

The Impact of the Balanced Scorecard (BSC) Non-Financial Perspectives on the Financial Performance of Private Universities

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Abstract: There are numerous attributed performance measures and investments to Balanced Scorecard (BSC) but empirical research and literature still lacks sufficient evidence of the effectiveness and improvement of organizational financial performance with respect to its multiple perspectives. BSC model perspectives are four in number, namely learning and growth, internal process, customers and financial perspective. In this paper, the impact of non-financial BSC perspectives on the financial performance of Private Universities (PUs) in Yemen is empirically examined. The study used Partial Least Square-Structural Equation Modeling (PLS-SEM) on data culled from 136 faculties, to determine the impact of three non-financial BSC perspectives on the financial performance of the institutions. The results showed that there were statistically significant positive correlations between Customer Perspective, Internal Process, and Learning and Growth, and Financial Performance. There was a positive correlation between an increase of 0.221 in Customer Perspective and a 2.341 rise in financial efficiency. In similar vein, a 3.827 improvement in Financial Performance was the consequence of a 0.346 improvement in Internal Process, while a 2.028 improvement in Financial Performance was the outcome of a 0.198 improvement in Learning and Growth.

Keywords: Balanced scorecard, financial performance, non-financial BSC perspectives, higher education institutions, private universities, and Structural Equation Modeling (SEM).

1 Introduction

The Balanced Scorecard (BSC) was described by prior studies [1] as an integrated and comprehensive framework and as among the topmost popular one [2] that relates addresses financial and non-financial perspectives, in its attempt to assist in aligning the organization's initiatives with their adopted strategies[1]. In relation to this, the objectives of the organization can be mapped out as extensive performance measures for effective processes management and for aligning the organization to optimum market-directed ideas, focusing on customer-focused strategy and enabling strategy evaluation and implementation. BSC, according to Martinsons, Davison [3] refers to a tool that supports decision-making at the strategic management level, and it is used to assess top management and to oversee the organizational progress but frequently compromising other performance measurement alternatives [4, 5].

Moreover, using BSC as a financial measure involve a relationship that facilitates sequential effects that ultimately leads to the performance of the organization compromising other indicators of performance like customer relationship, organizational competencies and capabilities, among others. Added to this, BSC relates among various inter-dependent non-financial activities in the view of customers, internal process, workforce and system performance and financial aspects, with long-term strategies [6-8].

Moreover, BSC enables the introduction of trends using its four parameters, which are, financial factors, customer, internal process, and learning and growth. These components are what lie in the center of measures development for the assessment of organizational performance. In this regard, management teams have to keep their critical indicators in prioritized order in light of the above four components for the scorecard to achieve the main objectives [9-11].

More importantly, performance measurement entails the obtaining of each perspective's scores in terms of their influence and this is done by observing the complete financial outcome, while keeping abreast of the progress. The performance objectives of the organization should be connected to any one measure that reflects the organization's performance in connection to the objective. Kaplan and Norton [1] claimed that the BSC can be adopted as a strategic

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management system, while Svartling and Andréasson [12] stated that it can be used as an internal control system, that has external orientation, developed to highlight the disclosure of owners and other relevant parties.

Added to the above, the BSC facilitates the matching of management processes to long-term strategy implementation and serves as a framework for such implementation, while at the same time promoting change strategies to respond to the dynamic market and the advancements in technologies. In literature, the drawbacks in the frameworks and tools used in the implementation and monitoring of strategies have been examined [13, 14], but in the present study, the study heeds the call to examine BSC in the PUs context.

Numerous metrics and frameworks have been brought forth in literature to tackle the strategy implementation issues, and to oversee the Private Universities (PUs) overall performance. A strategy moves on to the implementation stage through a first step, involving the understanding of the hindrances to the implementation process and the monitoring of the process. This can serve as a method for interaction through communication/collaboration for the institutions that are geared towards higher level of performance as well as accountability. In turn, this provides an opportunity for continuous feedback regarding the progress made by the strategy and the modifications required for applying in the environment of Yemeni PUs and HEIs. Nevertheless, although the BSC offers several benefits, literature provided some critical statements concerning its weaknesses, which includes, lack of other dimensions that count contribute to the effective enhancement of BSC [2, 15, 16].

