Omega 39 (2011) 690–701

Contents lists available at ScienceDirect

Omega

journal homepage: www.elsevier.com/locate/omega

An empirical study of transformational leadership, team performance and service quality in retail banks

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ARTICLE INFO

Article history:
Received 18 March 2010
Accepted 1 February 2011
Processed by B. Lev
Available online 23 February 2011

Keywords:
Operations management
Banking
Management
Statistics

ABSTRACT

The discipline of operations management (OM) has long been offering differing quantitative techniques for improving the efficiency of banking operations. However, there has been a trend in recent years that operations and services of the banking industry are becoming more diverse and unstructured, rendering many traditional OM quantitative techniques less effective in performance improvement. By integrating the literature on banking operations, service quality, leadership style and work teams, we argue that leadership style and team performance are crucial concerns determining the service quality performance of today's banking operations in a team setting. Using data collected from 192 employees from 32 operational teams (a leader and five members in each team) in 15 retail banks in Macau, China, we investigated whether the five dimensions of transformational leadership have an impact on team performance with respect to team cohesion, team leader job satisfaction and team competence; and whether the dimensions of team performance have an impact on such service quality dimensions as reliability and responsiveness. We found that one of the dimensions of transformational leadership and two of the dimensions of team performance have a significant impact on service quality. We discuss the implications of the findings for research and practise.

1. Introduction

The literature on operations management (OM) has long been contributing to the successful management of banking operations by offering different practical techniques or approaches to help improve operational efficiency (e.g. [1–4]). The usefulness of OM theories in banking operations is partly due to the fact that banking operations traditionally consist of a large number of processes that are routine and could be specified quantitatively. The quantitative techniques of OM, e.g. modelling, have therefore been very effective in improving the cost and efficiency of such processes. However, banking operations in the past decade have been facing an environment characterised by constant changes [5–8]. For instance, deregulation, fierce global competition and heightened customer expectations have forced banks to create and deliver services of greater variety and complexity, develop tailor-made solutions for customers with distinct needs and improve with emphases on not only cost and efficiency, but also reliability and responsiveness. Further, advances in information and process technologies have simplified or automated most of the traditional processes in banking operations. As a result, on the one hand, the unstructured tasks in the banking operations of today are not conducive to the normative modelling techniques of OM [9]. On the other hand, the current expected outcomes (i.e. tailor-made solutions and quality services) from banking operations may not be effectively achieved by merely improving operational efficiency or cost. Indeed, it can be inferred from the task nature and the required outcomes that operational employees and the teams formed by them, who are responsible for creating and delivering a service, should be an important determinant of the performance of today's banking operations. Nonetheless, there has been surprisingly little OM research on the theories or approaches that may have significant influences on the performance of banking operational employees or teams. In this study we argue that transformational leadership could be an effective approach to influence employee behaviours in operational teams in banks, thereby enhancing banks' performance.

The concept of leadership is not new for OM researchers because the importance of quality leadership is often emphasised in different quality management theories [10]. Yet transformational leadership is different from the quality leadership concept in OM literature in that it defines leadership in terms of the style or personality of leaders rather than by function. Its central tenet is that transformational leaders can create an impression that they have high competence and visions to achieve success. Subordinates in turn respond with enthusiasm and commitment

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doi:10.1016/j.omega.2011.02.001

to the team's objectives [11]. Transformational leaders are able to do this by behaving in charismatic ways to cause subordinates to identify with them, articulating ambitious goals, stimulating subordinates to think creatively and challenge the status quo, and showing concern for the needs of subordinates as individuals [12]. Numerous studies have found transformational leadership to be positively associated with followers' attitudes, motivation, and individual, group and organisational performance [13]. Yet less attention has been given to explore the performance impact of transformational leadership for operational employees and in teams within banking environments. In addition, insights on whether or not the effectiveness of the various dimensions of transformational leadership is different are virtually unavailable in the literature. Further, some researchers have argued that the literature on transformational leadership has generally focused on dyadic leader–subordinate scenarios and called for greater attention to team-based studies [14]. Consequently, this study focuses on examining the effectiveness of transformational leadership dimensions in enhancing the performance of operational banking teams.

The jobs of operational banking teams in general are to provide services to internal or external customers. Therefore, one crucial performance outcome of operational banking teams should be service quality, which is widely touted as a critical prerequisite for satisfying and retaining valued customers [15]. Indeed, a number of researchers have offered empirical evidence to indicate the positive effects of service quality on customer loyalty, demand responsiveness, productivity and market share (e.g. [16–20]). In this exploratory study, we selected two relevant service quality dimensions, namely reliability and responsiveness, to reflect the performance of operational banking teams. However, many frameworks of quality management assert that leadership and quality performance are not directly related but are mediated by such factors as people results, and learning and teamwork (e.g. [21]). Within the context of operational banking teams, one key mediating factor between leadership style and service quality performance is likely to be the performance of the team. In order to obtain more detailed insights on the mediating role of team performance, we employed three commonly used team performance indicators namely team cohesion, team leader job satisfaction and team competence, to reflect the performance of the sample teams in this study (e.g. [22–25]). Consequently, the purpose of this study is to explore whether the dimensions of transformational leadership have a direct impact on team performance with respect to team cohesion, team leader job satisfaction and team competence, as well as an indirect impact on the service quality dimensions of reliability and responsiveness through the three dimensions of team performance in operational banking teams. Overall, we make two key contributions in this study. First, we offer a unique integration of three distinct domains of the management literature, namely banking operations, transformational leadership and quality management. Second, we provide leaders of operational banking teams with practical insights on how to better manage their team performance and service quality.

2. Literature review

2.1. Banking operations and leadership

Forces such as globalisation, technological change, deregulation and growing competition have brought evolutionary changes in the banking industry. More specifically, deregulation in some countries, e.g. the U.S., has allowed banks to expand into neighbouring cities, states or provinces to offer financial products and services that were previously reserved for non-bank financial institutions, and to set deposit interest rates according to market forces. In response to growing competition, banks have diversified into non-interest earning activities such as insurance and mutual fund sales, private banking and asset management. At the same time, non-bank institutions such as supermarkets, post offices and telecommunications firms now compete in the financial services market. In addition, advances in information and process technologies have dramatically altered banking operations by automating many activities such as assessing the creditworthiness of loan customers, serving deposit customers, processing payments and many of those daily routine operations [6,7]. Indeed, changes occurred not only in operational activities, but also strategic issues. DeYoung [8] commented that the business strategies of banks were relatively homogeneous prior to the 1990s. However, he further argued that the industry recently has become more diverse in that distinct business strategies based on differences in product mix, location, production techniques and other characteristics across organisations are pursued by different banks. These recent operational and strategic changes in banks necessitate a re-examination of the theories that are effective for banks to achieve superior performance under today's environments.

