The Effect of Judgmental/Subjective Measures on Implementing Balanced Scorecard in Bahrain Firms

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Abstract

Very little attention has been paid to study the judgmental effects of the balanced scorecard (BSC) in the developing countries, particularly in the Gulf area. This paper analyzes survey data from forty Bahrain firms in order to examine the extent to which these firms use of judgmental/subjective measures in evaluating their performance. The findings reject the null hypothesis and report statistically significant differences between Bahrain firms in using judgmental, /subjective measures in their balanced scorecards. However, data are analyzed by Paired t tests and ANOVA; significant differences are found between both types of firms with and without subjective measures in the use of BSC, particularly in cost measures and internal process measures. Furthermore, the study reports various types of measures have different impacts on the performance evaluation in these firms.

Keywords: balanced scorecard, performance measurement, subjective measures.

1. Introduction

Kaplan and Norton (1996) argue that balanced scorecards should compose four types of measures: (1) financial and nonfinancial; (2) external and internal; (3) inputs/drivers and outputs/results; (4) objective and subjective/judgmental measures. In more recent studies, Kaplan and Norton (2006) argued that strategy is formulated at the top, but it must be executed at the bottom: if employees don't understand the strategy or are not motivated to achieve it, the firm's strategy is bound to fail. They explained that employees become truly empowered by understanding what the firm wishes to accomplish and how they can contribute. Managers get a more comprehensive view of the strategy when they properly with a diverse set of key measures of performance and when their personal perception of strategic priorities become more similar to those held by other managers and more similar to the priorities of the top managers. Kaplan and Norton (1992, 1993, 1996a, 1996b, 2001a, 2001b, 2001c, 2004) and Kaplan (2006) developed the balanced scorecard (BSC) as a strategy implementation and control model. The BSC requires firms to translate strategic goals into financial and non-financial performance measures for monitoring strategy implementation and updating strategy. The BSC has been characterized as a control system which is based on top-down hierarchical measurements Abernethy et al. (2009) indicated that alignment of strategy with performance measures by motivating managers to direct attention to activities that have an effect on long-run firm value. Also, Ittner et al. (2003a, b) argued that BSC complement traditional measures with those of multiple value driver categories, leading managers attain a broader strategic view by building priorities that are more balanced. A more balanced strategic view means a better understanding of the strategy because it avoids the sub-optimization that occurs when performance in some value driver categories is improved at the expense of others Chang et al., (2003); Mangaliso, (1995); Chenhall and Morris, (1986). Therefore, BSC is considered a better instrument to communicate the strategy if switching from traditional performance measures to the strategy-driven-measures trigger a balancing effect on managers' beliefs This study explores and analyzes differences in the performance measurement practices of the in the Bahrain firms. The study contributes to build an understanding of the trend of adopting financial, non-financial and judgmental/ subjective measures in the performance evaluation of Bahrain firms.

2. Review of Literature

Most of prior studies do not examine how different types of performance measures or different forms of subjectivity (i.e., flexibility in assigning weights to measure, use of qualitative performance evaluations, and/or discretion, to incorporate other performance criteria) should be incorporated into the BSC. Prior studies have dealt with how managers judge performance measures they have been using (e.g., Banker et al., 2004; Dilla and Steinbart, 2005; Ittner and Larcker, 2003). Baiman and Rajan (1995) identified the potential benefit of subjective performance measures, including mitigating distortions in managerial effort by removing dysfunctional behavior induced by objective performance measures. In addition, subjective performance measures also reduce noise in the overall performance evaluation in that they are influenced by uncertain, uncontrollable events. Limited empirical research examined judgmental effects of BSC, for example. Lipe and Salterio (2000, 2002) and Banker et al. (2004) explored the judgmental effects of some attributes of information provided by BSC. These authors argued that communicating new information through BSC may assist managers when processing this information. They found that the use of instruments like the BSC resulted in different managerial judgments and decisions. Burney et al. (2009) investigated the extent to which employees perceive that BSC reflect a strategic causal model and the degree to which it is positively associated with both, employees' perceptions and

