



Do quality and Environmental Management Systems help Hotels to Achieve their Financial Goals?: Evidences from the Egyptian Hotel Industry

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Abstract

The relationship between quality and environmental management systems and corporate financial performance has always been an important topic in the management literature. However, only few studies have mutually analyzed these two management systems. Most of these studies have focused on the industrial and business sectors (such as banks and insurance companies), but these studies have ignored the hotel and tourism sector, with a few exceptions. Therefore, the purpose of this study is to determine the level of commitment of Egyptian 4 and 5-star hotels to implement quality and environmental management systems and to evaluate the impact of this commitment on the financial performance of these hotels. The study grouped hotels according to their commitment to quality and environmental systems, and a two-stage cluster analysis was used to identify the significant differences between groups of hotels. Then, ANOVA and regression analysis were used to test the relationship between the commitment levels and hotel financial performance. The results determined three levels of quality and environmental commitment. These three levels have been classified as proactive, committed, and reactive. Moreover, the results indicated that 5-star hotels can increase their investments in quality and environmental management systems to enhance both short-term and long-term financial performance. For 4-star hotels, however, results showed that quality and environmental management systems have no simultaneous or particular effect on their financial performance. This supports the findings related to this issue in other literature on quality management in the hotel industry.

Keywords: Quality management, environmental management, financial performance, hotel industry.

Introduction

Quality and environmental management practices may influence corporate performance. The relationship between quality and environmental management systems and corporate financial performance has always been an important topic in the operations management literature. The vast majority of empirical studies have shown a positive correlation between implementing effective quality and environmental management systems and corporate financial performance^{1, 2, 3}.

For these systems to be an integral part of the company's management system there have to be linkages so that the boundaries between processes are seamless. Management systems, whether for quality or environmental protection, share the same implementation principles (e.g. long-term focus, continuous improvement, employee empowerment, integrated perspective, and participation by the whole value chain) and may positively affect a firm's competitive position³. Due to these parity, and because research on quality management is more sophisticated than research on environmental, considerable benefits can be expected from applying what has been learnt about quality management to environmental issues^{2, 4}. Firms with experience of quality management practices develop a set of capabilities that may facilitate the implementation of environmental practices and provide a means for firms to minimize their environmental management

implementation costs⁵. Accordingly, firms can utilize quality management practices to develop a system for the reduction and elimination of all waste streams associated with the design, manufacture and use of products. Therefore, the adoption of quality management practices may enable the development and implementation of environmental management practices³.

The impacts of quality and environmental management systems on firm performance have been analyzed in business and service industries, although to a lesser extent in service industries such as the hotel industry. Within the service sector, hotels show great interest to the implementation of quality and environmental management systems⁶ because these systems can have positive effects on the competitiveness levels of hotels, as well as their profitability⁷. Quality and environmental management practices can affect performance within the hotel industry in two integrated approaches. It can have internal effect through processes and operations and external effect through the market. Internal approach is related to the internal operation of the hotels (for example, increase in productivity, improvement in efficiency and reduction in material and production costs and reuse materials through recycling). External approach, on the other hand, is related to the effects of these systems on customer satisfaction and demand (e.g. increasing sales and market share, attracting new customers, achieving higher satisfaction levels and improving hotel image)⁸.

The relationship between quality and environmental management systems and firm performance has not been examined as deeply in the hotel industry literature as in the quality management and environmental literature. Furthermore, a few studies have jointly analyzed these two management systems. Accordingly, there is a need for more research to fill this gap in the hotel industry literature. The aim of this research is twofold: i. to identify the quality and environmental management commitment levels at 4- and 5-star Egyptian hotels; and ii. to test the correlation between those commitment levels and hotels financial performance. The present study makes a contribution in two main areas. Firstly, it jointly analyzes quality and environmental management systems, together with their impacts on financial performance. Secondly, considering that only few studies have analyzed organizations belonging to the service sector in general and the hotel industry in particular, this paper tries to fill this gap through an examination of Egyptian hotels.