The present paper conducts an assessment of the BSC dimensions to improve the strategic match between the two views (financial and non-financial) in Yemeni higher education institutions. Accordingly, the rest of the paper is formatted as follows; the literature review is addressed in the next section, followed by the formulated hypotheses examination of the impacts on financial performance by the BSC non-financial perspectives. The research methodology is then presented, using SEM and relevant statistical analyses, the obtained outcome from the analyses along with the structural model and measurement model presentation. Lastly, the discussion and conclusion end the paper.

2 Related Literature Review and Research Hypotheses

Administrator of PUs and HEIs have been evidenced to adopt varying methods to achieve their visions and missions, largely depending on financial measures and strategies throughout the processes to translate the objectives into reality – this holds true especially in terms of the match between universities annual budgets and the monitoring of short- and long-term results. Although PUIs and HEIs are largely private entities, they still require balancing their financial gains (performance of financial indicators) with other organizational structure aspects. In this regard, the BSC is one of the proposed comprehensive framework and tools used to assess organizational strategic success, indicating the hierarchical relationships and interdependence among the four perspectives (financial perspective, customer perspective, internal process perspective and learning and growth perspective). Such interconnections are examined in the case of Yemeni PUs in this study.

2.1 *Balanced Scorecard (BSC) and its Features*

The organizational performance assessment using measures and indicators can be traced back to the introduction of Robert Kaplan and David Norton of the Balanced Scorecard (BSC) in 1990. The BSC primarily assists in measuring the financial success rate of the performance of the organization with regards to the adopted strategies [17], while at the same time evaluating the entity's financial status and related plans, measures and control used in the organization [18]. Kaplan and Norton [1] underlined the requirement to provide sufficient assets that will assist the organization's financial status and the adopted strategies in the short- and long-term performance.

The above can be achieved by meeting sufficient financial and non-financial measurements, which match with the organizational planned dimensions, analysis and strategies that can be evaluated in the overall structure and hierarchical levels of the organization [19].

To reiterate, BSC features are directed towards four performance measures perspectives and they are; financial perspective, customer perspective, internal processes perspective and finally, learning and growth perspective [1]. In other words, the BSC reflects the connection among the business processes, assessments and the results of the assessments, which is why it is primarily utilized for strategy formulation, realization and communication. It is also used to maintain current information on performance and feedback on the assessment process and outcome. BSC system enables focusing on strategic initiatives and their review, and based on Pandey [20] study, it is useful in presenting cause-and-effect relationship measures in operational success.

Added to the above, the BSC has been described as easy to use, organized and clear-cut technique for performance measurement, evaluation and review. It is appropriate to use in relating between strategy and strategic objectives and its success is dependent on the precise determination of the factors (financial and non-financial) and their measurements,

aligning the strategy to bring about optimum communication and motivation. All of these are directed towards optimum performance level and the determination by management of the rewards and penalties [20]. In relation to this, the behavioral factors (e.g., spirituality and social responsibility) have a role to play in successful employment and use of performance management [2, 16, 21, 22].

It is interesting to note that the BSC has been examined and applied in various disciplines, different organizations and industries, and different departments by researchers from innumerable backgrounds [23-25]. These applications have resulted in enhanced financial returns, alignment of number of employees and collaboration efforts.

Seven BSC characteristics were enumerated by USDHHS [26], which are; 1) transformation of the aims of the organizations into performance measurements, 2) strategic and operational measurements, 3) portfolio of interconnected measurements, 4) expansive picture of the organization as a whole, 5) assessment of projects, 6) alignment between projects and common objectives, and 6) measurement of more than one perspective.

2.2 Balanced Scorecard (Non-financial and Financial) Perspectives

Literature shows that non-financial measurements have been used as major financial performance indicators among firms [2]. Management decisions related to productivity, quality, innovation and customer satisfaction may have hand in the above measures and thus, they may eventually have an impact on the firm's financial performance in the future but notably, current financial measurements lack the representation of the long-term advantage actions, with studies in this line indicating that non-financial measures also positively relate to future accounting functions [27]. For instance, non-financial measures can be used along with their financial counterparts as recommended by Banker and Datar [28] and Feltham and Xie [29], who concluded that such combination has become common among theoretical studies about performance evaluation based on the agency theory. According to the formativeness principle, non-financial measures lead to the best incentive contract in instances where additional information is furnished regarding effective management actions.

