

Multiple Performance Measures and Organisational Performance in an Emerging Market

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Abstract

The performance measurement diversity approach suggests that organisations attain superior performance when they place greater emphasis on a broad set of financial (FPMs) and non-financial performance measures (NFPMs). This study is an empirical investigation of the relationship between multiple performance measures (MPMs) and organizational performance (OP) in a Libyan context. Cross-sectional questionnaire survey data was obtained from 132 Libyan companies (response rate of 61%). The results indicate that MPMs are commonly used by both manufacturing and non-manufacturing Libyan companies. However, these companies still rely heavily on financial performance measures. The relationships between NFPMs and OP, and MPMs and OP are positive and highly significant. The relationship between FPMs and OP is positive but not significant.

Keywords: *Organisational Performance, Measurement Diversity, Performance Measures.*

1. Introduction

The ability of organisations to compete successfully depends to a significant extent on the availability and adequacy of information which enables managers to act effectively. Information that is used for planning and controlling business activities is provided mainly by performance measurement systems (PMSs). Therefore, the design, implementation and use of appropriate PMS is one of the major challenges confronting organisations (Santos et al., 2002).

Neely et al. (1995) suggest that a PMS represents a set of metrics used to quantify the efficiency and effectiveness of actions and that these metrics can be financial or non-financial, short or long term, internal or external. The most common typology is a division into financial performance measures (FPMs) and non-financial performance measures (NFPMs). The move from so-called “conventional, traditional or financial” measures to more wide-ranging “non-financial, innovative, integrated, balanced or multiple” measures has been the key development in the performance measurement field (Eccles, 1991). In this context, PMSs evolved “*from a characterisation based on the measuring and control of costs to one based on measuring the creation of value and thus on non-cost performance*” (De Toni and Tonchia 2001, p.47).

Conventionally, all kinds of organisations have measured and evaluated their performance (or effectiveness) by using financial measures which are derived from pure accounting systems (e.g. return on investment, net earnings, sales or cost measures) (Eccles, 1991). However, concerns have been expressed about the sole use of accounting performance measures (Kaplan, 1983; Johnson and Kaplan, 1987; Dixon et al., 1990; Eccles, 1991; Lynch and Cross 1991; Ghalayini and Noble, 1996; Ittner and Larcker, 1998; Neely, 1999; Bourne et al., 2000; Ittner et al., 2003; Jusoh et al., 2008). One reason for their concern is that (traditional) financial performance measures have a number of shortcomings and limitations. In particular, as they are “*too historical and backward-looking, lack predictive ability to explain future performance, reward short-term or incorrect behaviour, provide little information on root causes or solutions to problems, and give inadequate consideration to difficult to quantify intangible assets such as intellectual capital*” (Ittner et al. 2003, p. 717).

The criticisms about excessive reliance on financial performance measures, changes in the business environment, intensity of competition, and growing improvement initiatives in manufacturing (e.g. TQM approaches, JIT strategies) are the key issues which have forced organisations to develop their PMSs, and resulted in the creation of innovative performance measures which are named multiple/integrated performance measurement systems (Ittner and Larcker, 1998; Neely, 1999; Hoque et al., 2001; Van der Stede et al., 2006; Jusoh and Parnell, 2008; Verbeeten and Boons, 2009). This approach is based on supplementing financial metrics

with a diverse set of non-financial performance measures. It is suggested that NFPMs and FPMs should both shape the PMS of organisations (Kaplan and Norton, 1992, 1996; Said et al., 2003; Jusoh and Parnell, 2008, p.8).

Timely information concentrating on the causes and drivers of success can be obtained by NFPMs since NFPMs often place weight on the concept of lagging and leading performance drivers (Luft and Shields, 2002; Thorne, 1995; Banker et al., 2000). This means that NFPMs may be leading indicators of issues which will eventually influence financial performance. Therefore, they can be valuable and helpful in predicting organisations' future financial performance¹ because these measures encompass forward-looking information about performance which is missed by financial indicators (Kaplan and Norton, 1996; Ittner and Larcker, 1998; Banker et al., 2000). NFPMs are also key indicators of intangible assets (e.g. intellectual capital) and major drivers of organisational value (Kaplan and Norton, 1996; Ittner and Larcker, 1998; Jusoh et al., 2008; Jusoh and Parnell, 2008).