Since the traditional tasks and processes involved in banking operations are generally routine and repetitive, they fulfil exactly the requirements for the application of many quantitative OM techniques. Indeed, many OM researchers consider banking operations as a relevant research context and have been successful in developing approaches that are effective for banks to improve their operational efficiency (e.g. [1–4]). Nonetheless, while much of the extant OM literature on banking operations mainly focus on achieving traditional OM outcomes such as cost and efficiency, many researchers from the perspective of service management have contended that the success of today's service organisations relies on excellence in broader dimensions including reliability, responsiveness, assurance, tangibles and empathy [26]. As discussed earlier, many of the operational banking processes have been automated and banking products and services in general are either custom-made or highly diverse, making the tasks of current banking operations unstructured and complicated. Together with heightening customer expectations of product knowledge and service quality in various dimensions, the normative modelling techniques of OM may no longer be adequate for banking managers to manage their operations. Instead of focusing on the operations processes, banking operations managers and researchers may need to explore approaches that are effective in influencing employees to perform unstructured and complicated tasks well. Consequently, we argue that leadership, which pertains primarily to the styles and skills in influencing the behaviours of followers, should be a critical concern for banking operations. Leadership in organisations has long been a very important research area in the management literature, producing a rich array of theories and empirical findings (e.g. [14,27,28]). Indeed, these theories and studies have revealed that leadership styles can have significant impacts on performance outcomes in different cultures and organisational settings, including financial institutes in the Asian context (e.g. [29,30]).

2.2. Transformational leadership and team performance

One of the most influential leadership theories in the management literature, transformational leadership is theorised to enhance organisational or term performance through motivating employees to transcend individual goals for the sake of the team

or organisation [12]. Transformational leaders articulate a clear vision, bond individual and collective interests [31], and support followers in working towards the goals, such as by acting as a role model, stimulating them to engage in analysis, showing concern for them as individuals and encouraging teamwork [32]. Transformational leadership is conceptualised to comprise the following five dimensions: (a) *idealised influence* (*attributed*) (*IIA*) refers to the socialised charisma of the leader, whether the leader is perceived as being confident and powerful and whether the leader is viewed as focusing on higher-order ideals and ethics; (b) *idealised influence* (*behaviour*) (*IIB*) refers to charismatic actions of the leader that are centred on values, beliefs and a sense of mission; (c) *intellectual stimulation* (*IS*) entails the degree to which the leader challenges assumptions, takes risks and solicits followers' ideas; (d) *inspirational motivation* (*IM*) refers to the ways leaders energise their followers by viewing the future with optimism, stressing ambitious goals, projecting an idealised vision and communicating to followers that the vision is achievable; (e) *individualised consideration* (*IC*) involves leaders paying attention to each follower's needs and wants by mentoring, supporting, encouraging and coaching followers to use their competence [12]. Within the management literature, the influences of transformational leadership on different performance outcomes have been well documented. For instance, transformational leadership has been found to be positively associated with follower motivation, individual self-rated performance and financial performance (e.g. [14,33–35]). However, the extant literature on transformational leadership focuses primarily on its effectiveness among higher ranking executives or within top management teams (e.g. [36–39]). There is also empirical evidence to indicate that industry should be a contextual factor affecting the effectiveness of transformational leadership (e.g. [34]). Indeed, the classic contingency leadership model [40] and some recent work on transformational leadership (e.g. [41,42]) also contend that the effectiveness of a leadership style is dependent on the context. In line with these ideas on the role of context in leadership effectiveness, we argue that transformational leadership is unlikely to be equally effective under all circumstances. Nonetheless, the effectiveness of transformational leadership among operational level employees in the banking industry has received very limited attention in the literature. Together with the understanding that transformational leadership consists of five dimensions, there are two research questions to be addressed, first, whether transformational leadership is effective in the context of operational teams in banks; and second, whether the five dimensions of transformational leadership impact on team performance differently.

In this study we argue that if transformational leadership is effective in banking operations, it is likely to first impact on team performance, which in turn impacts on the service quality performance of the team. Teams in the management literature typically refer to a group of employees in an organisation that combine different skills and talents to work towards a common purpose or goal. It has long been considered a key concept in the literature of organisational studies or applied psychology (e.g. [43,44]). Within the literature of OM, teamwork is often suggested as one of the key concepts in practices including Total Quality Management and Just-in-Time (e.g. [45]). With regard to teams in service settings, recent studies have shown that an increasing number of organisations have organised their service delivery processes around teams (e.g. [43]). Indeed, many studies have offered evidence that teams provide the means for a coordinated effort that can improve internal and external service delivery and in turn customer satisfaction (e.g. [46]). However, despite the presence of evidence on the importance of using a team approach in service organisations, studies exploring the use of teams in banking operations are very limited. Further, as discussed earlier, although transformational leadership could have positive performance impacts on different organisations, the literature remains unclear on the relationship between transformational leadership and team performance in banking operations. To our best knowledge, only one study has investigated the effectiveness of transformational leadership in operational banking teams. Schaubroeck et al. [29] examined how transformational leadership influences team performance through the mediating effect of team potency using data from 218 financial service teams of a multinational bank. Nonetheless, two improvement areas can be identified in this work. First, its data were collected from employees of a single bank. Second, all employees were those working in different branches of the bank. Indeed, some researchers have contended with empirical evidence that the attitudes of bank employees in branches and those in general offices are significantly different [47]. These two potential limitations imply that the findings may not be generalised to different banks or to teams in banks' headquarters. Consequently, we argue that in order to provide more accurate insights on the association between transformational leadership and team performance in banking operations, it is necessary that we conduct a study based on data from operational teams of different functions and of different banks.

When evaluating team performance, it is important to note that it is a multi-dimensional construct that can be reflected by a number of dimensions [44]. In order to obtain more precise insights on the association between transformational leadership and team performance, we examined three dimensions of team performance in this study. The first dimension is *team cohesion*, which refers to an affective, psychological state that reflects the shared commitment, attraction and team pride that emerges from the experiences and interactions among team members [48]. It is widely recognised as an important indicator of team-level processes with implications for teamwork processes and outcomes [49]. The second team performance dimension is *team leader job satisfaction*, which refers to the team leader's satisfaction levels towards team members and his/her own job [50]. Employee job satisfaction is widely recognised as a valid predictor of organisational performance [51]. Within a team setting, the job satisfaction of the leader is likely to be even more important than that of the team members because the leader of a team is the most influential member who motivates every other member to perform better. The third team performance dimension is *team competence*, which refers to the performance of the team in a number of areas such as knowledge of tasks, quality of work, initiative and planning skills, etc. [25]. Although these three performance dimensions have been employed as indicators to reflect team performance or leadership effectiveness by a number of studies in the literature (e.g. [22–24]), their associations with the dimensions of transformational leadership have been subjected to very little empirical testing. Further, since *team competence* can be considered as a construct concerning the overall performance of a team, we postulate that it is likely to be affected by the other two team performance dimensions, namely *team cohesion* and *team leader job satisfaction*. Consequently, we hypothesise:

Hypothesis H1. The five dimensions of transformational leadership, namely (a) idealised influence (attributed), (b) idealised influence (behaviour), (c) intellectual stimulation, (d) inspirational motivation, and (e) individualised consideration, are positively associated with team cohesion.