Research Methodology

Sample and Data Collection Methods: The population in this study is composed of 236 4- and 5-star hotels located in three significant tourist regions in Egypt; namely, Greater Cairo, South Sinai (Sharm-El Sheikh), and Red Sea (Hurghada, Safaga, El Gouna, and Marsa Alam). These regions were chosen as the study setting because there is a wide range of international and domestic chains and because they might have more resources to withstand the costs of implementing managerial systems. This population considered all the hotels regardless of whether they implement quality or environmental management systems. A study of the whole population was performed using questionnaire with closed questions. The questionnaire was sent, from January to May 2012, to the chief executive officer (CEO) of each hotel because this is the only person in the hotel who can answer all questions related to quality management, environmental management, and firm performance.

The questionnaire was developed through a prudent examination of similar studies found in the literature review. In order to avoid making respondents confused or misunderstand the questions, the researcher conducted a pilot test by emailing the questionnaire to ten hotel managers and three researchers who are specialized in hotel management, asking them to go through it and give the researcher feedback to adjust the questionnaire. Their opinions and suggestions, which were based on their experiences helped modify the questionnaire to be more effective and easily understood. The survey instrument was in the form of a questionnaire that used a five-point Likert scale. Then, the distribution of the questionnaire was performed, and a total of 142 hotel managers answered the questionnaire, that is, 60.1% response rate.

In order to investigate the link between quality and environmental management systems and hotel performance, the

study focused on hotels that have implemented these systems effectively. This is important because while most hotels will claim that they have implemented quality management systems, few are doing it effectively. Effective implementation means that the key practices of quality and environmental management systems are well practiced and deployed within the hotel. The study used the obtaining of quality and/or environmental certificates as proxies for effective implementation of quality and environmental management systems.

Based on the objectives of this study, questions were divided into three sections. The first section of the questionnaire asked the respondents to identify their commitment to ten quality management practices which were scored on a five-point Likert scale ranging from 1 (low degree of commitment) to 5 (high degree of commitment). The reliability of this scale was checked and a *Cronbach's alpha* of 0.75 was obtained, an acceptable level indeed⁸.

The second section of the questionnaire asked the respondents to identify their commitment to twelve environmental management practices or initiatives. The items were measured using a Likert scale ranging from 1 (low degree of commitment) to 5 (high degree of commitment). This scale uses practices related to environmental management as well as a number of aspects specifically related to hotel industry. The reliability of this measuring scale was checked and a *Cronbach's alpha* of 0.78 was obtained. The third section of the questionnaire asked the respondents to assess their financial performance by measuring the hotel's performance compared with their competitors. Five variables have been measured: Average sales growth in the last five years, gross operating profit, market value, market share gain, and average occupancy rate in the last five years. These variables were selected to measure the financial performance of hotels because they include revenues and costs of the hotel. Variables were measured using a Likert scale ranging from 1 (worse than competitors) to 5 (better than competitors). It should be noted that in order to increase the explanatory and predictive capacity of the results, one control dimension from the business environment was included: hotel characteristics. This control dimension was formed by: i. hotel location; ii. category (4- and 5- star hotels); iii. chain affiliation (hotel chain and independent); iv. hotel size (number of available rooms).

Data Analysis Procedure: In the first examination of the data, descriptive statistics which include frequency distributions and cross-tabulations were computed and used to summarize data. The collected data have been classified and tabulated to be thoroughly analyzed using Statistical Package for Social Science (SPSS) version 18.0. The mean and standard deviation have been calculated to classify the sets and determine how homogenous or discrepant (inconsistent) the sample is, regarding all research variables.

Table-1
Measurement Items

Variables/Measures	Factor
Quality Management Measures	
1. Quality certification	0.626
2. Understanding of key customers' needs	0.697
3. Cooperation with mediators to improve the quality of products offered in the hotel	0.632
4. Cooperation with suppliers to improve the quality of products offered in the hotel	0.625
5. Training of staff in quality-related issues	0.720
6. Encouraging self-motivated employee	0.722
7. Collective participation in the elaboration of the product offered	0.732
8. Continual service improvement process	0.749
9. Reasonableness of the hotel's compliance monitoring processes	0.866
10. Building a culture for continuous improvement and initiatives	0.759
<i>Eigenvalue per factor</i>	4.188
<i>% of variance explained per factor</i>	62.78%
<i>Accumulated % of variance explained</i>	62.78%
Environmental Management Measures	
1.Environmental certification	0.633
2. Purchase of ecological products	0.796
3. Using of eco-friendly products	0.756
4. Energy and water conservation practices	0.840
5. Selective solid waste collection	0.872
6. Recycling and materials management	0.762
7. Training of staff in in environmental- related issues	0.713
8. Encouraging self-motivated employee	0.827
9. Use of ecological arguments in marketing campaigns	0.823
10. Organization of environmental activities by the firm	0.856
11. The hotel has a long-term environmental planning	0.678
12. The perceived costs and benefits	0.829
<i>Eigenvalue per factor</i>	4.99
<i>% of variance explained per factor</i>	59.94%
<i>Accumulated % of variance explained</i>	65.17%
Financial Performance Variables	
1. Average sales growth in the last five years	0.904
2.Gross operating profit (GOP)	0.859
3.Market value	0.855
4.Market share gain	0.876
5. Average occupancy rate	0.765
<i>Eigenvalue per factor</i>	4.51
<i>% of variance explained per factor</i>	55.10%
<i>Accumulated % of variance explained</i>	67.45%

