Verifying the Influences of Leadership Styles upon Organizational Performances: Balance-Scored Card Implementation as a Moderator

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ABSTRACT

This study was intended to verify the effects of implementing the Balance-Scored Card (BSC) on the organizational performances by using BSC as the moderator. Managers and directors in small- and medium-sized enterprises (SMEs) in Taiwan’s electronics industry were interviewed and ROE data was sourced from Taiwan Economic Journal. This study adopted a simple random sampling method to sample the population and used Structural Equation Modeling (SEM) to verify the goodness-of-fit effects of the overall model, structural model, and measurement model. The results show that there is a positive and significant interaction between leadership styles and BSC implementations among the SMEs in the Taiwanese electronics industry.

Keywords: Leadership Styles, Balance-Scored Card, Organizational Performance

RESEARCH BACKGROUND AND PURPOSES

SMEs in Taiwan are confronted with human resource issues in the era of the knowledge economy. It is imperative to guide the members within an organization with leadership so as to enhance work performances. Hence, whether leadership styles affect the implementation and realization of organizational goals is an issue worthy of examination for SMEs. Most scholars argue that leadership styles are an important variable to organizational effectiveness. Leaders may play a pivotal role in organizational operations and leadership behaviour is critical to organizational survival and developments. Hence, operational performances are closely related to leadership behaviour (Sun, 2001; Chuang; 2003; Fan, 2004).

In the context of management accounting, strategic integration is gaining in importance as it is shifting from the traditional single-dimensional performance evaluation toward a multi-dimensional one that is linked to the key success factors for all levels of the organization (Kaplan, 1984; Johnson, 1990; Hall, 1990). The BSC system comprises metrics in three non-financial dimensions (i.e., the “customer”, “internal-business-process”, and “innovation and learning” dimensions) on the top of the conventional financial dimension. The four dimensions put an organization’s vision and strategies together, and constitute a new system that measures performance on the basis of objectives and measures. All of the four dimensions are principal driving forces for future competitiveness. Chow and Haddad (1997) said BSC is valuable mostly because it integrates a business organization’s strategies, framework and vision, while transforming its long-term strategies and objectives (e.g., creating customer value) into tangible actions either internally or externally (Liu, 2002). In other words, the BSC system is the measurement that drives future performances by making up the insufficiency of purely financial measurements. It is also a strategic management tool that connects corporate visions with strategies. Bukh, Johansen and Mouristen (2002) suggested that intellectual capital and BSC are relevant to corporate strategies as they integrate the performance management system.
Electronics manufacturing has been a pillar of the Taiwanese economy for the past few decades, representing an ever-growing portion of the GDP. A considerable amount of applied, or empirical, literature is focused on Taiwanese electronics companies, especially medium to large-sized firms. The scarcity of previous studies dealing with electronics SMEs prompted this study’s author to verify and delve into the effects of leadership styles on the organizational performance of Taiwan-based SMEs in the electronics industry, with BSC as the moderator. The specific purposes of this study are as follows:
(1) To verify whether leadership styles affect the organizational performances of Taiwan-based electronics SMEs in a significantly positive way;
To verify whether BSC implementations affect the organizational performance of Taiwan-based electronics SMEs in a significantly positive way; and
(2) To verify whether leadership styles and BSC implementations in Taiwan-based electronics SMEs affect organizational performances in a positively significant and interactive way.

LITERATURE REVIEW

Below is a literature review of the issues concerning the main dimensions of this study, i.e. leadership styles, BSC and organizational performance.