Hypothesis H2. The five dimensions of transformational leadership, namely (a) idealised influence (attributed), (b) idealised

influence (behaviour), (c) intellectual stimulation, (d) inspirational motivation, and (e) individualised consideration, are positively associated with team leader job satisfaction.

Hypothesis H3. The five dimensions of transformational leadership, namely (a) idealised influence (attributed), (b) idealised influence (behaviour), (c) intellectual stimulation, (d) inspirational motivation, and (e) individualised consideration, team cohesion and team leader job satisfaction are positively associated with team competence.

2.3. Team performance and service quality

Operational banking teams provide services to their internal or external customers. If transformational leadership is effective in operational banking teams, it should have positive performance impacts on the service quality provided by the teams. Within the literature of OM, Roth and Jackson [52] offered empirical evidence on the relationship between service quality and operations capabilities in banks. Some other researchers have examined service quality with data from banks (e.g. [18,20,53]). We, however, are not aware of any research linking service quality to leadership style in this context. Nonetheless, the quality management literature offers insights on the association between leadership and quality performance. Many quality management frameworks, e.g. the European Quality Awards [21], indicate that leadership and quality performance are not directly related but mediated by factors such as people and people results. When considering from the perspective of operational banking teams, it is logical to infer that transformational leadership influences service quality through team performance as the mediator. Although the performance of service teams has been explored by a number of researchers (e.g. [43,54]), how work team performance leads to quality performance within the context of banking industry is still unexplored. Indeed, the meta-analysis of Joshi and Roh [55] indicates that industry is one of the major contextual factors which affect work team performance. Taking also the hypotheses H1–H3 developed above into consideration, we intend to examine if transformational leadership influences team performance, which in turn influences service quality in operational banking teams.

In regard to the measurement of service quality, one of the most prominent frameworks is SERVQUAL, which is constituted by five dimensions, namely reliability, responsiveness, tangibles, assurance and empathy [26]. Indeed, the success of the use of SERVQUAL in different settings around the world has been well documented in the literature (e.g. [53,56]). Yet one major shortcoming of SERVQUAL is that it was primarily developed for measuring service quality in the business-to-customer context [57], meaning that some of its dimensions may be less relevant when services are provided to internal customers. Note that many operational banking teams may focus on serving internal customers (i.e. colleagues or other teams of the same bank). Among the five dimensions of SERVQUAL, *tangibles* are concerned with the appearance of physical facilities or personnel and *empathy* is concerned with the care and individualised attention to customers. Obviously, these two dimensions are not relevant to the services for internal customers. With respect to *assurance*, it is related to whether the knowledge and courtesy of employees can convey trust and confidence in customers. While the ideas described in *assurance* are important, this dimension is likely to be more concerned with perceptions about the service providers rather than the quality level of the services provided. Thus, this is unlikely to be a very relevant dimension. Finally, *reliability*, which is the extent that the promised services are provided dependably and accurately, and *responsiveness*, which is

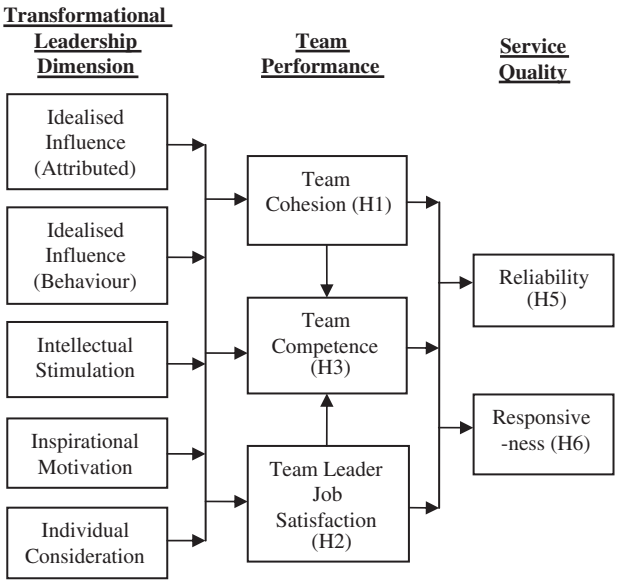

Fig. 1. The conceptual model.

the extent that customers are helped and served promptly, are likely to be very relevant to banking teams which have to serve either internal or external customers. Indeed, participants of the pilot study of this research also agreed that *reliability* and *responsiveness* are the most relevant quality dimensions to their particular work environments. Despite the relevancy of *reliability* and *responsiveness*, how they are influenced by transformational leadership through team performance remains unclear in the literature. Taken together with the hypotheses H1–H3 developed above into consideration, the direct associations between team performance and service quality need to be tested. When testing these direct relationships, more detailed insights can be obtained by employing the different dimensions of team performance and service quality in the analysis. Consequently, we posit the following hypotheses to be tested:

Hypothesis H4. Team cohesion, team leader job satisfaction and team competence are positively associated with reliability.

Hypothesis H5. Team cohesion, team leader job satisfaction and team competence are positively associated with responsiveness.

A conceptual model that summarises the hypotheses postulated above is given in Fig. 1. In short, the model shows that the five dimensions of transformational leadership have a direct impact on team performance with respect to team cohesion, team leadership job satisfaction and team competence, as well as an indirect impact on the service quality dimensions of reliability and responsiveness through the three dimensions of team performance. In addition, team competence is also affected by team cohesion and team leadership job satisfaction directly.