performance. Ittner and Larcker (2003) suggested that the use of individual, non-financial, qualitative and subjective performance measures is motivated by these measures' qualities or their "informativeness". Lipe and Salterio (2000, 2002) and Banker et al. (2004) explored the judgmental effects of some attributes of information in the context of firms adopting BSC to improve performance. For instance, Lipe and Salterio (2000) argued that, when evaluating the performance of multiple business units, managers tend to put more weight on the information contained in common measures than on the information contained in specific measures of each business unit. In addition, these authors showed that, in some cases, judgments made with the BSC differ from those made with the same, though unstructured, list of measures. Therefore, the superior usefulness of the BSC compared to any alternative system seems to be based on its specific performance measurement scheme. The way the BSC translates strategy into a set of measures seems to better match the way managers build their own knowledge structures, helping them in processing performance information. According to Luft (2004, p. 969), managers' understanding of strategy is improved by developing and using the BSC in their performance evaluation. Moreover, Banker et al. (2004) stressed that the beneficial framing of BSC is not only due to the categorization of measures among several perspectives, but also, and mainly, to the associations between those measures. BSC usually contain strategic maps in which strategic goals are placed in several dimensions, and in which the associations among those goals are made explicit. The process of developing and communicating cross-functional relationships help in the identification of the performance drivers of long-term organizational success, and in the building of stronger links between these drivers (Chenhall, 2005; Webb, 2004; Ittner et al., 2003a, b; Lipe and Salterio, 2000, 2002). Finally, it may make managers changing their knowledge structures and having a better understanding of the strategy. Therefore, the null research hypothesis can be formulated as follows:

"There is no difference between the Bahrain firms in that performance evaluation using the balanced scorecard will be affected by using subjective measures."

The rest of the paper is organized as follows: the third section is dedicated to the research objectives and methodology. This is followed by the fourth section, in which survey results are discussed. Conclusions, including possible areas for further research, are presented in the final section.

3. Research Objectives and Methodology

The main objective of this study is to explore the performance measurement choices and objectives of Bahrain companies in order to gain an understanding of current practices. The specific objectives are to:

— Investigate the extent to which Bahrain firms use a combination of financial and non-financial and judgmental/subjective measures in their performance evaluation
— Analyze the characteristics of users, to determine whether the practices differ between companies by industry.

A total of 90 firms was randomly selected from the directory of the Ministry of Commerce and Industry (MCI) in Bahrain as listed in 2012. The MCI has consistently led Bahrain firms in the growth and modernization. The directory lists firms of varying sizes. Firms chosen are from various industries and are located throughout Bahrain. Only firms with less than 100 employees were included in the target sample in order to represent firms in different industries. A total of 48 firms requested the questionnaire. A survey instrument is a questionnaire accompanied by a cover letter sent by e-mail to financial managers and CEO in different industries in Bahrain. The questionnaire administered to a sample of 48 large and intermediate firms because these firms are most likely to adopt BSC. The questionnaire contains two categories of questions: the "yes" or "no" questions, including general questions about the respondents, such as position, experience, type of industry, number of employees, total assets and operations. Also, the questionnaire contains the extent to which the respondents use twenty four financial, non-financial, judgmental/ subjective and measures in evaluating their performance. The questionnaire's items were measured using five point Likert-type rating scale ranging from 5 (to a very large extent) to 1 (not all). I have also interviewed some CEO and financial managers to explore their understanding of the strategy adopted in their firms and to identify how they use their knowledge to develop subjective or judgmental measures in evaluating the performance in their firms. To improve the response rate a reminder after 1 month and an offer of the summary of findings was sent to the respondents. I did not receive any response from seven overseas firms despite sending reminders. Consequently, of the total questionnaires received, 40 usable responses were received, giving a total effective response rate of 83 per cent. Of the 40 usable questionnaires, thirty (75 percent) were from financial managers while the remaining ten (25 percent) were from the CEO. The response rate was considered satisfactory in view of the high level of sensitivity usually attached to the subject of performance measurement. The experience and current positions indicate that respondents would have a collective financial orientation and perspective on issues relating to the use of financial and non-financial measures in their respective organizations. In order to assess the internal consistency of responses, I interviewed some academic staff in the accounting department at the University of Bahrain. Also, I conducted a pilot study in some Bahrain firms to make sure that the questionnaire covers all items that would be tested; these

firms were excluded from the sample. The questionnaire was revised based on the feedback received. In addition, a reliability test was performed on the questionnaire responses. The Cronbach coefficient values are over 0.70 for internal performance measurements, including cost, quality and judgmental/ subjective related measures. Only for market related measures was the value well below the accepted below 0.60. These values clearly indicate the internal reliability of the questionnaire design and responses.