Leadership
Robbins (2001) believed that leadership is the capability to drive organizations and groups toward goals.
Huang (2001) suggested that leadership is a process of influencing others or an organization toward the goals set up by leaders.
Xu (2001) indicated that leadership is an interpersonal activity process orchestrated by leaders according to specific situations in order to influences individuals or groups toward and to achieve specific goals.
Bruce and Kathleen (2005) argued that leaders perceive the diversity of members in their organizations. They achieve the shared goals and values via innovations and non-destructive methods. Leaders can also prompt members to grow together through internal training and necessary internal resources and support so as to achieve organizational goals.
Hong (2011) defined leadership as the driving of group members toward specific goals, as well as a process of influencing group members to achieve targets (Rauch & Behling, 1984; Wen-chuan Hsieh, 1998).
Yukl (2001) pointed out that since the 1980s, the majority of leadership theories have focused on transformational leadership and transactional leadership as the core concepts. The former is a consistent leadership style that converts organizational tasks into targets. It is a charismatic style of leadership whereby leaders inspire members to look beyond their personal interests and achieve better organization performance. The impact on subordinates is deep, meaningful and profound (Huang, 2011). The ladder is the leadership style that incentives (or punishments) are put in place and role definitions and work requirements are set up to guide or incentivize subordinates so as to achieve goals (Jung and Avolio, 1999). Meanwhile, Bennis (1984) indicated that charismatic leadership shares four capabilities: ability to depict an inspiring vision; ability to articulate this vision to subordinates and persuade them to accept this version; ability to demonstrate a high degree of consistency and focus on the pursuit of the vision; and the ability to understand and leverage own advantages.
Yeh (2009) believed that leadership is based on a good image and technical capabilities, and is an interactive, dynamic and mutually inspiring process that contributes to the growth of individuals and an organization.
As far as the classification of leadership styles is concerned, Hong (2011) proposed four styles: (1) inspiring communication: leaders provide timely encouragement and communication to drive their subordinates to realize their potential and go an extra mile to achieve organizational goals; (2) bespoken attention: leaders personalize their concern and guidance based on the needs of subordinates so that they feel they are attended to; (3) management by exception: leaders only give timely corrections or impose punitive measures when subordinates exhibit improper behaviour; and (4) discretionary rewards: leaders articulate the work targets and award compensation to subordinates.

In sum, this study provides a conceptual definition of leadership styles as “the guidance to group members toward specific goals so as to achieve shared targets”. It adopts the classification of Hong (2011) for the dimensions of leadership styles.

Balance-Scored Card, BSC
Kaplan and Norton (1996) proposed the four dimensions of BSC: (1) financial dimension; (2) customer dimension; (3) internal-business-process dimension; and (4) learning-and-growth dimension.

Because the BSC system is centered on strategies, rather than control, some insightful managers used it to clarify, communicate, and manage strategies. Apparently, BSC has been transformed from an improved measurement system into a core management system (Kuo, 2002).

Wu (1999) contended that the BSC system involves all functions of an organization, citing the relevance of financial dimension to corporate finance and accounting; the relevance of customer dimension to marketing; the internal-business-process dimension, value chain as a whole; the learning-and-growth dimension for employees, human resources.

From a BSC point of view, Lu (2000) explored how capital structure was relevant to the operating performance of IT & electronics firms publicly trade on the Taiwan Stock Exchange over the years between 1958 and 1999. Lu adopted the Cash Flow Adequacy Ratio, sales growth, operating profit margin and Return on Equity (ROE) as metrics for the financial dimension of BSC system; market share and product return rate for the customer dimension; research and development (R&D) benefit, average cash-turnover period, and percentage of maintenance costs for the internal-business-process dimension; revenue per employee and wage per unit for the learning-and-growth dimension.

In a case study of how the organizational learning model was connected to the performance of Taiwanese electronics technology companies’ product development departments, Yeh (2001) valued the performance using three non-financial BSC dimensions (i.e., the customer, the internal-business-process, and learning-and-growth dimensions).