Majority of studies dedicated to financial performance considered financial indicator as the dependent variable of the study, with almost all of the studies in this line using accounting data that have their basis on ratio analysis [2, 9, 10, 15, 16, 30-32].

Furthermore, performance measurement systems play an important role in enhancing organizational strategy and in assessing the performance of its objectives [33-37]. Prior practice shows that accounting data had a major role in determining organizational achievements, where later on, financial data was found to be insufficient to measure the performance of the company. In particular, accounting-based financial measurement systems are no longer sufficient in performance measurement [38-40]. Organizations have included non-financial measurement evaluation along with the financial measurement counterparts to gauge performance.

Several works in literature criticized the traditional accounting system, financial performance reports and performance measurements in a way that some issues arose from academic and industrial circles [32, 41-43]. Such criticisms were mostly directed towards lack of consideration of different market business and products, particularly in terms of new technologies and competitive market dynamics [44, 45]. Additionally, the overall performance of firms should be viewed as the accrual of all the different stakeholders' roles and, in this regard, the financial figures based on earnings were regarded to be more fit to measure the past decisions outcomes rather than future performance [45].

Among the many reasons for using performance measures that are non-financial is the financial performance indicators and considering the criticisms and drawbacks of traditional accounting-based performance measures, non-financial measures were proposed for decision-making and evaluations of the organizational performance. This is manifested in the inclusion of such measures in [19, 46] BSC, which incorporates both financial and non-financial indicators, with the latter covering internal processes, customers and learning and growth.

2.3 Relationship between Non-Financial Perspective BSC and Financial Perspective

Throughout the past two decades and more, BSC was introduced and presented, with studies dedicated to reporting its implementation (successful and failed) in private and public entities. In this regard, authors have recommended additional studies in this caliber to examine the effect of BSC on organizations such as private universities. In some entities, the financial results were the only reflection of progress but subsequently, BSC impact on performance was investigated [7, 47, 48].

The BSC is deemed to be an appropriate tool for strategic intervention considering that its primary objective is to create an alignment between the strategy of the institution and its entire operations (current or future), after which it can be used to align the institution's strategic orientation for the achievement of efficiency, effectiveness and enhanced performance.

The included performance indicators can be formed as the basis upon which a clear assessment can be carried out and where the financial measures highlight the lag indicators, while others (e.g., internal process change, customer focus, learning and growth) can be used for measuring future performance, which is why they are referred to as lead indicators. Such indicators can assist in the strategy development and the realization of progress viz-a-viz the strategic aims.

In the face of BSCs criticisms [49], once an institutions conducts ongoing HR development through staff training, the HEI internal process will improve in performance and in customer satisfaction [19, 50, 51]. In turn, this would mean higher financial performance, which underlines the central hypotheses in this paper.

An attempt to confirm if the BSC lower level items affect the higher level counterparts or the next in the hierarchical level, Bryant, Jones [52] used a sample of 125 firms, and seven measurements categories for the four perspectives. They found that via financial measure, customer perspective measure and market share measure, a significant direct effect was found on revenues but none between learning and financial perspective. In the context of Karra and Papadopoulos [53] carried out a survey of 90 firms, and revealed a significant and direct impact on financial perspective of learning and growth perspective, along with the following relationships; learning and growth - internal process perspective, and internal process - customer perspective.

In the same line of study, but in the hotel industry context, ChiungJu and LungChun [54] revealed a significant customer perspective-financial perspective relationship, but an insignificant learning and growth-financial perspective one. In other related studies in management literature, learning and growth perspective was revealed to influence financial performance [55], and learning and growth perspective influenced internal business perspective [56], which contributed to enhanced financial performance. The mixed results were the impetus behind this study to further confirm if non-financial perspectives influence their financial counterparts.

Aside from the above reviewed studies, it is notable that most studies about the inter-connections between BSC perspectives and their effect on financial performance were also looked into. These studies include Banker, Potter [27], who found that a significant effect of customer satisfaction of the hospitality firms financial performance, and both Ittner and Larcker [57] and Liang and Wang [58], which assessed the perspective of customer and financial perspective and their effects on the financial services of the telecommunications industry. It can be deduced that some prior studies were limited to the relationship between chosen performance measures as opposed to the four BSC perspectives and their hierarchical structure, which were only addressed in a few studies. For instance, Pastor Tejedor, Navarro Elola [59] directed their investigation to the relationships between set performance measures, but without the consideration of the hierarchical structure of the BSC perspectives – they based their statistical methods on Huang, Chu [60] and Huang [61] studies.