4. Findings and Discussion

4.1 Descriptive Statistics

Table 1 Distribution of respondents*

Industry	No. of firms In the sample	Total Respondents	Percentage
Commercial banks	6	6	15.0
Investment	4	3	07.5
Insurance	7	7	17.5
Services	5	4	10.0
Industrial	16	14	35.0
Hotels	5	6	15.0
Overseas companies	5	0	00.0
Total	48	40	100.0
Total employees in the firm			
Range of employees			
Less than 100		13	32.5
100 – 200		8	20.0
200 - 400		10	25.0
More than 400		9	22.5
Total		40	100.0
Total Assets of the firm			
Range of total assets			
Less than $1 Million		7	17.5
$1 - $50 Million		19	47.5
$50 - 100 Million		0	00.0
More than $. 100 Million		14	35.0
Total		40	100.0

*based on the type of industry, and firm's size by number of employees and by total assets.

The descriptive statistics in terms of the type of industry, the number of employees and the total assets of the firm are described table 1. Table 1 shows the respondents are evenly distributed across different industries. Furthermore, the industrial sector total 14 represents 35 percent out of the total respondents. Banks, investment and insurance firms and hotels total 16 represent 40 percent out of the total respondents. The remainder represents hotels and services total 10 represents 25 percent out of total respondents. It is understandable the industrial sector is the most important sector that gives attention to measure the performance using BSC. Table 1 show the analysis is based on the firm size. The firm's size is measured by both number of employees and total assets. It is expected that firms with big number of employees are more difficult to control for their employees than firms with a small number of employees. These big firms are more likely to have BSC with judgmental/subjective measures to improve their performance. This is perhaps because of a small firm may be controlled without charging the cost of establishing BSC with judgmental measures. However, determining of the effect of a firm's size on implementing of BSC is out of this study.

4.2 Performance Measurement Using the BSC

Prior studies reported that modern performance measurement systems place less significance on financial measures. However, there is a growing literature on the use of non-financial measures in the Western firms. For example, Bhimani (1994) and Dugdale (1994) conducted surveys in the UK firms to examine the extent in which the balanced scorecard is adopted and they reported that non-financial measures were more preferable than financial measures in these firms. Hitt et al. (2005) concluded that if only some aspects of performance are measured, the results can be misleading, and can distort these results that are used as a feedback to improve performance. Other studies conducted in the American firms, for example, Nørreklit, (2000, 2003). Sim and Koh

(2001) collected data from electronics firms in the USA, and reported that both financial and non-financial measures were used in these firms. They concluded that firms are strategically linked their corporate goals to their performance measurement systems, through their balance scorecards, performed better than those that did not. The findings reported by Forde et al., (2006) and Gomes et al. (2007) indicated that the growing significance of non-financial and non-traditional performance measures in an information flow between executives and financial. In Canada, Gosselin (2005) found that despite the trend towards the integrated use of comprehensive financial and non-financial measures of performance, financial measures are more frequently used, while few firms have implemented BSC. Chow and Van Der Stede (2006) also found that firms still prefer using financial measures over non-financial measures. In more recent studies of the BSC for example, Taylor and Baines (2012) addressed the reasons why UK institutions are increasingly making use of strategic management tools such as the BSC. Another recent study Amando et al. (2011) and Mike et al. (2014) assessed the usefulness of BSCs in combination with Data Envelopment Analysis (DEA). They referred to a third-generation of BSC and proposed eight subsets of BSC grouped into three generations: the first being the initial generation of scorecard, the second generation including strategy maps, and the final generation which includes destination statements.

In order to find how the financial, non-financial and subjective measures may impact on other aspects of the firms' performance, the respondents were asked to estimate the influence of different measures. The responses were measured using a Likert scale, where 5 indicated a very great extent and 1 indicated not at all. The results are presented in Tables 2, 3 and 4. Furthermore, I applied a paired t test and ANOVA to analyze the responses in order to find the statistical difference between financial and non-financial measures, financial and subjective measures, and non-financial measures. The results are presented in Tables 5.