Organizational performances
Szilagyi and Wallar (1980) mentioned that performances are the tool to evaluate the efficiency or effectiveness of resources utilization within an organization. They reflect the actions the individuals take to achieve organizational goals and direct the future distribution of organizational resources. Venkatraman and Ramamnujam (1986) believe that the assessment of organizational performances can be divided into financial, operational, and organizational effectiveness.
According to Ramaswamy, Kroeck and Renforth (1996), there are multiple standards for performance evaluations enabled by financial metrics. That is, single constructs such as Return on Assets (ROA), Return on Sales (ROS), ROE, and sales growth could all be adopted as performance measures, depending on the target and scope of research.

According to Wang (1997), initially referring to how much the results of an endeavor are shown, performance is a concept significant in the two different layers of efficiency and effectiveness. While efficiency is the output-to-input ratio, effectiveness is the degree of goal achievement for an organization (Hsieh, 2006) Organizational operations are pursuits of results that are both efficient and effective. According to the motivation theory of management sciences, performance is interpreted as “a piece of work completed by an employee”. The science of organizational behavior, nevertheless, refers to performance as “an integrated success consisting of efficiency, effectiveness, and efficacy”.

There are multitudinous studies on the measurement dimensions of organizational performance. Since the benefits of organizational performance will eventually be fed back to the financial dimension, most scholars adopt financial performance as one of the measures. Ling and Hong (2010) argued that organizational performances are the achievement of stage-based or overall goals of an organization and the results from relevant divisions and departments before specified deadlines.

Huang (2008) used growth and profitability to measure the financial results of organizational performances. For example, EPS (earnings per share) should be above the industry average. ROE (return on equity) or ROA (return on assets) can serve as financial performance measures (Ling and Hong, 2010; Chang, 2012).

In sum, this study refers to Huang (2008) and Ling and Hong (2010) to measure organizational performances with financial metrics, i.e. EPS and ROE.

Leadership Styles and Organizational Performances

Many studies have also pointed out that the leadership style is the biggest environmental factor that affects organizational performance, morale and satisfaction. (Huang, 2007)

To a certain extent, the studies mentioned above displayed similar viewpoints even if they do not discuss companies from the same industry or of the same size, which prompted this study’s author to propose the following hypothesis:

H1: Leadership styles affect the organizational performance of Taiwan-based electronics SMEs in a significantly positive way.

BSC and Organizational Performance

In a regression analysis of intellectual capital and non-financial BSC dimensions, Peilun Yu (2003) concluded that a good-fitting model is achievable by building the components of IC with non-financial BSC metrics, and that non-financial metrics have explanatory power regarding the financial ones. In other words, the increased value of non-financial metrics contributes to a company’s financial performance.

In his thesis entitled “Exploring the Effect of Balanced Scorecard on Corporate Performance: a Before-and-After Study of BSC Implementation at Taiwan-based Bank A” Tsao (2006) mentioned noticeable gaps among the vision, missions and strategic objectives of a BSC-implementing bank he studied and the objectives of individual bank workers. He went on to suggest that companies should better integrate the vision, missions, and strategic objectives for better performance.

Cho (2011) in a study entitled “Research on Evaluating the Performance Improvement of Organizational Change for IC Design House by the Dimensions of Balanced Score Card-A Case Study of
F Company” concluded that IC design houses are affected by technologies and tasks when it comes to organizational changes, and affected by the learning-and-growth and internal-business-process dimensions with regard to performance enhancement.

To a certain extent, the studies mentioned above displayed similar viewpoints even if they do not discuss companies from the same industry or of the same size, which prompted this study’s author to propose the following hypothesis:

**H2:** BSC implementations by the SMEs in the Taiwan’s electronics industry affect organizational performances in a significantly positive way.

Whether leadership styles and BSC implementations have multiplying effects or synergies on organizational performances is an issue worthy of attention. Hence, this study proposes the third hypothesis.

**H3:** Leadership styles and BSC Implementation have a significantly positive synergy on the organizational performance of listed Taiwan’s electronics industry.