3. Methods

3.1. Sample and procedures

Participants of this study were 192 employees from 32 operational teams (i.e. one leader and five members in each team) in 15 different retail banks of Macau (Macau), China. Macau, a Special Administrative Region of the People's Republic of China (PRC), is a relatively small economy which pursues an open economic policy. It is one of the two international free ports in China. Goods, capital, foreign exchange and people flow freely in and out of

Macau, which is integrated with the world economy and maintains economic ties with the European Union (EU) and Portuguese-speaking countries. Partly because of the rapid economic growth in China, Macau's gross domestic product (GDP) has grown remarkably in recent years, e.g. the growth was 27.3% in 2007. The economy of Macau is dominated by service businesses in that it is based largely on gaming and tourism. While Macau's economy is undoubtedly dominated by gaming and tourism industries, the financial sector plays an important role in facilitating investment and long-term economic growth, which currently accounts for about 8% of the local GDP [58]. Among the 28 banks which are authorised to operate in Macau, 12 are locally incorporated, and the other 16 are branches and subsidiaries of overseas banks [59]. Consequently, the findings of this study will be particularly relevant for the banking industry of economies or regions that are dominated by service businesses and undergoing rapid economic development.

Members of the Youth Committee of Macau Chamber of Commerce [60] who worked in different retail banks of Macau were considered as the initial sample frame and were contacted to participate in this study. Members of this committee in general are middle managers or executives of different sizable business organisations in Macau. Thus, with the banking practitioner members of the committee as the initial sample frame, we could ensure that the context of this study is the operational teams of retail banks in Macau. Around 60 qualified members of the Youth Committee of Macau Chamber of Commerce were contacted and the background, relevance and method of the study were explained to them. After introduction, 32 of them agreed to participate in this project as key informants. These 32 key informants worked in 15 different retail banks in Macau (54% bank participation rate). Each informant was provided with clear instructions on the definition of work teams and procedures for questionnaire distribution, one questionnaire envelope for the team leader and five questionnaire envelopes for five randomly selected team members. Note that the key informant may or may not be the team leader. Each envelope included an introductory letter from one of the researchers of this study to explain the background of the study, the confidentiality of the data collected, the questionnaire and a self-addressed stamped envelope. To increase the response rate, three waves of reminder cards or telephone calls were sent to non-respondents through the key informants 20, 30 and 40 days after the questionnaire envelopes were distributed. At the end of the survey, we received 192 usable questionnaires. Among them, 32 were completed by team leaders and 160 by members of the 32 teams (i.e. one leader and five member responses in each team). The use of five responses from a team is consistent with the leadership study of Schaubroeck et al. [29].

Non-response bias was tested by checking the differences in the responses between the early respondents and late respondents [61]. No significant differences ($p > 0.05$) were found in the datasets of both leaders and members, suggesting non-response bias was not a problem in the data. In regard to common method bias, its potential impact was reduced by collecting data from two sources, namely team leaders and members. Team leaders rated the team performance and service quality of the team, whereas members rated the leader's leadership behaviours. In addition, Harman's single-factor test [62] was performed. The analysis conducted in the dataset of team leaders ($n=32$) indicates that the factors extracted in total accounted for 74.8% of the variance, with the largest accounting for 20.71% of the variance; whereas the values of the same analysis conducted in the dataset of team members ($n=160$) were 56.13% and 23.93, respectively. Since no single factor dominated the variances in both datasets, the likelihood of common method bias was low. Finally, skewness or kurtosis values were computed to test normality. Of the 44 items in our study, only the data of three of them had a skewness or kurtosis value slightly larger than $|2.0|$, the limit that signifies psychometric or statistical trouble. The results imply that the data of this study in general were not significantly different from normal.

The respondents of the survey were employees of 15 different retail banks in Macau. The data indicate that of the 15 banks, five of them were international banks, two of them were banks based on the Chinese mainland, three of them were banks based in Hong Kong and five were local banks. The analysis results of One-Way ANOVA indicate that there were no significant differences ($p > 0.01$) in the data on transformational leadership, age, gender, education, or tenure of the respondents among the four categories of banks. Sample teams were working in different functional departments, including deposit-taking, administration, loan, accounting, treasury, audit and branch operations. Also, an analysis on a number of respondent characteristics including sex, age, educational level, team size, and job tenure indicates that the respondents' profiles are consistent with the norm of the industry.

3.2. Measures

The original questionnaire was prepared in English. However, since the conventional language of general employees in Macau's retail banks is Chinese, the English version of the questionnaire underwent the translation-back-translation procedure [63,64]. A pilot test was then conducted with 14 respondents. Of the 14 respondents, 5 were team leaders who focused on items related to team performance and service quality. The rest of the respondents were team members who focused on items related to transformational leadership. Based on the comments collected, some modifications were made to simplify the Chinese wording in the questionnaire. In addition, before conducting the pilot test, we discussed with the 14 respondents about which of the dimensions of SERVQUAL are most applicable to retail banks' daily operations in Macau. Most respondents agreed that reliability and responsiveness were most relevant to their operations.

3.2.1. Team member measures

Transformational leadership. We employed the Multifactor Leadership Questionnaire (MLQ) Form 5X-Short [65] to measure the five dimensions of transformational leadership. Each dimension of the leadership is measured with four items on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items include "Talks about their most important values and beliefs" and "Helps me develop my strengths." In the instructions, we asked participants to evaluate their team leader according to their interactions in the daily operations of the team. By averaging the scores of the five members of a team, we obtained the scores of the team leader in the five dimensions of transformational leadership. Note that in order to maintain the integrity of MLQ, we not only employed the items on transformational leadership but also used the original version of MLQ in the survey, meaning that the items on transactional leadership and laissez-faire, and the original order of the items were shown on the questionnaire.

3.2.2. Team leader measures

Team leaders focused on assessing performance-related constructs including *team cohesion, team leader job satisfaction, team competence, reliability,* and *responsiveness*. The construct items and their sources are presented in Appendix.

Table 1
Goodness-of-fit indices of the structural model analyses.

Fit measure	IIA	IIB	IM	IS	IC	Criteria (Hair et al. [68])
Absolute fit						
Chi-square value (χ^2)	2.859	5.175	3.918	1.126	3.976	
Degrees of freedom (d.f.)	2	2	2	2	2	
Significance of χ^2	0.239	0.075	0.141	0.569	0.137	≥ 0.05
Chi-square/Degrees of freedom (χ^2/d.f.)	1.430	2.588	1.959	0.563	1.988	≤ 3.0
GFI	0.991	0.984	0.987	0.997	0.988	≥ 0.90
RMSR (RMR in Amos)	0.016	0.025	0.023	0.009	0.022	≤ 0.10
Incremental fit						
NFI	0.983	0.929	0.952	0.990	0.961	≥ 0.90
CFI	0.995	0.953	0.975	0.998	0.979	≥ 0.90
AGFI	0.957	0.921	0.937	0.983	0.941	≥ 0.90

3.2.3. Control variables

Prior team based studies suggest that team size and team leader's tenure (in number of years) may impact leader behaviours and team performance (e.g. [27,29]). Consequently, team size and team leader tenure were included as control variables to partial out their potential influences in hypothesis testing.