Table 2 Balanced scorecard (the four perspectives) used by the respondents N=40

Balanced scorecard	To a very large extent	To a large extent	Neutral	To some extent	Not using	Mean	SD	Rank	N
Cost measures:									
Direct cost variance	11 (28.2)	14 (35.9)	12 (30.7)	1 (2.6)	1 (2.6)	3.85	0.94	1	39
Indirect cost variance	7 (17.9)	15 (38.5)	16 (41.0)	-	1 (2.6)	3.73	0.84	2	39
Variable cost variance	5 (13.2)	17 (44.7)	13 (34.2)	2 (5.3)	1 (2.6)	3.62	0.89	3	38
Fixed cost variance	11 (27.5)	7 (17.5)	17 (42.5)	3 (7.5)	2 (5.0)	3.40	1.06	4	40
Nonfinancial measures:									
A)Internal process measures									
Labor productivity	16 (41.0)	11 (28.2)	7 (17.9)	1(2.6)	4 (10.3)	3.89	1.22	1	39
Capacity utilization	9 (23.7)	18 (47.3)	9 (23.7)	-	2 (5.3)	3.81	0.80	3	38
Cycle/lead time	11 (27.5)	17 (42.5)	9 (22.5)	-	3 (7.5)	3.83	1.13	2	40
Production efficiency	10 (25.6)	13 (33.3)	12 (30.8)	3 (7.7)	1 (2.6)	3.72	0.97	4	39
New product/service introduction	6 (15.4)	17 (43.5)	11(28.2)	3 (7.7)	2 (5.2)	3.65	0.95	6	39
B) Customer measures									
No. of warranty claims	6 (15.4)	17 (43.6)	11 (28.2)	3 (7.7)	2 (5.1)	3.50	0.96	4	39
Customer loyalty/satisfaction	12 (30.8)	16 (41)	10 25.6)	2 (5.2)	1 (2.6)	3.85	0.99	3	39
Delivery performance	17 (43.6)	17 (43.6)	4 (10.2)	1(2.6)	-	4.15	0.88	1	39
No. of customer returns	13 (32.5)	19 (47.5)	5 (12.5)	3 (7.5)	-	3.93	0.85	2	40
C) Learning & growth measures									
Employee loyalty/satisfaction	7 (17.5)	17 (42.5)	13 (32.5)	3 (7.5)	-	3.62	0.85	3.5	40
Employee skills	11 (28.9)	14 (36.9)	8 (21.1)	4 (10.5)	1 (2.6)	3.77	1.05	2	38
Employee empowerment	7 (17.9)	15 (38.4)	14 (35.9)	2 (5.2)	1 (2.6)	3.62	0.91	3.5	39
Employee training	18 (46.2)	13 (33.3)	5 (12.8)	3 (7.7)	-	4.33	0.87	1	39

Figures in brackets show percentages. Ranks are based on mean scores.

Table 3 Mean ranking and significant differences of the selected attributes of subjective measures N = 40

Subjective measures related:	To a very large extent	To a large extent	Neutral	To some extent	Not using	Mean	SD	Rank	N
My long-term view on the firm	9 (23.7)	21 (55.3)	6 (15.8)	2 (5.2)	-	4.00	0.74	5	38
My capability to gain innovative skills/knowledge	13 (32.5)	19 (47.5)	7 (17.5)	1 (2.5)	-	4.09	0.78	3.5	40
My willingness to share knowledge with others in the firm	19 (47.50)	15 (37.5)	5 (12.5)	1 (2.5)	-	4.26	0.76	1	40
My collaboration with others in the firm	17 (42.5)	15 (37.5)	8 (20.0)	-	-	4.21	0.81	2	40
Employee aspiration in my department	10 (25.5)	18 (46.1)	9 (23.1)	2 (5.3)	-	3.89	0.85	7	39
My leadership skills	13 (33.3)	13 (33.3)	10 (25.7)	3 (7.7)	-	3.98	0.93	6	39
My loyalty toward the firm	15 (37.5)	13 (32.5)	10 (25.0)	1 (2.5)	1 (2.5)	4.09	0.99	3.5	40

Figures in brackets show percentages. Ranks are based on mean scores.

Table 3 shows that all the subjective measures received scores above the mean of the scale are considered important in the evaluation process. The most important subjective measure used for performance measurement by the sample firms in Bahrain is (mean = 4.26) share knowledge with others in the firm. This reflects that managers in the Bahrain firms are interested in the coordination between employees who have empowerment in decision making. Collaboration with others in the firm (mean = 4.21) is the next subjective measure which indicates a high degree of cooperation between those employees followed by both capability to gain innovative skills/knowledge and loyalty toward the firm (mean =4.09). These two subjective measures indicate that the employees percept and absorb any new performance measurement system like BSC. The next subjective measure in the rating is the leadership skills (mean = 3.98) which reflect that those employees have a high degree of capability to make managerial decisions, conduct their subordinates and use more sophisticated systems to evaluate the performance of them. The last subjective measure in the ranking of importance is employee aspiration in my department (mean=3.89) which indicates that the employees do not motivate to build a unique BSC, rather they adherent to follow the common BSC which derived from the organization goals. Also, it means that they are not encouraged the dysfunctional behavior and sub-optimization of their performance.