**Research Framework**

Figure 1 shows the research framework derived from the afore-mentioned research purposes, hypotheses, and literature review:

![Research Framework Diagram](image)

**Research Targets and Questionnaire Design**

Respondents of questionnaire survey in this study were selected by Simple Random Sampling. For better content validity and reliability, copies of expert questionnaire were given out after the questionnaire was designed and before pilot-testing. After unsuitable items were revised or removed, 456 copies of questionnaire were sent in a post-test to section chiefs and managers at electronics SMEs in various administrative districts across Taiwan. One hundred and fifty-four out of the 456 questionnaire copies given out were returned valid, hence the 33.77% valid response rate. Consisting of the observable
dimensions mentioned earlier, the questionnaire was designed on the basis of Multi-Dimension Measurement and all answers were measured on a 7-point Likert Scale, with 7 being Strongly Agree and 1 being Strongly Disagree. A higher score represents a greater degree of agreement, and vice versa.

The 16-item questionnaire for BSC was patterned after the four BSC dimensions proposed by Kaplan and Norton (1996), namely the financial, customer, internal-business-process, and learning-and-growth dimensions.

The 12-item questionnaire on leadership styles was designed with reference to Hong (2011).

The measures for organizational performances are EPS and ROS. The item sets of 8 questions are in reference to the questionnaires developed by Huang (2008) and Ling and Hong (2010).

**Common-method-variance Test (CMV Test)**

This study performs a CFA test and finds no common-method-variance problems, as Table 1 shows.

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>DF</th>
<th>$\Delta\chi^2$</th>
<th>$\Delta$DF</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single factor</td>
<td>1337.7</td>
<td>97</td>
<td>895.4</td>
<td>99</td>
<td>0.003</td>
</tr>
<tr>
<td>Multi factors</td>
<td>442.3</td>
<td>196</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SEM and the Measurement System**

Linear SEM was used in a Confirmatory Factor Analysis (CFA) of this study’s research framework. The questionnaire was constructed on the basis of three latent variables (i.e., leadership styles, BSC, and organizational performance), each divided into sub-variables that contain several questionnaire items (as stated below). The data collected was processed to create a primary file for the questionnaire. As for the measurement model, this study’s author designed the questionnaire using Multi-Dimension Measurement but adopted the Dual Measurement method to ensure successfully processed/measured data with the aid of computer software (Chen, 2010). Table 2 shows the number of questionnaire items under each implicit and explicit variable, along with the referential sources (Leea, 2011).

<table>
<thead>
<tr>
<th>Main dimension</th>
<th>Sub-dimension/ measures</th>
<th>Total Number of Questionnaire Items</th>
<th>Referential Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership styles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inspiring communication</td>
<td>3</td>
<td>Hong (2011)</td>
</tr>
<tr>
<td></td>
<td>Bespoke attention</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management by exception</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discretionary rewards</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Balance-Scored Cards</td>
<td>Financial dimension</td>
<td>4</td>
<td>Kaplan and Norton (1996)</td>
</tr>
<tr>
<td></td>
<td>Customer dimension</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internal-business-process dimension</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learning-and-growth dimension</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Organizational performance</td>
<td>EPS</td>
<td>4</td>
<td>Huang (2008), Ling and Ling (2008), Hong (2010)</td>
</tr>
<tr>
<td></td>
<td>ROE</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Linear Structural Model**

This study’s author conducted a CFA, an analytical approach contrary to the Exploratory Factor Analysis (EFA), on each pair of the three main dimensions (i.e., leadership styles, BSC, and organizational performance). Made up of structural and measurement models, SEM effectively addresses
the cause-effect relations among implicit variables. Models in this study were verified in three regards: (1) whether the overall model conforms to the goodness-of-fit metrics; (2) goodness-of-fit of the measurement model; and (3) goodness-of-fit of the structural model (Leea, 2011).