The above discussion laid the groundwork for the formulation of the study hypotheses;

Hypothesis 1: Customer perspective of non-financial BSC has a direct, positive and significant effect on the HEIs financial performance perspective.

Hypothesis 2: Internal process perspective of the non-financial BSC has a direct, positive and significant effect on the HEIs financial performance perspective.

Hypothesis 3: Learning and growth perspective of the non-financial BSC has a direct, positive and significant effect on the HEIs financial performance perspective.

3 Methodology

The hypothesized model representing the effects of non-financial perspectives of BSC on the financial one in the case of PUs in Yemen, were examined using the participation of Deans and Deputy Deans of 136 PUs faculties, in data collection – this number excludes the surveys that were not retrieved. The data collection instrument employed was a structured, designed and validated questionnaire, with four sections, within which 24 items were divided, gauged along a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Every survey part addressed the four BSC perspectives, which are customer perspective, financial perspective, internal process perspective, and lastly, learning and growth perspective [62] and their relationships with organizational performance. Data obtained was analyzed using SPSS and PLS, particularly PLS-SEM regression algorithms. The regression analyses were conducted to determine the effects, direct or indirect, of the three non-financial perspectives namely, customer perspective, learning and growth perspective and internal business perspective, on the financial one, and the relative strength of the effects in the Yemeni PUs.

4 Statistical Analysis and Results

As mentioned, the main regression analysis was carried out using PLS-SEM, through SmartPLS 2.0 software. The model fitness was established using the hypothesized inter-relationships proposed through the measurement and structural model as suggested by prior studies. Accordingly, the study selected fit indices to test the inner model’s validity and reliability, which includes, composite reliability, R-squared value, average variance extracted (AVE), predictive relevance, effect size and bootstrapping method. In addition, the measurement items of the instrument’s main constructs were employed for the measurement model assessment in terms of discriminant and convergent validity, through the use of confirmatory factor analysis (CFA), Cronbach’s alpha, and factor loadings. Meanwhile, the structural model was assessed using AVE and composite reliability.

4.1 Assessment of the Measurement Model/Outer Model

The measurement model presents the measurement items and their inter-relationships with their constructs and as such, the model is generally assessed using construct validity, discriminant validity and convergent validity following prior studies [63], which are as follows; factor loading>0.70, AVE value>0.50, composite reliability and Cronbach’s alpha coefficient value >0.70. It is notable that Bhatnagar, Kim [64], Kline [65] and George and Mallery [66] and George and Mallery [66] established acceptable Cronbach’s coefficient value to be >0.60.

4.1.1 Convergent Validity

[63] described convergent validity as the level to which a measure positively correlates with other measures, measuring the same construct. This can be obtained through the use of factor loadings and AVE values [63]. Table 1 presents the convergent validity values obtained in this study, and evidently, the factor loadings of the measurement items, loaded to their corresponding constructs significantly, which confirms their statistical measurement of the construct with the threshold value of 0.70 achieved. Similarly, AVE values exceeded the 0.50 threshold, indicating that convergent validity existed in the study’s measurement model.

Table 1: Results of Factor Loading and Average Variance Extracted

Model Construct	Measurement Item / Indicators	Loading	Average Variance Extracted
Customer Perspective	CP2	0.717	0.577
	CP3	0.767	
	CP4	0.790	
	CP5	0.763	
Internal Process	IPP1	0.820	0.618
	IPP4	0.735	
	IPP6	0.800	
Learning and Growth Perspective	LGP2	0.766	0.602
	LGP3	0.793	
	LGP4	0.757	
	LGP5	0.786	
Financial Performance	FP4	0.841	0.602
	FP5	0.752	
	FP6	0.731	

4.1.2 Discriminant Validity

Discriminant validity is the empirical level to which a construct is different from other constructs [67] and thereby, discriminant validity establishment confirms the constructs differentiation from other constructs and that it explains the study phenomenon in a way that other model constructs do not [63]. Discriminant validity is basically confirmed using two common methods and they are cross loading and Fornell and Larcker [68] criterion [63]. Discriminant validity is said to be present when in the correlation matrix, there is equality between the diagonal elements and the AVE square root of the latent variables.