A two-stage cluster analysis was performed to identify the significant differences between hotels. Then, ANOVA and regression analysis were used to test the relationship between the commitment levels and hotel financial performance.

Results and Discussion

Regarding the sample, 55% of the respondents were 4-star hotels whereas 45% were 5-star hotels. The average number of employees in the investigated hotels was 146; the maximum number of employees was 627 employees. The average number

of available rooms in the investigated hotels was 292 rooms and 341 beds. Finally, regarding the type of hotel management, 56% of the establishments were chain affiliated, whereas the remaining 44% were independent. Average occupancy rates ranged from 30% to 75%. Occupancies of 50% or less were reported by 32% of the hotels. Almost one quarter of the hotels (23%) experienced occupancies over 75%.

A two-stage cluster analysis of the quality and environmental variables was performed in order to identify the different levels of commitment to quality and the environment. Cluster analysis

is a convenient method for identifying homogenous groups of clusters. Objects in a specific cluster share many characteristics, but are very dissimilar to objects not belonging to that cluster. First of all, a hierarchical cluster was used with the average linkage clustering method and the squared Euclidean distance served to find out the number of groups, after which a non-hierarchical cluster was applied⁸. After the hierarchical cluster analysis and the application of the percentual change criterion in the agglomeration coefficient, the ideal number of groups to be considered was found to be three. A non-hierarchical cluster for three groups was then prepared using the given variables.

Moreover, the following analyses were performed in order to validate the cluster solution. Firstly, a significant test for the variables used to obtain the clusters. For this purpose, Pearson's chi-square test was carried out, which verified that all variables were independent of the cluster variable and, therefore, that all variables are relevant for the interpretation of the group obtained, since all are significant with a 95% confidence level. Secondly, a discriminant analysis revealed that 96% of the original grouped cases were correctly classified a posteriori after knowing the discriminant function that includes all the cases except the one being studied. Thus, the two-stage cluster analysis proved to be valid⁸.

At this point, the quality and environmental groups were defined and interpreted. Table-2 provides the average scores for each group for each practice and the significant test for the variables used to obtain the clusters. The following three clusters were identified:

Group 1: Proactive Hotels. This group formed of 32 hotels (22 % of the total). Hotels in this group have always achieved above the average in all quality and environmental measures and therefore achieved the highest scores in every single practice. Regarding descriptive variables, this group includes the hotels with a significantly higher number of rooms and with the greatest number of quality and environmental certificates. Most of the hotels in this group were affiliated to a hotel chain. Therefore, considering that it includes the hotels with the greatest volume of resources and the most developed management levels, it would seem logical to assume that this should be the group showing a higher degree of quality and environmental commitment.

Group 2: Defensive or Committed Hotels. This group formed of 75 hotels (53 % of the total). Hotels in this group have always achieved above the average in its commitment to quality management practices, but in terms of environmental management practices, this group is below the average. Regarding descriptive variables, the hotels belonging to this group are in an intermediate situation with respect to the other two groups.

Group 3: Reactive Hotels. This group formed of 35 hotels (25 % of the total). Hotels in this group have achieved the lowest

average scores for every quality and environmental practices which suggests that these hotels are not very interested in training, purchasing of ecological products, managing solid wastes, quantifying environmental economic benefits or in the use of ecological arguments in marketing campaigns. This suggests that because these hotels may own fewer resources and their management level is not as highly sophisticated as that of group 1 hotels, these hotels will perhaps dedicate their efforts to areas other than quality and environmental management which they consider more relevant for them to be able to compete.