4. Results

4.1. Reliability and validity analysis

Our survey resulted in two initial datasets. The first dataset included 160 responses from team members with items pertinent to the five dimensions of transformational leadership. The second dataset included 32 responses from team leaders with items concerning team performance (i.e. *team cohesiveness, team leader job satisfaction* and *team competence*), service quality (i.e. *reliability* and *responsiveness*) and control variables (i.e. team size and the leader's tenure with the bank). The reliability (internal consistency) of all the items was tested using Cronbach's Alpha (e.g. [66]). The analysis results indicate that except for three of the dimensions of transformational leadership, namely *idealised influence* (*behaviour*) (0.618), *inspirational motivation* (0.645), and *individual consideration* (0.681), all the constructs exceeded the 0.7 level [67]. Considering the exploratory nature of the current study, the constructs with alpha values in a marginally lower boundary (0.6–0.7) can be considered acceptable. Besides, since all the items were developed in a systematic manner and had been reviewed and commented by several banking practitioners at the piloting stage, the content validity of the items can be deemed acceptable. Since the two datasets were of different sample sizes, they were next subjected to different validity tests.

4.1.1. Validity analysis—team member measures

These were the items for measuring the five dimensions of transformational leadership from 160 team members. We used AMOS to conduct a confirmatory factor analysis (CFA) of the five leadership dimensions. The results presented in Table 1 indicate that the fit index values for the five measurement models met the criteria for both absolute fit (i.e. significance of $\chi^2 \geq 0.05$, χ^2/d.f. ≤ 3.0, GFI [Goodness-Of-Fit Index] ≥ 0.90 and RMSR [Root Mean Square Residual] ≤ 0.10) and incremental fit (i.e. NFI [Normed Fit Index], CFI [Comparative Fit Index] and AGFI [Adjusted Goodness-Of-Fit Index] ≥ 0.90) [68]. Note that absolute fit indices evaluate the level which the amount of observed variance–covariance information in the data that can be accounted for by the proposed model, whereas incremental fit indices compare the data-model fit of the proposed model relative to that of a baseline model which is a single-factor model without measurement errors [69].[1] In short, the results here suggest that all the five models had a satisfactory fit and that all of the items are valid in reflecting their corresponding constructs.

In regard to convergent validity, we assessed the significance of item loadings, construct (composite) reliability and variance extracted. The CFA results indicate that all the items were significantly loaded to their constructs with a significance level (p) of 0.01 or lower. Further, our analysis results indicate that the construct (composite) reliability ranged from 0.62 to 0.78, with an average of 0.69, and the variance extracted ranged from 0.30 to 0.47, with an average of 0.37. However, to indicate adequate convergent validity, the value of the construct (composite) reliability should exceed 0.70, and the variance extracted should exceed 0.50 [68], implying the analysis results were not satisfactory. Finally, discriminant validity was assessed by fixing the correlation between various constructs to 1.0 and re-running the analysis on the constrained model [70]. The results of the CFA analysis for the unconstrained model nonetheless indicate that the estimation could not be performed because the covariance matrix among the variables was not positive definite. As a consequence, the solution was considered to be inadmissible. According to Byrne [71], the formulation of a non-positive definite matrix is likely to be caused by highly correlated variables in the analysis. A close examination of the correlations between variables in the model (see Table 2) reveals that of the five dimensions of transformational leadership, *individual consideration* is highly correlated with *idealised influence* (*attributed*) and *inspirational motivation*. In order to address this problem, we divided the items of the five dimensions in two models, thereby analysing the items of highly correlated constructs separately. The first model assessed items of *idealised influence* (*attributed*), *inspirational motivation* and *intellectual stimulation*. After constraining the correlations between the constructs of this model to 1, the chi-square value increased by 93.975, for an increase of three degrees of freedom. The difference in the chi-square statistics was significant at $p=0.005$ level ($\chi^2 > 12.383$). The second model assessed the items of the other two dimensions of transformational leadership. The results indicate that the chi-square value increased by 80.132, for an increase of one degree of freedom. Thus, the difference in the chi-square statistics was significant at $p=0.005$ level ($\chi^2 > 12.383$). Therefore, after dividing the items of the five dimensions of transformational leadership into two separate models, the results indicate that discriminant validity was supported. Overall, the index values of the CFA analysis indicate that the items of transformational leadership can reflect their respective dimensions. Yet results on convergent and discriminant validity were somewhat unsatisfactory. This finding,

[1] The descriptions and formulas of the different fit indexes can be obtained from the corresponding author.

Table 2
Construct means, standard deviations, and correlations at the team level ($N=32$).

	M	SD	1	2	3	4	5	6	7	8	9
1. Idealised influence (attributed)	3.270	0.398									
2. Idealised influence (behaviour)	3.319	0.315	0.704**								
3. Intellectual stimulation	3.245	0.480	0.19	0							
4. Inspirational motivation	3.191	0.343	0.765**	0.774**	−0.017						
5. Individual consideration	3.258	0.398	0.857**	0.620**	0.119	0.840**					
6. Team cohesion	3.713	0.487	0.018	0.066	0.483**	0.018	0.072				
7. Team leader job satisfaction	3.539	0.713	−0.188	−0.064	0.473**	−0.152	−0.214	0.735**			
8. Team competence	3.472	0.526	−0.014	0.119	0.572**	−0.018	0.022	0.627**	0.630**		
9. Reliability	3.734	0.615	−0.224	−0.127	0.602**	−0.194	−0.157	0.625**	0.750**	0.699**	
10. Responsiveness	3.867	0.612	−0.118	0.003	0.389*	−0.054	0.009	0.506**	0.525**	0.541**	0.824**

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

however, is consistent with prior studies on transformational leadership in that dimensions of transformational leadership show strong correlations (e.g. [23]) and fail to show satisfactory validity results (e.g. [72]). Indeed, the unsatisfactory results are not surprising as the dimensions are leader behaviours that are largely affected by the intrinsic style and personality of the leader. As a consequence, after considering all the validity test results and those of prior studies, the items of transformational leadership can be deemed as acceptable.

4.1.2. Validity analysis—team leader measures

These were the items for measuring team cohesiveness, team leader job satisfaction, team competence, reliability and responsiveness; and the respondents were 32 team leaders. Because of the limited sample size, more rigorous validity test methods such as exploratory factor analysis or confirmation factor analysis are not suitable. Therefore, we focused on assessing the criterion validity of the items. As suggested by hypotheses H4 and H5, team cohesion, team leader job satisfaction and team competence were posited as predictors for reliability and responsiveness. An examination of the correlation coefficients between the constructs (see Table 2) indicates that all the correlations were statistically significant ($p<0.01$), implying the presence of strong criterion validity.