RESULTS AND ANALYSIS

Linear Structural Equation Model

This study’s author conducted a CFA, an analytical approach contrary to the Exploratory Factor Analysis (EFA), on each pair of the three unobservable/latent variables (i.e., leadership styles, BSC and organizational performance). Made up of structural and measurement models, SEM effectively addresses the cause-effect relations among implicit/latent variables. Models in this study were verified in three regards: (1) goodness-of-fit of the measurement model; (2) goodness-of-fit of the structural model; and (3) whether the overall model conforms to the goodness-of-fit metrics. In other words, goodness-of-fit metrics were used to determine the overall goodness-of-fit effect of SEM (Diamantopoulos & Siguaw, 2000).

Analyzing Goodness-of-Fit of Measurement Model

To a large extent, factor loading is intended to measure the intensity of linear correlation between each latent/implicit variable and a manifest/explicit one. The closer the factor loading is to 1, the better an observable variable is in measuring latent variables. Since this study’s reliability is supported by the fact that factor loadings for all observable variables ranged between 0.8 and 0.9, all observable/explicit variables in the measurement model appropriately gauged the latent/implicit ones. The Average Variance Extracted (AVE), on the other hand, gauges an implicit/implicit variable’s explanatory power of variance with regard to an observable one, with the AVE value growing in proportion to the reliability and convergent validity of that particular implicit/latent variable. As a rule, AVE must be larger than 0.5 for an observable variable’s explainable variance to exceed the measurement error (Fornell and Larcker, 1981). Since the factor loadings and Composite Reliability (C.R.) values in this study all exceeded 0.5, with AVE values invariably larger than 0.5, the latent/implicit variables have excellent reliability and convergent validity (see Table 3, and Figure 2).

<table>
<thead>
<tr>
<th>Unobservable/latent variables</th>
<th>Observable Variables - Centralized Dual Measurement</th>
<th>Factor loading</th>
<th>Average Variance Extracted, AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership styles (X)</td>
<td>X1C</td>
<td>0.81</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>X2C</td>
<td>0.82</td>
<td>0.65</td>
</tr>
<tr>
<td>BSC (Mo)</td>
<td>M1C</td>
<td>0.84</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>M2C</td>
<td>0.81</td>
<td>0.61</td>
</tr>
<tr>
<td>X*Mo</td>
<td>X1M1C</td>
<td>0.85</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>X2M2C</td>
<td>0.86</td>
<td>0.66</td>
</tr>
<tr>
<td>Organizational performance (Y)</td>
<td>Z1C</td>
<td>0.81</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td>Z2C</td>
<td>0.83</td>
<td>0.64</td>
</tr>
</tbody>
</table>
ANALYZING GOODNESS-OF-FIT OF STRUCTURAL MODEL

Path Analysis Results of Structural Model

After the model passed the overall goodness-of-fit test, this study summarizes the estimates, standard deviations and critical ratios of latent variables in Table 4. The table suggests that leadership styles and BSC (X*Mo) have significant interactions toward organizational effectiveness (Y) (c=0.686). In other words, when considering the effects of leadership styles on organizational performances, organizations are able to ensure the BSC application and implementation. This approach results in the synergy of leadership styles and BSC.