Table 2 displays the discriminant validity cross-loadings, while Table 3 tabulates the constructs correlations obtained for Fornell and Larcker [68] criterion for discriminant validity. The factor loadings of the measurement items were significant in measuring corresponding constructs, with threshold values being 0.70 and above.

Table 2: Loadings and Cross Loadings (after deletion)

No.	Items	CP	FP	IPP	LGP
1	CP2	0.717	0.363	0.353	0.359

2	CP3	0.767	0.370	0.563	0.506
3	CP4	0.790	0.410	0.432	0.344
4	CP5	0.763	0.467	0.472	0.430
5	F4	0.452	0.841	0.532	0.424
6	F5	0.399	0.752	0.399	0.369
7	F6	0.391	0.731	0.456	0.438
8	IPP1	0.411	0.530	0.820	0.515
9	IPP4	0.519	0.425	0.735	0.495
10	IPP6	0.500	0.451	0.800	0.436
11	LGP2	0.347	0.323	0.423	0.766
12	LGP3	0.380	0.433	0.432	0.793
13	LGP4	0.473	0.383	0.496	0.757
14	LGP5	0.458	0.476	0.538	0.786

Moreover, the values of Fornell and Larcker [68] criterion also exceeded 0.70 threshold as evident from Table 3. The results support the presence of discriminant validity of the measurement model.

Table 3: Correlations among Constructs and Discriminant Validity

	CP	FP	IPP	LGP
CP	0.760			
FP	0.535	0.776		
IPP	0.599	0.600	0.786	
LGP	0.539	0.530	0.614	0.776

4.1.3 Internal Consistency Reliability

The study obtained CR values and Cronbach's alpha values displayed in Table 4. While customer perspective and learning and growth perspective values exceeded 0.70 aligned with [63] threshold, internal process and financial performance remained under 0.70 – this satisfies Bhatnagar, Kim [64], Kline [65] and George and Mallery [66] cut-off value.

Table 4: Cronbach's Alpha and Composite Reliabilities of Constructs

Names of Constructs	Cronbach's alpha	Composite Reliabilities (CR)
Customer Perspective	0.757	0.845
Internal Process	0.691	0.829
Learning and Growth	0.781	0.858
Financial Performance	0.668	0.819

4.2 Evaluation of the Structural Model (Inner Model)

In PLS-SEM, the second step involves the structural model's evaluation, using the following fit indices Coefficient of Determination (R^2), effect size (f^2), predictive relevance, and goodness of fit (GoF), with the final testing being the examination of the hypotheses.

4.2.1 The Model's Goodness of Fit

This sub-section is dedicated to obtaining the values of coefficient of determination (R^2), effect size (f^2), predictive relevance and GoF of the model to determine the fit of the model.

First, [63] stated that Coefficient of Determination (R^2) is among the evaluation methods used in PLS-SEM for the structural model. Based on the research discipline, acceptable R^2 values range from 0.25 to 0.75 for management, with the levels labeled as weak, moderate or substantial [63]. Table 5 tabulates the R^2 value, and it is 0.431, indicating that it is of moderate level, and that the three non-financial perspectives managed to explain 43% of the financial performance variance in PUs.

Moving on to effect size (f^2), it is primarily used to represent the latent variables influence on the dependent variable – Table 5 displays the f^2 values in this study, and they vary from 0.040 to 0.112, indicating that all values have small effects based on the equation; $f^2 = (R^2 \text{ included} - R^2 \text{ excluded}) / (1 - R^2 \text{ included})$.