However, since the data of this study were measured by using five-point Likert items, the statistics (i.e., means, SDs, and correlations) presented in Table 2 have to be interpreted with caution. While a typical Likert item involves the use of a set of ordered categories to measure the response to a statement, researchers have mixed views on whether Likert scale data should be considered as interval-level data or ordered-categorical data. One camp maintains that since Likert scale data are measured by ordered categories, any mean, correlation, or other parametric statistic applied to them is invalid (e.g. [73]). The other camp maintains that when certain assumptions about skewness, number of categories, etc., are met, the use of parametric statistics is acceptable in many situations (e.g. [74]). In this study we have no intent to argue whether Likert scale data are interval-level data or ordered-categorical data. Yet to allow the data statistics and analysis results of this study to be comparable with those in the literature, we followed prior work on transformational leadership (e.g. [14,29]), team performance (e.g. [23,25]) and service quality (e.g. [18,20]) to employ parametric statistics to analyse the data and test our hypotheses.

4.2. Justification for team-level aggregation

In order to test the hypotheses of this study, we followed the literature concerning team performance (e.g. [25,29]) to aggregate member-level data to the team level. Before doing this, we accessed three measures of intergroup agreement. The first measure is interrater agreement score, r_{wg}. The average r_{wg} scores of all the five leadership dimensions (ranging from 0.92 to 0.94) exceeded 0.70, demonstrating a high level of agreement among different members within teams [75]. The other two measures are intraclass correlations ICC [1] and ICC [2] which test the convergence within teams [76,77]. Our analyses show that the range of values of ICC [1] was 0.17–0.33, with the F-test for the analysis of variance significant at least at the 0.05 level. The results indicate that data aggregation to the team level was appropriate [78]. The range of ICC [2] was 0.50–0.71, indicating support for data aggregation [77]. In short, the results of these three measures justify data aggregation from member-level data to team-level for the five dimensions of transformational leadership. Subsequently, the team-level data of transformational leadership were incorporated with the data from team leaders to form the final dataset for hypothesis testing. Table 2 shows the means, standard deviations and correlations among all the variables in the study at the team level ($N=32$).

4.3. Hypothesis tests

We examined the proposed hypotheses and the conceptual model of this study by using a path analytic model analysis (a.k.a. path analysis). This technique is a multivariate analytical method for empirically examining sets of hypotheses represented in the form of a conceptual model [79]. The other commonly used method for testing the conceptual model is structural equation modelling (SEM). Although SEM is widely considered as a more rigorous method, it is mainly suitable for simple and well-defined models with less than 20 items [10]. The current study is exploratory in nature with a sizable proposed model where there are ten constructs and 44 items used for the measurement, meaning that SEM is not a suitable analysis technique. As a result, a path analytic model analysis was employed to test the hypotheses and the proposed model of this study.

The first step to test a path model is model testing [10]. In order to test the posited relationships depicted in the model, one multiple regression analysis is needed for each dependent variable in the model. When interpreting the results, the coefficient of determination (R^2) measures the proportion of the variance of a dependent variable explained by a set of independent variables. A standardised partial correlation coefficient, which represents the path coefficient (P), measures the strength of the relationship between a dependent and a predictor variable. A posited path with a significance level of 0.05 would be retained in the model. Further, the variance inflation factor (VIF) was examined in order to assess the level of multicollinearity in the regression

Table 3
Hypothesis test results.

Hypothesis	Dependent variable	F	Probability	R^2	VIF	Independent variable	P	t	p-value
Hypothesis 1	Team cohesion	9.718	0.004	0.251	1.029	Idealised influence (attributed)	−0.037	−0.224	0.824
					1.000	Idealised influence (behaviour)	0.098	0.605	0.550
					1.000	Intellectual stimulation	0.501	3.117	0.004
					1.001	Inspirational motivation	0.058	0.353	0.727
					1.012	Individual consideration	0.032	0.197	0.845
Hypothesis 2	Team leader job satisfaction	9.316	0.005	0.243	1.029	Idealised influence (attributed)	−0.253	−1.585	0.124
					1.000	Idealised influence (behaviour)	−0.033	−0.200	0.843
					1.000	Intellectual stimulation	0.493	3.052	0.005
					1.001	Inspirational motivation	−0.115	−0.704	0.487
					1.012	Individual consideration	−0.259	−1.638	0.113
Hypothesis 4	Reliability	25.280	0.000	0.644	2.380	Team cohesion	0.026	0.147	0.884
					1.647	Team leader job satisfaction	0.509	3.515	0.002
					1.647	Team competence	0.378	2.613	0.014

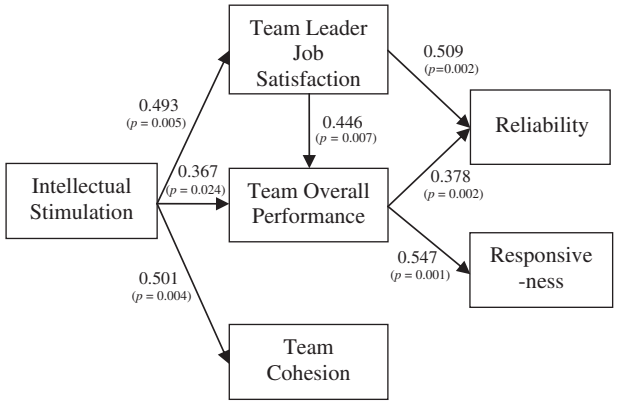

Fig. 2. The resultant path model.

analyses. A common criterion was that the VIF values of dependent variables should be less than 10 [68].

The regression results for testing hypothesis H1 indicate that of the five dimensions of transformational leadership only *IS* is significantly related to *team cohesion*. The regression for testing hypothesis H2 shows similar results by indicating that *IS* is the only leadership dimension that is significantly related to *team leader job satisfaction*. In the regression for testing hypotheses H3, the results indicate that only *IS* and *team leadership job satisfaction* are significantly related to *team competence*. Hypothesis H4 received relatively stronger statistical support because, of the three posited relationships, two of them were significant, i.e. *team leader job satisfaction* and *team competence* are significantly related to *reliability*. The test for hypothesis H5 indicates that only *team competence* is significantly related to *responsiveness*. The R^2 of all the regression models analysed ranged from 0.243 to 0.664, indicating strong explanatory power in the models. The VIFs of variables in all the regression models analysed were not greater than 2.38, providing solid evidence against multicollinearity. Overall, the results indicate that all the hypotheses were partly supported. Due to space limitations, only the test results for hypotheses H1, H2 and H4 are shown as examples in Table 3. Fig. 2 is the resultant path model of this study, where insignificant paths were removed and significant path coefficients and their significance (p) are shown.