However, the key characteristics of effective performance systems remains unclear. An effective performance measurement system may be based on using a balanced set of key financial and non-financial critical success factors and key performance indicators which stimulate involvement in continuous improvement. (Geanuracos and Meiklejohn, 1993).

Therefore, organisational performance may depend on the diversity of performance measures used. This means that a company may achieve superior performance when it can place a greater emphasis on a broad set of financial and non-financial performance measures (Ittner et al., 2003; Van der Stede et al., 2006). However, although multiple performance measures (such as quality, productivity, innovation and customer satisfaction) have received a lot of attention from practitioners and academics since the early 1990s, many empirical studies have failed to provide clear evidence about the effectiveness of these measures, particularly in emerging market contexts. For example, some argue that the use of multiple performance measurement systems

¹ *This argument is based on cause-and-effect relationships, where managerial actions lead to outcomes such as quality, innovation and customer satisfaction that, in turn, drive future financial performance (Banker et al., 2000).*

(e.g. BSC) does not make any difference to business performance (Neely, 2008). Additionally, several studies reported that the relationship between multiple measures and organisational performance is unclear (Henri, 2004, 2006; Jusoh et al., 2008). Therefore, this paper seeks to identify the effectiveness of multiple performance measures in an emerging market. More specifically, the focus of this study is concerned with the extent of the use of MPMs in a Libyan setting and the relationship between multiple measurement techniques and organisational performance. It might be expected that in an emerging market, organisations may be likely to be less aware of and less likely to use NFPMs than in developed economies.

The next section outlines the literature and hypotheses development. The research method applied is described in section 3. Section 4 introduces the study findings and discussion. The conclusion and limitations appear in the final section.

2. Literature and Hypotheses Development

The first aim of this paper is to evaluate the type of financial and non-financial performance measures adopted by Libyan companies operating in both manufacturing and non-manufacturing sectors. A number of studies have addressed this issue in other geographical contexts (Paladino, 2000; Kald and Nilsson, 2000; Ismail, 2007; Jusoh et al., 2008; Neely, 2008; Yongvanich and Guthrie, 2009). Neely (2008) stated that by 2001 the balanced scorecard model had been adopted by 44% of organisations worldwide (57% in the UK, 46% in the US and 26% in Germany and Austria). A survey of 225 listed Chinese firms found that only 39% of these firms had adopted some form of MPMs (Chow et al., 2007). Ismail (2007) found evidence that 150 Egyptian firms relied on both financial and non-financial measures of performance evaluation. Profit margin was the most commonly used financial performance measure, whereas customer satisfaction was the most commonly used non-financial performance measure. The BSC was used widely in the Egyptian companies surveyed, but the level of use of multi-dimensional indicators was low. The most significant obstacle to the adoption of BSC was the inadequacy of information systems. Jusoh et al. (2008, p. 120) found that approximately 30% of

the Malaysian manufacturing companies surveyed had adopted the BSC as a performance measurement system, either wholly or partially. In a survey of 126 Thai manufacturing and service firms, Yongvanich and Guthrie (2009) found that the extent of BSC use did not vary significantly between different types of use of BSC. They also found that the extent and manner of BSC use was not associated significantly with organisational performance. Moreover, there were no significant differences in the satisfaction and perceived benefits gained from using different types of BSC.

The majority of these studies have been conducted in a manufacturing setting and in developed countries, specifically in the USA, UK and Australia. Only a few of them have been conducted in emerging economies (Ismail, 2007; Jusoh et al., 2008; Yongvanich and Guthrie, 2009). The use of financial measures are still of great importance to most companies in both developing and developed countries (Bryant et al., 2004; Gosselin, 2005; Ismail, 2007; Jusoh et al., 2008; Neely, 2008; Fakhri, 2010; Al Sawalqa, 2011). The use of multiple performance measurement systems remains uneven, particularly in emerging market contexts (Paladino, 2000; Kald and Nilsson, 2000). Due to the descriptive nature of the current part of this research, specific hypotheses were not developed. Rather, the following questions were posed:

- *What is the state of the multiple performance measures adopted by Libyan companies?*
- *Do Libyan companies still place a greater emphasis on using traditional (financial) measures, rather than MPMs, in evaluating their performance?*

The results of the empirical studies which have focused implicitly or explicitly on the measurement diversity approach-performance relationship, are inconsistent. This may be due to the variation in the design and ways in which these multiple measures are used. Although there is widespread interest in diverse performance measurement systems (e.g. BSC); so far few empirical studies have looked directly at the effectiveness of MPMs' usage (i.e. how these measures are used) (Davis and Albright, 2004; Jusoh et al., 2008). Indeed, the association between non-financial measures and organisational performance has been found to be unclear to date Ittner and Larcker, 2001, Henri 2004, 2006; Jusoh et al., 2008).

A number of studies have found a positive relationship between the use of multiple performance measures and organisational performance (Banker et al., 2000; Hoque and James, 2000; Davis and Albright, 2004; Bryant et al., 2004; Van der Stede et al., 2006; Jusoh et al., 2008; Fleming et al., 2009). Using time-series data covering 72 months for 18 US hotels and interviews with their senior managers, Banker et al. (2000) found that current customer satisfaction is significantly and positively related to future financial performance. When non-financial measures were included in the compensation contract, managers aligned their efforts more closely to those measures, resulting in improved organisational performance. Survey data from 66 Australian manufacturing firms indicated a significantly positive relationship between the use of typical BSC measures and firm performance (Hoque and James, 2000). A quasi-experiment (longitudinal approach) conducted by Davis and Albright (2004) compared the performance of branches in US banks (BSC user and non-BSC user). The findings indicated that four branches implemented the BSC and that the remaining five were non-BSC branches. The study also found the branches which had implemented the BSC approach outperformed the branches which had not.

Based on archival data from 125 US companies, Bryant et al. (2004) found that when companies implement a multiple performance measurement system which included both financial and non-financial measures, they benefited more than those companies which relied only on traditional accounting-based measures. Van der Stede et al. (2006) investigated the MPMs-firm performance relationship in 128 US and European manufacturing companies. They found that, regardless of strategy, companies which adopted multiple performance measurement systems, particularly those which included objective and subjective non-financial measures, had superior organisational performance. A survey of 120 Malaysian companies in various manufacturing industries found that most Malaysian companies used mainly financial measures based on accounting measures (Jusoh et al., 2008). Further, they found that non-financial measures and MPMs (via overall BSC measures) were both associated positively with organisational performance. Fleming et al. (2009) investigated the firm performance effect of MPMs' usage using archival and survey data for 104 Chinese manufacturing companies. They

found that greater use of balanced/integrated PMSs by sample firms increased their strategic performance.

However, Anderson et al. (1997), Ittner and Larcker (1998), Ittner et al. (2003), Said et al. (2003), Braam and Nijssen (2004), Neely (2008) and Schulz et al. (2010) have identified contradictory evidence. Using cross-sectional annual data for 77 Swedish firms from diverse industries, Anderson et al. (1997) indicated positive contemporaneous associations between customer satisfaction and financial performance (measured by ROI) in Swedish manufacturing organisations, but negative or weaker associations in service organisations. By employing a quasi-experimental design, Neely (2008) collected financial data from two sister divisions of a UK electrical wholesale chain, one of which had adopted the BSC and one of which had not. The findings suggest that the BSC implemented in the electrical wholesale industry had no significant impact in terms of sales growth or gross profit growth over a twelve month period. Ittner and Larcker (1998) looked at the relationship between customer satisfaction and organisational performance in American telecommunications companies, using cross-sectional data. They found modest support for the argument that customer satisfaction measures were leading indicators of accounting performance. However, their analysis of business unit-level data suggested that customer satisfaction measures are positively related to future financial performance. By contrast, their firm-level analysis did not find consistent associations between customer satisfaction and market returns. Ittner et al. (2003) explored the relationship between measurement diversity and performance (measured by satisfaction and economic measures) using survey and archival data for 140 American financial services institutions. However, while they found a positive relationship between MPMs' usage and system satisfaction, they failed to find a significant relationship between the extensive use of measurement diversity techniques and improved accounting and stock market performance. Schulz et al. (2010) did not find a significant bivariate correlation between the use of comprehensive PMSs and organisational performance using data for 84 Taiwanese high-tech manufacturing companies. On the other hand, Said et al. (2003) used archival data for 2882 manufacturing and service firms in the UK to investigate the relationship between the use of non-financial measures and economic performance. The results reported that firms which use diverse measurement techniques had