The predictive relevance of the model is also used to assess the measurement and the structural model, through cross-validated communality and cross-validated redundancy, with respective values over zero for acceptability [63]. The values obtained in this study, which are displayed in Table 5, were over zero (0), indicating that the model's predictive

Table 5: Goodness of Model Parameters

Variables	R ²	f ²	Cross Validated Redundancy	Cross Validated Communality
FP	0.431		0.259	0.601
CP	-	0.049		0.578
IPP	-	0.112		0.618
LGP	-	0.040		0.602
<i>CP=Customer perspective, IPP=Internal process perspective, LGP=Learning and growth perspective, FP=Financial Perspective</i>				

Lastly, for the model’s goodness of fit (GoF) represents the geometric AVE mean and the R² of the endogenous variables, based on the following equation;

$$GoF = \sqrt{(R^2 \times AVE)}$$

Applying the equation, the following result is found; $GoF = \sqrt{(0.431 \times 0.600)} = 0.5085$

In comparison to Wetzels, Odekerken-Schroder [69] threshold values of 0.1 labeled as small, 0.25 labeled as medium, and 0.36 labeled as large, the value falls as large, as the calculated value exceeds 0.36.

4.2.2 Hypotheses Testing

This step entails assessing the relationships hypothesized through the bootstrapping method of PLS-SEM. Figure 1 displays the model using SmartPLS software;

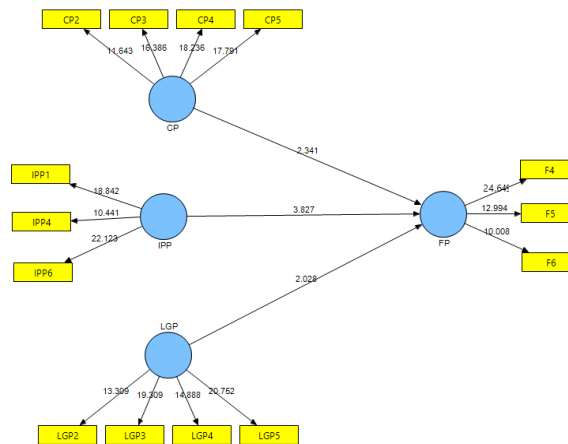


Fig. 1: Research Hypothesis

The t-values, path coefficients and the bootstrapping values were obtained (refer to Table 6), and the results of t-values are as follows; 1.65 at 10% significance level, 1.96 at 5% significance level and 2.58 at 1% significance level.

Table 6: Result of Hypothesis Testing

Hypothesis	Predicted Relationship	Path coefficient	t-value
H1	CP → FP	0.221	2.341**
H2	IPP → FP	0.346	3.827***
H3	LGP → FP	0.198	2.028**

Note: t-values > 1.65* (p < 0.10); t-values > 1.96** (p < 0.05); t-values > 2.58*** (p < 0.01)

CP=Customer perspective, IPP=Internal process perspective, LGP=Learning and growth perspective, FP=Financial Perspective

Table 6 shows that the entire hypothesized relationships are supported, which show that the non-financial BSC perspectives had a significant effect on the financial one in the context of Yemeni HEIs.

5 Discussion and Conclusion

In this study, the primary objective is to examine the effect of the three BSC non-financial perspectives on the financial one in the case of HEIs in Yemen. Such information and finding contributes to the enrichment of BSC literature concerning the non-financial perspectives effects.

on the financial performance of firms and institutions, specifically HEIs and PUs. In this line of study, research has been lacking when it comes to the effects of non-financial perspectives on the financial performance [18], being that only 2 empirical studies exist. In the present study, BSC literature is extended by examining the direct BSC non-financial perspectives on the financial performance of Yemeni PUs. Based on the obtained results, there are direct associations between learning and growth, internal process and customer perspectives on the financial performance of PUs in Yemen. The results also showed consistency with prior findings – prior authors supported that learning and growth perspective positively influenced financial performance [e.g., 18, 55], and internal process perspectives positively influenced financial performance [e.g., 18, 56].

Another contribution of the study, and this time to practice, is the findings implications to shareholders and policy makers of HEIs concerning the non-financial BSC perspectives and the key role they play in financial performance and investments. Management team adopted strategies will work towards achieving the Yemeni PUs vision while at the same time enhancing the students' academic performance, and eventually result in higher financial performance.

Furthermore, practically, the study furnishes empirical evidence to management team in their strategic and long-term planning, and to the departments on how to proceed with the strategies considering the non-financial perspectives effects on the PUs financial performance. Management needs to support the relevant departments in terms of information and knowledge on the non-financial factors (e.g., customer perspective) and how they can be leveraged to attract patronage, investments and higher financial performance levels.

Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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