The next step in a path analysis is path decomposition from which the effects of one variable on the others are decomposed into three components of direct effects, indirect effects and spurious (unexplained) effects [10,80]. The adequacy of a path model in reflecting the reality can be assessed by examining the discrepancies between the empirical correlation of two constructs and the corresponding sum of effects. Asher [80] suggested that a difference between the sum of effects and empirical correlation smaller than 0.1 implies the model is an acceptable one. Table 4 reports the results of path decomposition for the resultant path model of this study. The results indicate that by dividing the total of the "Absolute Difference" (i.e. 0.930) by the number of the "Absolute Difference" (i.e. 10), the average absolute difference was 0.093, indicating that the resultant model can be deemed acceptable.

5. Discussion and conclusions

In this study we integrated the literature on transformational leadership, banking operations and service quality by testing hypotheses on how the different dimensions of transformational leadership influence team performance with respect to team cohesion, team leader job satisfaction and team competence, and how these dimensions of team performance in turn influence the service quality dimensions of reliability and responsiveness in operational banking teams. A distinguishing feature of the present study is that we paid special attention to the study design to ensure the rigour of the study. For instance, the behaviours of the leader of each team were rated by five randomly selected members of the team, and measures including interrater agreement coefficient and intraclass correlations were computed before aggregating data from team members to form a "team-level" dataset. Further, performance variables were rated by team leaders because the leaders should be the most knowledgeable team member in this respect. Thus, the data of this study should be able to accurately reflect the leadership style and performance of the sample teams. In addition, the teams examined in the study were real operational teams of different functions from 15 different retail banks in Macau, China. Thus, despite the relatively small sample size, the findings of this study can be generalised to operational teams of different banks and banking functions.

Before examining the analysis results, it is important to note that one special characteristic of the sample teams of this study is that the teams operate under an extraordinarily fast-changing environment. While businesses today in general operate under a fast-changing environment, it is rare that there is an industry which is directly impacted by a wide range of environmental changes such as the global financial market crisis, the rapid economic development of China, internationalisation and globalisation of financial services, changing consumer needs, increasing competition between financial institutions, and constant advances in

Table 4
Path decomposition results.

Dependent variable	Independent variable	(1) Direct effect	(2) Indirect effect	(3) Total effect (1)+(2)	(4) Spurious effect	(5) Sum of paths (3)+(4)	(6) Implied correlation	(7) Absolute difference |(5)−(6)|
Reliability	Intellectual stimulation	0.000	0.473	0.473	0.000	0.473	0.602	0.129
	Team leader job satisfaction	0.509	0.000	0.509	0.068	0.577	0.750	0.173
	Team competence	0.378	0.000	0.378	0.005	0.383	0.699	0.316
Responsiveness	Intellectual stimulation	0.000	0.321	0.321	0.000	0.321	0.389	0.068
	Team leader job satisfaction	0.000	0.244	0.244	0.099	0.343	0.525	0.182
	Team competence	0.547	0.000	0.547	0.000	0.547	0.541	0.006
Team competence	Intellectual stimulation	0.367	0.220	0.587	0.000	0.587	0.572	0.015
	Team Leader Job Satisfaction	0.446	0.000	0.446	0.181	0.627	0.630	0.003
Team leader job satisfaction	Intellectual stimulation	0.493	0.000	0.493	0.000	0.493	0.473	0.020
Team cohesion	Intellectual stimulation	0.501	0.000	0.501	0.000	0.501	0.483	0.018
Total								0.930

technology (e.g. [81–85]). Our results concerning the influence of transformational leadership indicate that among the five dimensions of transformational leadership, only one, namely intellectual stimulation (*IS*), was found to be positively related to team performance and subsequently, to service quality (see Fig. 2). Such findings could be related to how the sample teams cope with the pace of change in the external environment and work on unstructured, diverse and complicated tasks in their internal environments. *IS* refers to the level concerning how the leader challenges assumptions, takes risks and solicits followers' ideas [12]. Thus, in order to respond to changes quickly and complete tasks satisfactorily, banking employees have to be willing to challenge the status quo while identifying improvement areas, non-risk-averse when making changes, and keen on sharing understanding about changing customer needs and environment. These attributes are more likely to be available in a team, if the team leader displays a leadership style which has a strong emphasis on *IS*. Based on this reasoning, it can be inferred that the effectiveness of the dimensions of transformational leadership could be partly contingent on the environment or the nature of the task. Hence, one theoretical implication of this finding is that future research could explore how the effectiveness of transformational leadership in banking teams is moderated by factors concerning the environment (e.g., environmental uncertainty) or task nature (e.g., level of standardisation).

The results show that intellectual stimulation (*IS*) has a critical role in banking operations. The results also reveal that team competence is another important factor in that it is the only team performance dimension that influences both reliability and responsiveness. This finding is consistent with much of the thinking on the importance of knowledge in the literature. The knowledge-based view in the literature stresses that knowledge is the most critical resource for organisations [86]. In this study, *IS* is a leadership dimension that focuses on nurturing intelligence and knowledge in employees and team competence is concerned with the abilities of the team in a number of areas such as knowledge of tasks, planning skills, and resource allocation, etc. Thus, given the importance of knowledge, it is very reasonable that *IS* and team competence are important factors leading to superior service quality. In addition, leaders adopting *IS* tend to encourage members to challenge assumptions and norms. Hence, the finding here echoes the view that when knowledge is heterogeneous, it will be the determinant of superior performance and sustained competitive advantages (e.g. [87,88]). The finding indeed supports one key idea proposed in the research agenda on service operations by Roth and Menor [9]. Their agenda argued that one important research theme is to study resources in operations and that the most important resource is likely to be knowledge so that much research on knowledge in service operations shall emerge to advance theory and practise. Consequently, the finding on the effectiveness of *IS* and team competence in this study is in line with the literature advocating knowledge as a crucial resource.