Table 4: Path Analysis Results of the Structural Model

<table>
<thead>
<tr>
<th>Path coefficients for each pair of implicit variables</th>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership styles (X) → Organizational performance (Y)</td>
<td>.431</td>
<td>.072</td>
<td>5.986</td>
<td>***</td>
<td>a</td>
</tr>
<tr>
<td>BSC (Mo) → Organizational performance (Y)</td>
<td>.382</td>
<td>.063</td>
<td>6.063</td>
<td>***</td>
<td>b</td>
</tr>
<tr>
<td>X*Mo → Organizational performance (Y)</td>
<td>.674</td>
<td>.054</td>
<td>12.481</td>
<td>***</td>
<td>c</td>
</tr>
<tr>
<td>X1 → X1C</td>
<td>.842</td>
<td>.163</td>
<td>5.165</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>X2 → X2C</td>
<td>.831</td>
<td>.161</td>
<td>5.161</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>M10 → M10C</td>
<td>.833</td>
<td>.311</td>
<td>2.678</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>M20 → M20C</td>
<td>.842</td>
<td>.321</td>
<td>2.623</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>X1*M10 → X1M1C</td>
<td>.833</td>
<td>.283</td>
<td>2.943</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>X2*M20 → X2M2C</td>
<td>.841</td>
<td>.282</td>
<td>2.982</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Y → Z1C</td>
<td>.842</td>
<td>.143</td>
<td>5.888</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Y → Z2C</td>
<td>.833</td>
<td>.141</td>
<td>5.907</td>
<td>***</td>
<td></td>
</tr>
</tbody>
</table>

Note: * indicates P<0.05; ** indicates P<0.01; *** indicates P<0.001

Coefficient of Determination

Also known as Squared Multiple Correlation (SMC), the Coefficient of Determination is the degree of explanatory power of “independent variable” regarding “dependent variable” under each implicit variable. In other words, the $R^2$ value shown in Table 5 indicates that the implicit independent variable has adequate explaining ability on the implicit dependent variable respectively.

Table 5 Path Coefficient of Determination

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square Change</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F Change</td>
</tr>
<tr>
<td>1</td>
<td>.581</td>
<td>.338</td>
<td>.322</td>
<td>.217</td>
<td>.006</td>
</tr>
<tr>
<td>2</td>
<td>.687</td>
<td>.472</td>
<td>.453</td>
<td>.312</td>
<td>.019</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Mo and X
b. Predictors: (Constant), Mo, X and Mo*X

Table 5.2 was derived from Table 5.1, as shown below:

Table 5.2: Coefficients$^a$

<table>
<thead>
<tr>
<th>Coefficients of Determination</th>
<th>Adjusted $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership styles (X), BSC (Mo) on Organizational performance (Y)</td>
<td>0.332</td>
</tr>
<tr>
<td>Leadership styles (X), BSC (Mo) and X*Mo upon Organizational performance (Y)</td>
<td>0.453</td>
</tr>
</tbody>
</table>
The Indices of Goodness-of-Fit of the Overall Model

The purpose of adopting SEM in the modeling phase of this study is to explore the relationship between unobservable variables within the structural model, to examine whether the measurement model has measurement reliability or not, and also to measure the overall goodness-of-fit effects of this study using such metrics as $\chi^2$, d.f., GFI, AGFI, NFI, CFI, RMR and RMSEA. In most cases, it is required that $\chi^2$/d.f. <5, 1>GFI>0.9, 1>NFI>0.9, 1>CFI>0.9, RMR<0.05 and RMSEA<0.05 (Bagozzi & Yi, 1988). The goodness-of-fit of the overall model in this study is satisfactory, given the fact that $\chi^2$/d.f. <5 and GFI, AGFI and NFI all exceed 0.90, with RMR smaller than 0.05 (see Table 6) (Lee, 2012 & Chang, 2012).

<table>
<thead>
<tr>
<th>Determination index</th>
<th>$\chi^2$</th>
<th>DF</th>
<th>GFI</th>
<th>AGFI</th>
<th>NFI</th>
<th>CFI</th>
<th>RMR</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fit value</td>
<td>12.705</td>
<td>14</td>
<td>0.923</td>
<td>0.913</td>
<td>0.903</td>
<td>0.901</td>
<td>0.024</td>
<td>0.021</td>
</tr>
</tbody>
</table>

Standardized Results of SEM Analysis

Figure 3 indicates the result of computer-aided standardization of the model’s overall framework:

![Figure 3: Standardized results of SEM analysis](image-url)
Analytical Testing of Path Effect for the Structural Model