significantly higher mean levels of future returns on assets and higher levels of current and future market returns. This means that they found evidence that the adoption of non-financial measures improves firms' current and future stock market performance. By contrast, they found only partial support for accounting performance improvements. They concluded that the association between measurement diversity and firm performance is contingent on the company's operational and competitive characteristics.

In summary, it is far from clear that there is a positive association between the use of MPMs and organisational performance. Some researchers have found convincing evidence of a positive relationship between both variables. In contrast, others have found that the use of performance measurement diversity might not be associated with enhanced organisational performance. As a result, the second aim of this research is to re-investigate the relationship between the use of multiple performance measures and organisational performance. Therefore, the following hypotheses were developed:

- **H1** *Organisational performance is negatively associated with the extent of traditional (financial) performance measures usage.*
- **H2** *Organisational performance is positively associated with the extent of non-financial performance measures usage.*
- **H3** *Organisational performance is positively associated with the extent of multiple performance measures usage.*

3. Research Method

3.1 Sample and Research Strategy

The population of this research is defined as all Libyan companies, manufacturing and non-manufacturing, whether small, medium or large, except for: new companies with little experience (less than three years of age, because the respondents were asked to describe selected research variables during the previous three years) and very small companies (less than 10 employees). Earlier studies indicate that the use of management accounting and financial performance measures within small companies is generally very low (e.g. Hoque and James,

2000; Hussain and Hoque, 2002; Chenhall, 2003; Burgess, et al. 2007; Verbeeten and Boons, 2009). Accordingly, the sampling frame included 226 Libyan companies in a variety of industries (76 manufacturing and 150 non-manufacturing). It is worth mentioning that only headquarters were included in order to obtain a more homogenous sample. Subsidiaries, divisions and branches were excluded.

Primary data for the research was collected using a self-administered survey questionnaire. The questionnaire was divided into three main parts. All three parts included closed questions, i.e. all the questions had a range of potential answers and the respondents had to select one. The first part consisted of questions concerning general information about the characteristics of participants and their organisations. The second and third parts were concerned with the independent and dependent variables of the study. In these parts, the questions were based on a 5-point Likert scale. 226 questionnaires were distributed and 141 were returned. However, only 132 questionnaires were usable and valid for analysis (which represents a 61 % response rate). This is a good rate compared with other similar studies (e.g. Hoque, 2004; Mia and Winata, 2008; Salleh et al., 2010). The instrument was checked by a pilot study and a reliability test². An assessment of normality was performed for the dependent variable only (Field, 2005). The Kolmogorov-Smirnov test was used to evaluate the normality of the dependent variable (organisational performance). The findings confirm that the dependent variable follows a normal distribution³.

In addition, and consistent with the literature, the questionnaire survey targeted finance directors, vice-managers, financial controllers and senior accountants because they are likely to be the people, who are responsible for designing and operating the performance measurement systems in their companies (Chenhall and Langfield-Smith, 1998; Verbeeten and Boons, 2009).

² The results indicate that Cronbach's alpha coefficients of all the variables were above the minimum acceptable level of 0.60: Multiple performance measures usage (0.919), Financial performance measures (0.767), Non-financial performance measures (0.939) and Organizational performance (0.800).

³ The Kolmogorov-Smirnov test reports the following results: Statistic (.078), df (.132) and Sig. (.059).

3.2 Demographic Profiles of Respondents and Organisations

The first section of the questionnaire contained two questions about respondents and their organisations. This part of the survey aimed to give a brief description of demographic information about the profiles of respondents and the manufacturing and non-manufacturing companies participating in this study.