A review of the extant literature reveals that several researchers have attempted to explore the relationships between transformational leadership and performance outcomes in teams within different contexts. Based on data from a UK chemical processing plant, Williams et al. [89] found that transformational leadership is related to team proactive performance. Keller [11] reported that transformational leadership predicts a number of performance outcomes such as technical quality, schedule performance, and cost performance in R&D teams. Kearney and Gebert [90] also examined R&D teams and offered results to suggest that transformational leadership can foster the utilisation of benefits entailed by both demographic and informational/cognitive team diversity. The work of Schaubroeck et al. [29] employed the data from the financial services teams of a bank and found that transformational leadership influenced team performance through the mediating effect of team potency. The current study extends this body of literature by offering new insights into the impact of transformational leadership on service quality through team performance in operational banking teams. While transformational leadership consists of five dimensions, prior studies often combined the five dimensions to form a single variable in their analyses (e.g. [11,91]). The results of this study, however, indicate that the performance impact of the dimensions of transformational leadership is not necessarily the same. Hence, more detailed insights into leadership could be obtained if future leadership research considers the dimensions of a leadership style as separate variables and investigate their relevant variables such as driving forces, outcomes, mediating factors or moderating factors separately.

The results on path decomposition indicate that the resultant conceptual model (see Fig. 2) is a valid one to reflect the reality of the sample teams of this study. This model implies that leadership and service quality are not directly associated but mediated by team performance. These findings are consistent with the

notion in quality management's conceptual frameworks (e.g. [21]) or empirical models (e.g. [10]). Yet the current study supplements the quality management literature by providing empirical evidence that mediating factors are also present when the leadership is transformational leadership rather than quality leadership, and when the quality is service quality rather than product quality. In this study we have explored whether or not team performance dimensions including team cohesion, team leader job satisfaction, and team competence are the mediating factors. Future research could identify and test more different mediating factors so as to achieve a better understanding of the effectiveness of transformational leadership and the predictors of service quality in operational banking teams.

Indeed, the resultant conceptual model (see Fig. 2) implies that many of the findings are different from our expectations. More specifically, the results suggest that four of the dimensions of transformational leaderships have no impact on the team performance dimensions analysed; team cohesion is not related to team competence, reliability and responsiveness; and team leader job satisfaction is not related to responsiveness. Nevertheless, it is premature to conclude that such leadership and team performance dimensions have no impacts on performance. Quality performance has different dimensions (e.g. [92]). Likewise, there could be many different mediating factors between leadership and quality performance. Consequently, more different mediating factors and service quality dimensions could be examined in future research in order to provide more insights to the literature.

5.1. Managerial implications

The results suggest that leadership matters not only at the strategic level of a bank, but also in operational teams. Thus, in addition to the use of traditional OM theories to optimise process efficiency, managers of banking operations have to pay attention to selecting an appropriate leadership style, thereby enhancing team performance and service quality. Also, the earlier discussion on the plausible reason behind the effectiveness of *IS* in this study implies that the effectiveness of a leadership style is likely to be contingent on factors, such as environmental uncertainty and task nature. Based on this logic, there should be no single leadership style that is universally applicable or effective in all circumstances. Thus, the implication is that banking managers have to adopt an appropriate leadership style. When selecting the appropriate leadership style, banking managers may need to pay attention to the fit between their leadership styles and the environments. The classic contingency model of leadership by Fiedler [93] is a good starting point to understand the factors to consider when making such decisions.

The results also indicate that not every dimension of transformation leadership is equally effective. This is not to suggest that some dimensions of transformational leadership can be ignored. Rather, the results imply that some leadership dimensions may deserve more attention. More specifically, banking managers have to examine if some dimensions of a leadership style could be particularly effective to the tasks or services of the team, and if so, they should adopt more of the behaviours or languages of those dimensions when interacting and communicating with team members. Moreover, the results reveal that *IS* and team competence have strong and positive effects on team performance and service quality, respectively. *IS* and team competence are highly likely to be linked with capabilities in knowledge, skills and innovation. Hence, the findings have important implications that such capabilities are likely to be extremely critical for banking operations. To develop such capabilities, the top management of banks may stress the importance of these capabilities through visions, mission statements or different communication channels with employees. The behaviours and languages of *IS* could be incorporated in the training of operational managers and the training of employees at different levels may include elements that emphasise the importance of such capabilities.

5.2. Limitations and future research

Several limitations were inherent in this study. First and foremost, it should be noted that the data of this study were collected through cross-sectional surveys. Therefore, future research could employ experimental and longitudinal approaches in the laboratory or in the field (e.g., [94,95]) to ascertain the posited causal relationships between transformational leadership dimensions and different performance outcomes. In addition, this is an exploratory study concerning how service quality in banking operations is influenced by one important organisational theory—transformational leadership. Indeed, it is highly likely that there are other organisational theories (e.g. motivation theories) that also predict service quality performance in banking operations. Therefore, researchers could identify other relevant organisational theories and examine their impacts on service quality. Furthermore, we have argued that the effectiveness of transformational leadership may be contingent on the environment. Hence, future research may explore how different environmental factors, e.g. task dynamics, environmental uncertainty, national culture, etc., influence the effectiveness of transformational leadership. Or, the effect of the environment can be examined by replicating this study in a different industrial sector such as shipping and transport logistics (e.g. [96]). Also, future researchers may wish to examine why four of the dimensions of transformational leadership and team cohesion are not associated with performance outcomes. In-depth case studies (e.g. [97]) could be conducted to solicit data to explain the unexpected findings. Moreover, despite that the data here were collected from real operational teams from different banks, the size of the team-level data was limited ($n=32$). Future research could replicate the study with a bigger sample size in order to improve the generalisabilty of the findings. Finally, this study implicitly assumes that Likert scale data are interval-level data and employed parametric statistics in the hypothesis testing. Thus, the results and discussions of this study may have to be interpreted with caution because that assumption might not be valid.

Acknowledgement

This research was supported in part by the Research Grants Council of Hong Kong (GRF Project No.: 519808).

Appendix A

See Table A1 for more details.

Table A1
Team leader construct measures.

Constructs (**five-point Likert scales ranging from 1 [strongly disagree] to 5 [strongly agree]**)	**Sources**
Team cohesion	Keller [98], Man and Lam [99], Langfred [100]
• I feel that I am really a part of my team. • Our team is united in trying to reach its goals for performance. • In general, the members of my team are very: – helpful – friendly – cooperative	
Team leader job satisfaction	Walumbwa et al. [50]
• I am very satisfied with my team members. • I am very satisfied with my job. • My work is fascinating.	
Team competence	Stewart and Barrick [25]
• My team performs very well in the following areas: – knowledge of tasks – quality of work – initiative – planning skills – resources allocation – commitment to the team – overall performance	
Reliability	Zeithaml et al. [26]
• When we promise to do something by a certain time, we are able to do so. • We perform the service/duty right the first time. • We are dependable in handling (internal) customers' problems. • We keep (internal) customers informed about when services will be performed.	
Responsiveness	Zeithaml et al. [26]
• We are able to provide prompt services. • We are willing to help (internal) customers. • We are often ready to respond to (internal) customers' requests.	

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