In order to complete the description of these groups, a comparison was made using a number of measures commonly used in the analysis of financial performance as controls. These measures include: hotel location (city hotel or resort hotel); hotel category (4- and 5- star hotels); chain affiliation (independent or chain-affiliated hotel) and hotel size (number of available guestrooms). As can be seen in table-3, quality and environmental management commitment increase in parallel with those dimensions. Thus, quality and environmental management proactive hotels are resort hotels, 5- star hotels, have more guestrooms, and are chain-affiliated hotels

This section tests the relationship between quality and environmental commitment levels and financial performance variables measured. As can be seen in table-4, quality and environmental management proactive hotels have higher financial performance in all measures. Therefore, a significant relationship seems to exist between the degree of quality and environmental proactivity and hotel performance. Consequently, the values of performance variables increase with the degree of hotel proactivity toward quality and environmental management. This result indicates that, to a certain extent, the greater level of quality and environmental proactivity of hotels will allow them to increase their chances of success due to the reasons related to differentiation and cost saving. These findings reveal that more proactive hotels tend to achieve better performance levels and, as shown in table 3, they are usually larger-sized and tend to have a higher category.

It can be understood from table-4 that group 1 got significantly higher financial performance levels than other groups. The difference is significant at the 1% level in a two-tailed test. Proactive firms experienced higher growth in sales in the last five years when compared other firms. Proactive firms had a mean percent of 3.58 in sales compared to 2.93 for reactive firms. The difference is significant at the $0.01 < p \leq 0.05$ level. Moreover, proactive firms appear to do better in improving gross operating profit, market value, and market share gain. Proactive firms' average occupancy rates scored 65.55 % compared to a 61.76 % for reactive firms. A key implication of these results is that quality and environmental management practices do have a positive impact on the profitability of proactive firms. More significantly, proactive firms tend to benefit more from quality and environmental management systems when compared to committed and reactive firms.

Table-2
Levels of Hotels Commitment to Quality and Environmental Management

Variables	Group 1 Proactive n= 32	Group 2 Committed n= 75	Group 3 Reactive n=35	Mean	Sign.
QM Commitment	4.29	3.73	2.11	3.38	0.000 ¹
Quality certification	4.16	4.31	3.08	3.85	0.000 ²
Understanding of key customers' needs	3.21	3.86	2.67	3.24	0.000 ²
Cooperation with mediators to improve quality	4.46	3.52	2.12	3.37	0.000 ²
Cooperation with suppliers to improve quality	4.42	3.77	2.59	3.59	0.000 ²
Training of staff in quality-related issues	4.27	3.35	2.35	3.32	0.000 ²
Encouraging self-motivated employee	4.21	3.50	1.93	3.21	0.000 ²
Participation in the elaboration of the products	4.34	3.78	1.84	3.32	0.000 ²
Continual service improvement process	3.97	3.84	2.89	3.56	0.000 ²
Reasonableness of compliance monitoring processes	4.74	3.80	2.71	3.75	0.000 ²
Building a culture for continuous improvement	4.09	3.49	2.27	3.28	0.000 ²
EM Commitment	3.16	2.73	2.11	2.66	0.000 ¹
Environmental certification	3.55	2.43	1.75	2.57	0.000 ²
Purchase of ecological products	4.52	2.24	1.83	2.86	0.000 ²
Using of eco-friendly products	4.95	2.28	2.12	3.11	0.000 ²
Energy and water conservation practices	4.46	2.44	2.50	3.16	0.000 ²
Selective solid waste collection	4.33	2.22	1.89	2.81	0.000 ²
Recycling and materials management	3.37	2.54	2.31	2.65	0.000 ²
Training of staff in in environmental- related issues	3.22	2.43	1.67	2.44	0.000 ²
Encouraging self-motivated employee	3.97	2.45	1.29	2.26	0.000 ²
Use of ecological arguments in marketing campaigns	4.11	1.42	1.50	2.61	0.000 ²
Organization of environmental activities by the firm	3.43	1.32	1.33	1.76	0.000 ²
The hotel has a long-term environmental planning	3.01	2.11	1.25	2.11	0.000 ²
The perceived costs and benefits	3.85	1.89	1.65	2.46	0.000 ²