The test on the moderator is first based on hierarchical regression (Table 5.1), followed by the regression analysis and t-tests on centralized X, Mo and X*Mo. The purpose is to test whether coefficient c is statistically significant (or equal to 0) as Table 7 shows.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>3.821</td>
<td>.972</td>
<td>.455</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>9.732</td>
<td>.913</td>
<td>.481</td>
</tr>
<tr>
<td></td>
<td>Mo</td>
<td>8.883</td>
<td>.831</td>
<td>.29</td>
</tr>
<tr>
<td>2</td>
<td>(Constant)</td>
<td>5.034</td>
<td>1.262</td>
<td>.451</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>9.191</td>
<td>.823</td>
<td>.481</td>
</tr>
<tr>
<td></td>
<td>Mo</td>
<td>8.361</td>
<td>.836</td>
<td>.296</td>
</tr>
<tr>
<td></td>
<td>X*Mo</td>
<td>15.403</td>
<td>.862</td>
<td>.686</td>
</tr>
</tbody>
</table>

*a. Dependent Variable: Organizational Effectiveness (Y)*

According to Table 7, the path coefficient of Mo*X to Y is 0.686, indicating the moderator effects of Mo*X to Y.

Based on the above analysis, this study concluded the following:

(1) Leadership styles have positively significant effects on organizational performances, with a standardized path coefficient of 0.46. Hence, H1 is substantiated. (Hypothesis substantiated)

(2) BSC has positively significant effects on organizational performances, with a standardized path coefficient of 0.37. Hence, H2 is substantiated. (Hypothesis substantiated)

(3) Leadership styles and BSC have positively significant and interactive effects on organizational performances, with a standardized path coefficient of 0.66. Hence, H3 is substantiated. (Hypothesis substantiated)

CONCLUSION AND SUGGESTIONS

Conclusions

The following specific conclusions were derived from the afore-mentioned data analyses and results:

SEM verification

As for SEM verification, this study’s SEM has a satisfying goodness-of-fit in terms of the measurement, structural models and the overall structure, hence a good model fitting.

Validation of business practices

Leadership styles and BSC implementations among the SMEs in the Taiwanese electronics industry have positively significant and interactive effects on organizational performances. In other words, BSC is a variable with positive and mediating effects. According to Chen (2010), if a moderator and an independent variable simultaneously exert a significant interaction effect on a dependent variable, neither the independent nor the moderator will have a significant effect on the dependent one (Chang, 2012).
CONTRIBUTIONS OF THE PRESENT STUDY

(1) As for Business practices:
While previous literature tends to be EFA in nature, this study’s author performed modeling according to the literature review, and tested the proposed model for goodness-of-fit effects. That is, the present study is a CFA-based one that addresses a crucial topic regarding the business practices. This research results provide a highly valuable referential basis for further research projects and also for the managerial decision-making at the SMEs in the Taiwanese electronics industry.

(2) Innovative applications of research methodology
The majority of existing literature applies multi-regression for exploratory research. Very few papers establish a research framework that includes the confirmatory factors such as the mediating effects of latent variables. The main dimension of this study consists of implicit variables, so CFA and linear SEM (structure equation modeling) are the appropriate measurement tool and the model structure. In other words, this study is innovative in its research methods.

Limitations and Recommendations
(1) It is advisable that a simple verification model be built for CFA-based studies to avoid excessive complexity and the subsequently poor goodness-of-fit (Chen, 2010). Therefore, this study should only take into account the effect of leadership styles on organizational performances and treat BSC as the moderator factor in the model.
(2) This study uses simple random sampling and hence the effective recovery rate of the sample is somewhat low. In other words, the selected sample may be insufficiently representative of the population. This study suggests that follow-up studies adopt stratified random sampling techniques.
(3) This study is limited to a CFA study on the SMEs in the Taiwanese electronics industry. Future studies may conduct the same tests on different industries in order to compare whether different industries exhibit variances in the overall goodness-of-fit of the same model.

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