Table 1 describes the general characteristics of respondents (qualifications, subject, work position and experience) which might affect the quality of their perceptions and their responses to the questionnaire's questions and the interview schedule. It was essential to ensure that the respondents held senior positions and that they were sufficiently knowledgeable and experienced about organizational and environmental characteristics and MPMs. Thus, the participants were asked about their individual attributes.

Table 1. Frequency Distribution of Characteristics of Respondents

<i>Items</i>	<i>Manufacturing (N=49)</i>		<i>Non-manufacturing (N=83)</i>		<i>Both (N=132)</i>	
	<i>Frequency</i>	<i>Per cent</i>	<i>Frequency</i>	<i>Per cent</i>	<i>Frequency</i>	<i>Per cent</i>
Job Title						
Financial Manager	18	36.7 %	40	48.2 %	58	43.9 %
Vice-Financial Manager	12	24.5 %	15	18.1 %	27	20.5 %
Controller	7	14.3 %	8	9.6 %	15	11.4 %
Senior accountant	9	18.4 %	14	16.9 %	23	17.4 %
Other	3	6.1 %	6	7.2 %	9	6.8 %
Qualification						
Secondary	2	4.1 %	2	2.4 %	4	3 %
Diploma	6	12.2 %	3	3.6 %	9	6.8 %
Bachelor	25	51 %	48	57.8 %	73	55.3 %
Post-graduate	11	22.5 %	19	22.9 %	30	22.7 %
Other	5	10.2 %	11	13.3 %	16	12.1 %
Subject						
Accounting	21	42.9 %	40	48.2 %	61	46.2 %
Business Management	6	12.2 %	10	12.1 %	16	12.1 %
Finance	15	30.6 %	23	27.7 %	38	28.8 %
Economy	3	6.1 %	2	2.4 %	5	3.8 %
Other	4	8.2 %	8	9.6 %	12	9.1 %
Experience						
Items	<i>Experience (in the Job)</i>		<i>Experience (in the company)</i>		<i>Full experience</i>	
	<i>Frequency</i>	<i>Per cent</i>	<i>Frequency</i>	<i>Per cent</i>	<i>Frequency</i>	<i>Per cent</i>
Less than 5 years	18	13.6 %	14	10.6 %	7	5.3 %
5-10 years	33	25 %	36	27.3 %	16	12.1 %

10-15 years	41	31.1 %	27	20.5 %	25	18.9 %
15-20 years	23	17.4 %	24	18.2 %	38	28.8 %
20 years or more	17	12.9%	31	23.5 %	46	34.8%

Table 2 presents the key characteristics of respondent companies. It covers six main features: the age of the company, the main type of industry, company size (in terms of number of employees and annual revenue) and ownership type.

Table 2. Frequency Distribution of Characteristics of Respondent Companies

Items	Manufacturing (N=49)		Non-manufacturing (N=83)		Both (N=132)	
	Frequency	Per cent	Frequency	Per cent	Frequency	Per cent
Company age						
Less than 5 years	3	6.1 %	4	4.8 %	7	5.3 %
5-10 years	4	8.2 %	7	8.4 %	11	8.3 %
10-15 years	4	8.2 %	15	18.1 %	19	14.4 %
15-20 years	12	24.4 %	20	24.1%	32	24.2 %
20 years or more	26	53.1 %	37	44.6 %	63	47.7 %
Type of Business						
Number of companies	49	37.1 %	83	62.9 %	132	100 %
Company size (CS)						
Number of Employees						
Less than 100 people	7	14.3 %	34	41 %	41	31.1 %
100-250 people	14	28.6 %	18	21.7 %	32	24.2 %
250-500 people	10	20.4 %	10	12 0%	20	15.2 %
500-1000 people	3	6.1 %	10	12 0%	13	9.8 %
1000 people or more	15	30.6 %	11	13.3 %	26	19.7 %
Annual revenue/sales - LD*						
Less than 1 million	8	16.3 %	31	37.3 %	39	29.5 %
1 m-5 m	17	34.7 %	28	33.7 %	45	34.1 %
5 m-10 m	5	10.2 %	12	14.6 %	17	12.9 %
10 m-15 m	3	6.1 %	4	4.8 %	7	5.3 %
15 million or more	16	32.7 %	8	9.6 %	24	18.2 %
Type of ownership						
State-owned company	21	42.9 %	27	32.5 %	48	36.4%
Private company	14	28.6 %	41	49.4%	55	41.7 %
Joint-venture (State & foreign)	3	6.1 %	5	6.0 %	8	6.0 %
Joint-venture (State & private)	6	12.2 %	4	4.8 %	10	7.6 %
Joint-venture (private & foreign)	5	10.2 %	6	7.3%	11	8.3 %