4.3 Performance Objectives
In order to find how the financial, non-financial and subjective measures may impact on other aspects of the firms' performance, the respondents were asked to estimate the influence of different measures. The respondents were asked to rank 10 performance objectives in order of their perceived the importance to their performance evaluation decisions. Their judgments were rated on a five-point Likert-like scale of 1 (not at all important) through to 5 (extremely important), yielding ordinal-scaled data. The responses were analyzed in table 5 to provide relevant statistical results with regard to performance objectives. The means were then ranked in descending order of importance in table 4. The respondents view their performance system as successful if it helps discourage dysfunctional behavior, encourage innovation, encourage goal congruence, discourage goal conflict, encourage an equitable performance evaluation, contribute to achieve overall corporate goals and avoid the focus on the sub-optimization of goals, encourage alignment of goals across departments, discourage moral hazard and motivate managers and subordinates. The respondents consider the most important objectives to achieve by using non-financial measures are avoidance the sub-optimization of goals returned the highest (mean = 3.83), while encouragement innovation has a mean of 3.79. However, there is a relatively high level of concord amongst respondents on the ranking of 'encouragement of goal congruence', as indicated by its lower standard deviation of 0.88 (mean 3.70). The high ranking of avoidance the sub-optimization of goals accorded the achievement of corporate goals is not surprising. A performance measurement system enables executives to co-ordinate overall activity and motivate the behavior that is congruent with the organizational goals. Other objectives that received high ratings are encourage alignment of goals across departments, contribute to achieve overall corporate goals and encourage an equitable performance evaluation which were ranked fourth, fifth and sixth respectively. However, the respondents consider the financial measures contribute to achieve overall corporate goals (mean = 3.95), while avoidance the sub-optimization of goals has a mean of 3.83. Other objectives which, given a lower ranking are to encourage of goal congruence (mean = 3.77), encourage innovation, encourage an equitable performance evaluation and encourage alignment of goals across departments

(mean=3.71). Similarly, Subjective measures contribute to achieve performance objectives in different ranking. They contribute to encourage goal congruence (mean = 3.69), equitable performance evaluation (mean 3.61), contribute to achieve overall corporate goals (mean = 3.54) and encourage alignment of goals across departments (mean = 3.54).

Table 4 Mean ranking and significant differences of the selected attributes of performance objectives N = 40

Performance objectives	Subjective measures			Financial measures			Non-financial measures		
	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank
Discourage dysfunctional behavior	2.95	1.26	7	2.91	1.33	7	2.86	1.16	8.5
Encourage innovation	3.43	1.27	5	3.71	1.01	4	3.79	0.98	2
Encourage goal congruence	3.69	1.11	1	3.77	1.13	3	3.70	0.88	3
Discourage goal conflict	2.63	1.31	10	2.35	1.13	10	2.47	1.21	10
Equitable performance evaluation	3.61	1.25	2	3.55	1.08	5.5	3.41	0.89	6
Contribute to achieve overall corporate goals	3.54	1.29	3.5	3.95	1.02	1	3.49	1.21	5
Avoid the focus on the sub-optimization of goals	3.17	1.19	6	3.83	1.15	2	3.83	0.97	1
Encourage alignment of goals across departments	3.54	1.16	3.5	3.55	1.08	5.5	3.67	0.98	4
Discourage moral hazard	2.90	1.01	8	2.88	1.08	8.5	3.12	1.12	7
Motivate managers and subordinates	2.87	1.18	9	2.88	0.99	8.5	2.86	1.11	8.5

Table 5 Significant differences of performance objectives between firms with and without subjective measures N = 40