⁽¹⁾ ANOVA, ⁽²⁾ Pearson's chi-square

Table-3
Comparison of Characteristics between the Identified Groups

Variables	Group 1	Group 2	Group 3	Sign.*
Hotel Location (0: City hotel; 1: Resort hotel)	0.61	0.43	0.48	0.056
Hotel Category (4- and 5-star hotels)	5.00	4.49	4.22	0.044
Hotel Affiliation (0: independent; 1: chain-affiliated)	0.91	0.39	0.48	0.068
Hotel Size (smaller versus larger)	467.56	220.97	188.34	0.056

^(*) Pearson's chi-square

Table-4
Comparison of Financial Performance between the Identified Groups

Financial Performance Variables	Group 1	Group 2	Group 3	F ANOVA
Average sales growth in the last five years	3.58	3.11	2.93	7.212 ^{**}
Gross operating profit (GOP)	3.90	2.89	2.67	4.207 ^{**}
Market value	3.92	3.57	3.44	7.627 [*]
Market share gain	3.68	3.33	2.99	11.015 [*]
Average occupancy rate	65.55	61.83	61.76	1.44

* $p \leq 0.01$, ** $0.01 < p \leq 0.05$

Table-5
Multiple Regression Analysis between Research Variables

Independent Variables	Dependent Variables				
	Sales Growth	GOP	Occupancy Rate	Market Share	Market value
QM	0.122	0.124***	0.143**	0.769***	0.422
EM	0.174*	0.123	0.172**	0.125**	- 0.114
Hotel Size	0.432***	0.589***	0.451***	0.026	- 0.039
F	11.154***	31.247***	5.501***	8.730***	11.899
R ² adjust	0.143	0.327	0.061	0.097	0.160

* 0.05 < p ≤ 0.1, ** 0.01 < p ≤ 0.05, *** p ≤ 0.01

Table-6
Multiple Regression Analysis between QMEM and Financial Performance

Independent Variables	Dependent Variables				
	Sales Growth	GOP	Occupancy Rate	Market Share	Market value
QMEM	0.565***	0.216**	0.198**	0.276***	0.060
Hotel Size	0.436***	0.653***	0.139*	0.023	0.018**
F	18.089**	23.202***	4.733**	10.608**	11.302
R ² adjust	0.116	0.321	0.028	0.063	0.115

* 0.05 < p ≤ 0.1, ** 0.01 < p ≤ 0.05, *** p ≤ 0.01

Therefore, it seems advisable for these hotels to position themselves on an active commitment strategy in order to improve their financial performance. Moreover, multiple linear regressions were applied in which financial performance measures were used as dependent variables and quality and environmental commitment levels as the independent variables; and hotel size was used as a control variable.

It can be seen from table-5 that all the multiple regression values proposed are significant except for the market value. In addition, quite divergent rates are found for the determination coefficient adjusted between the different models. This shows that the different quality and environmental management commitment levels influence each performance variable to a different extent. Regarding financial performance variables, sales growth rate in the last five years is slightly influenced by environmental commitment ($p \leq 0.01$). Quality management commitment affects this variable adversely. Quality management commitment increases the gross operating profit significantly ($p \leq 0.01$). Quality management commitment also influences hotel market share significantly ($p \leq 0.01$), environmental commitment impacts hotel market share positively ($p \leq 0.01$). Regarding occupancy rate in the last five years, quality and environmental management commitments have a positive influence ($p < 0.05$).

When quality and environmental management items are integrated together in the same variable (QMEM) (see table-6), similar results are obtained. QMEM has significant regression coefficients in all financial variables analyzed except for market share. Furthermore, regression analyses show quite different values in the determination coefficient. Regarding hotel size as a control variable, this variable has a significant influence on dependent variables.

Discussion and Conclusion: The purpose of this study was to determine the degree of commitment of Egyptian 4 and 5-star hotels to implement quality and environmental management systems and to test the impact of this commitment on the financial performance of these hotels. The study grouped hotels according to their commitment to quality and environmental systems, and a two-stage cluster analysis was used to identify the significant differences between groups of hotels. Then, ANOVA and regression analysis were used to test the relationship between the commitment levels and hotel financial performance.