* LD: Libyan Dinar. 2.11 LD equals 1 UK pound (Aug. 2012)

3.3 Measurement of Variables

This section describes how the research variables were measured. It is worth noting that during the preparation of measures and constructs for the research variables, any terms or measures which were specific to a particular sector were excluded in order to make the questionnaire applicable to all sectors (manufacturing and non-manufacturing). The conceptual definitions of these variables are provided in the next sub-sections.

Multiple performance measures' usage (MPMs) refers to the extent to which directors utilise a broad scope of information, resulting from financial and non-financial measures, for assessing performance. This approach was spilt into five major categories which are commonly used by both manufacturing and service organisations. The first four categories were adapted from the work of Scott and Tiessen (1999), Hoque and James (2000), Hoque et al. (2001), Ittner et al. (2003), Bryant et al. (2004), Hoque (2004, 2005), Henri (2006), Van der Stede et al. (2006), Ismail (2007), Jusoh et al. (2008), Bento and White (2010), Salleh et al. (2010) and Jusoh (2010), which are based originally on the work of Kaplan and Norton (1992). The fifth category (community/environment perspective) was modified from the work of Zuriekat (2005), Youssef (2007), Yaghi (2007) and Fakhri (2010). The instrument includes 41 different measures⁴. The respondents were requested to indicate on a five-point Likert-type scale ranging from 1 (not used at all) to 5 (used considerably), the extent of their organisation's use of the identified performance measures over the previous three years. The extent of MPMs' usage is the overall mean of responses for all the 41 measures indicated above.

Organisational performance (OP) refers to the extent to which the organisation is successful in achieving its planned targets or stated aims (Mia and Clarke, 1999). It is described as the ultimate outcome variable (dependent variable) in the contingency literature because it explains the implications of a suitable fit between control systems design and other organisational characteristics of a company. It was assessed by a self-rating multiple instrument. The scale included 13 items originally developed by Govindarajan (1984) and used in several previous

⁴ Firstly, the extent of FPMs usage is the overall mean of responses for the first 11 measures. Secondly, the other 30 measures were selected to measure NFPMs' usage. Thirdly, the extent of MPMs usage is the overall mean of responses on all 41 measures.

studies (Chong and Chong, 1997; Hoque, 2004, 2005; Van der Stede et al., 2006; Jusoh et al., 2008). Respondents were required to rate each of the 13 dimensions on a five-point Likert-type scale, ranging from 1 (poor) to 5 (outstanding), to assess their organisation's performance compared to that of their main competitors over the previous three years. Organisational performance is the overall mean of responses for all items and the score for each organisation was calculated by taking the average for all items (Hoque, 2005; Jusoh et al., 2008).

4. Results and Discussions

4.1 Descriptive Analysis of the Extent of MPMs Usage in a Libyan Context

This section focuses mainly on the descriptive statistics concerning the first objective (i.e. the status and extent of MPMs' usage among Libyan companies), which were used primarily to achieve all the second research objectives. Respondents were asked to indicate, on a five-point scale ranging from 1 (*not used at all*) to 5 (*used considerably*), the extent to which their organisations had used financial and non-financial performance measures to evaluate business performance over the previous three years. Accordingly, the responses to a scale ranging from "*not used at all*" to "*used considerably*" with a neutral response of "*used moderately*" in the middle, generally, may be equivalent to providing a 'yes' or 'no' and a confident response (the strength or confidence of measurement in this scale is assessed as the distance away from the neutral response) (Youssef, 2007; Fakhri, 2010). In simple words, for the non-financial performance measures groups, a response to the first two options of the scale "*not used at all*" and "*used slightly*" may be equivalent to a negative response for measurement diversity and a yes response for traditional (financial) measurement, whereas a response to the last two options of the scale "*used considerably*" and "*used significantly*" may be equivalent to a yes response for measurement diversity and a negative response for traditional measurement.