Performance objectives	Over all Mean	Firms with Mean	Firms without Mean	T test value d*f* sig	ANOVA F-ratio	d*f*	Sig.
Discourage dysfunctional behavior	3.91	4.22	3.21	1.16 (40) 0.25	0.64	(2,39)	0.54
Encourage innovation	3.83	1.01	3.63	1.71 (39) 0.09***	1.09	(2,37)	0.35
Encourage goal congruence	3.84	4.12	3.69	1.27 (39) 0.21	3.05	(2,37)	0.07***
Discourage goal conflict	3.73	4.12	3.44	2.52 (40) 0.01*	7.43	(2,39)	0.01*
Equitable performance evaluation	3.66	3.75	3.64	0.37 (39)0.71	1.95	(2,37)	0.17
Contribute to achieve overall corporate goals	3.21	3.33	3.12	069 (38) 0.48	1.21	(2,36)	0.32
Avoid the focus on the sub-optimization of goals	3.43	3.79	3.18	2.15 (40) 0.03**	5.52	(2,38)	0.01*
Encourage alignment of goals across departments	3.71	4.17	3.42	2.73 (40) 0.01*	6.50	(2,38)	0.01*
Discourage moral hazard	3.28	3.38	3.16	0.77 (39) 0.45	0.67	(2,37)	0.55
Motivate managers and subordinates	2.66	2.96	2.38	2.69 (40)0.09***	3.39	(2,37)	0.05**

Figures in brackets show percentages. Ranks are based on mean scores.
*Significant at 0.01 level
** Significant at 0.05 level
*** Significant at 0. 10 level

Table 5 shows the average ratings of different types of measures were calculated based on t-tests at a 10% two-tailed probability level using paired t tests. It was found that there is a significant difference for at least one comparison between firms with and without subjective measures per performance objective. Paired t tests

between both types of firms show significant differences for four measures with respect to the effect of subjective measures with respect to 'discourage goal conflict' (t = 2.52; df = 40; p < 0. 01), and 'Avoid the focus on the sub-optimization of goals' (t = 2.15, df = 40; p < 0.05). 'Encourage alignment of goals across departments' (t = 2.73, df = 40, p < 0. 01) and 'Motivate managers and subordinates' (t = 2.69, df = 40, p < 0.10). One conclusion from the results is that subjective measures are seen to be the most effective measures along these dimensions. The reasons could be that Bahrain firms may be placing greater weight on these measures in their performance evaluation. ANOVA is also used to analyze data. Significant differences are observed for five measures with respect to the effect of subjective measures. These are: encourage goal congruence (F = 3.05; df (2, 37); p < 0.10), discourage goal conflict (F = 7.43; df (2, 39); p < 0.01), avoid the focus on the sub-optimization of goals (F = 5.52; df (2, 38); p < 0.01), encourage alignment of goals across departments (F = 6.50; df (2,38); p < 0.01), motivate managers and subordinates (F = 3.39; df (2,37); p < 0.05).

5. Conclusions and Implications

The subject of the balanced scorecard continues to grow, but very little research about the impact of the judgmental/subjective measures on using of BSC in evaluating the performance. However, this study focuses the extent to which Bahrain firms combine the judgmental/subjective measures in their balanced scorecard for evaluation of their organizational performance. Therefore, this study tried to improve our understanding of performance evaluation practices in one of the developing countries like Bahrain. It is found that there are differences in the respondents' perceptions of a firm's performance objectives. The findings provide important conclusions that Bahrain firms have been selected, implementing and integrating the use of appropriate measures. It appears that they understand that the chosen measures are an integral part of reporting and performance evaluation because they affect employee behavior, customer services and organizational performance. Furthermore, some measures may have their own strengths and weaknesses, but other measures appear to complement each other. The point is to achieve their performance objectives. The findings may be used to stimulate both managers and accountants in the use of these subjective measures. As hypothesized, the type of firm also affects the selection of performance measures. This explains why subjective measures are an important factor for implementing the BSC, as we observed significant differences between subjective, financial and non-financial measures.

6. Limitations of Study and Future Research Directions

The first limitation is selecting the random sampling from the list of Bahrain firms on the website of the Ministry of Commerce and Industry, so long as the complete contact information about the firms was available. Only firms were chosen if contact information was available. Another possible limitation of the possible misunderstanding of the performance measures in the questionnaire and inconsistencies that are associated with. Furthermore, the research results cannot be generalized because the sample may not representative of all Bahrain firms because the response rates were relatively low. One area which calls for further research is to select the best performance measures tailored for decision making and the best performance measures in a specific industry, as the technology, processes and constraints differ between various industries. Another future research area is to determine the effect of a firm's size on implementing of BSC.

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