The result of the cluster analysis indicated that the hotels could be grouped into three clusters, based on quality and environmental management commitment. The first of these groups was composed of hotels that showed have always achieved above the average in all quality and environmental measures and therefore achieved the highest scores in every single practice. The second group was made up of defensive or committed hotels that have always achieved above the average in its commitment to quality management practices, but in terms of environmental management practices, this group is below the average. The final group was made up of reactive hotels that were reactive in terms of both quality and environmental management. Each group had different features and reflected different levels of commitment to quality and environmental management practices.

Large hotels (in terms of number of available rooms) put in place more comprehensive quality and environmental programs than their counterparts. These results may be explained through the concomitant effect of economies of scale and the existence of slack resources. The latter aspect reveals that firms need a minimum quantity of financial and human resources to deploy

quality and environmental management programs, especially because returns on investments can only be achieved in the medium or long-term¹. Furthermore, large firms are exposed to considerable environmental pressures from stakeholders because a their environmental impact is more visible; b it is easier to control centralized sources of pollution than disperse ones; c large firms are regarded as industry's leaders and, thus, constitute models to imitate. Another stream of research contends that large firms develop more advanced environmental management because i. they have slack resources to be invested in environmental protection; ii. large firms usually adopt a more formal management and this in turn implies a more formal environmental management; iii. they may have economies of scale for the reuse, recycling or valuation of waste. All these factors can influence the hotel industry in the same way^{1, 8, 10, 11}.

This study also found that chain-affiliated hotels are more likely to implement quality and environmental strategies because they may support individual units by: i. providing them with training on quality and environmental management techniques, methods and/or activities; ii. facilitating their inclusion in programs or activities already functioning or that are known to be useful; iii. providing technical advice to hotels that start up such activities; iv. easing their access to more ecological markets^{1, 12, 13}.

Similar to size and degree of internationalization, the higher the grade that the hotel has, the greater the volume of assets and employees per room it has and hence its ability to implement quality and environmental strategies. Therefore, four-star hotels need to carefully examine the effects of quality and environmental management systems on financial performance, when making quality and environmental management related decisions.

Looking at the obtained results, it can be seen that the implementation of effective quality and environmental management strategies can improve hotel financial performance, although some aspects of financial performance may be improved more than others. The results indicated that quality and environmental management commitment significantly and positively influence short-term financial performance. Those hotels whose quality and environmental management practices are more developed believe that their financial performance is better than their counterparts. These results are line with the findings of other studies in manufacturing and service industries^{14, 15, 16, 17}. Therefore, although some findings pointed out that in the hotel industry there is no link between quality and environmental management practices and financial success, the findings of this study extends the findings of previous studies in manufacturing and service industries to the context of the hotel industry. These positive effects of quality and environmental management practices on performance may take different forms: for example, increasing profitability (through a cost reduction) and increasing sales (through an improved image)⁸.

All the multiple regression values proposed are significant except for the market value. In addition, quite divergent rates are found for the determination coefficient adjusted between the different models. This shows that the different quality and environmental management commitment levels influence each performance variable to a different extent. Regarding financial performance variables, sales growth rate in the last five years is slightly influenced by environmental commitment. On the other hand, quality management commitment affects this variable adversely. Quality management commitment increases the gross operating profit significantly. Moreover, quality management commitment also influences hotel market share significantly. Quality and environmental management commitments may have positive effects in increasing occupancy rate in the last five years.

When quality and environmental management systems are jointly integrated in the same variable (QMEM), similar results are obtained. QMEM has significant regression coefficients in all performance variables analyzed except for market value. Hotel size as a control variable has a significant influence on financial performance in the regression analyses. Therefore, separate and joint quality and environmental management commitment levels exert a heterogeneous influence in terms of intensity and direction. This fact may explain the absence of homogeneous relationships between quality management and firm performance and between environmental management and firm performance obtained in previous studies, because they have used different performance variables.

Conclusion

The main findings of this study are consistent with some previous literature that evidences a positive and significant relation between the commitment to quality and environmental practices and firms financial performance. On the basis of the results obtained, findings suggest that 5-star hotel companies can confidently and strategically increase quality and environmental management investment to enhance both short-term and long-term performance. For 4-star hotels, however, results showed that quality and environmental management systems have no simultaneous or particular effect on financial performance.

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