold benefits where customer feedback metrics are concerned. The first of these relate to the ability to better understand both short and long-term business performance, whilst the second of these benefits includes the application of CFM’s to the customer segmentation process. Multinationals, are encouraged towards better understanding CFM’s and how to achieve high levels of customer feedback and map, assess and evaluate their own efforts in doing so. If so, it becomes possible to refine their own marketing and segmentations efforts as well as their capacity to better understand CFM’s. Doing so would likely yield in higher levels of business performance.

When looking into the differences between industries, “Top-2-Box satisfaction” emerges as the most critical metric when it comes to predicting firm performance. We found this to be true in three industries (online shopping, online booking, and hotels). Customer satisfaction also proved to be useful and accurate in two industries (electronics and fixed telecom), whereas CES was better suited to restaurants. Furthermore, the NPS value was especially useful in the gasoline industry whilst the official NPS proved to be applicable and accurate when focused on holiday parks. Ultimately the analysis reveals that a combination of CFM’s is more appropriate when it comes to improving firm performance and thus should be favoured in place of single metric use. In conclusion we advise and encourage managers and decision makers alike to apply varied CFM’s (Agag and Eid, 2020).

6. Limitations and suggestions for future studies

Our paper has some limitations, which could provide fertile grounds for further studies. First, we investigated the association between CFM’s and firm performance across different industries. Because CFM’s is tied to customer behaviour, future studies should enhance our research by examining the effect of CFM’s on consumer retention. In addition to the consequences of CFM’s (i.e., firm performance), future studies could improve our analyses by integrating data about consumer experiences. Second, as the data is being collected from the ACSI database, which represents the U.S. consumers and economy, it only includes data about large firms. Consequently, future studies could improve our analyses by collecting data about small companies. Third, (it is highlighted that

firms should prioritise their profitable consumer base Rust et al. (2004). As the data is being collected from the ACSI database, which cannot differentiate between consumers and deal with all consumers as equally important. Fourth, we have only limited insights into the industry type. From previous studies, we know that industry type influence customer satisfaction (Shaalan et al., 2022a), which in turn influence firm performance. Therefore, future studies can examine the influence of CFM on firm performance between service and manufacture industries. Finally, future studies can examine other consequences factors, such as consumer lifetime value, consumer profitability, and cross buying (e.g., Agag and Eid, 2020; Shah et al., 2012). Exploring these variables helps managers to understand the influence of CFM’s on the value of their consumer base and how to manage it effectively.

Declaration of competing interest

The author declares that there is no conflict of interest.

Data availability

Data will be made available on request.

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