MPMs were operationalised through 41 items which were grouped into five perspectives; namely, financial measures, customer, internal business processes, innovation and learning and community/environment. These five categories are commonly used by both manufacturing and non-manufacturing organisations. This variable was defined as a continuum of two opposite ends; namely, "*least used multiple performance measures*" and "*most used multiple*

performance measures”. Consequently, the extent of FPMs’ usage is the average standardised rating for (11) financial measures, NFPMs’ usage is the average standardised rating for (30) non-financial measures, and MPMs’ usage is the average standardised rating for all financial and non-financial measures across the five performance measurement categories.

Table 3 summarises respondents’ opinions relating to the extent to which the 41 performance measures are used within Libyan companies across different industries. The results show that MPMs have widespread use in all Libyan companies across different industries; however, comparing the mean scores among performance measures indicates, as expected, that the extent of FPMs usage has a higher level (mean = 3.88) than NFPMs and MPMs, which have mean values of 3.52 and 3.62 respectively. These results are similar to the findings of most prior studies conducted in emerging market contexts (e.g. Hutaibat, 2005; Ismail, 2007; Youssef, 2007; Fakhri, 2010; Al Sawalqa, 2011) which found that many companies use MPMs (financial and non-financial) but to different extents. For example, Fakhri (2010) found that although Libyan banks used FPMs more extensively, they use a variety of NFPMs to ensure the accuracy and validity of their outputs. These results are also in line with the findings of previous studies conducted in some emerging markets contexts such as the UK, the USA and Australia (e.g. Bryant et al., 2004; Gosselin, 2005; Neely, 2008; Jusoh et al., 2008; Verbeeten and Boons, 2009; Jusoh, 2010) which concluded that most businesses continue to use FPMs extensively, i.e. organisations which use measurement diversity approaches (e.g. BSC) do not employ NFPMs more extensively than FPMs.

Table 3. Descriptive Analysis of MPMs’ Usage in Libyan Companies

Items	% (N = 132)					Mean	S.D
	1	2	3	4	5		
Net income	0.0	3.0	7.6	32.6	56.8	4.43	0.764
Revenue/sales growth	1.5	0.8	13.6	41.7	42.4	4.23	0.825
ROI (Return on investment)	1.5	3.0	15.9	34.1	45.5	4.19	0.917
ROA (Return on asset)	0.8	6.8	16.7	37.1	38.6	4.06	0.947
ROE (Return on equity)	0.8	5.3	11.4	40.9	41.7	4.17	0.887
ROS (Return on sales)	1.5	1.5	17.4	33.3	46.2	4.21	0.891
Budgets	0.0	4.5	18.2	29.5	47.7	4.20	0.897
Cash flows	1.5	6.1	17.4	31.1	43.9	4.10	0.995
Earning per share (EPS)	0.8	7.6	19.7	26.5	45.5	4.08	01.01

EVA (Economic value added)	25.0	27.3	23.5	12.9	11.4	2.42	01.30
Market value added (MVA)	34.1	23.5	19.7	14.4	8.3	2.39	01.31
Overall financial perspective-based performance measures						3.88	0.543
Non-financial performance measures							
Safety	16.7	5.3	22.7	30.3	25.0	3.42	01.37
Cycle time/lead times (product/service)	16.7	6.1	21.2	34.1	22.0	3.39	01.35
Product/service development	7.6	12.9	22.0	26.5	31.1	3.61	01.26
Defects rate (product/service)	12.1	8.3	17.4	29.5	32.6	3.62	01.34
Product/service quality	8.3	9.1	22.0	33.3	27.3	3.62	01.21
Cost savings	10.6	12.9	14.4	32.6	29.5	3.58	01.32
Productivity	8.3	8.3	15.9	41.7	25.8	3.68	01.19
Overall internal operations perspective-based performance measures						3.56	1.10
Market share	3.0	5.3	21.9	34.8	35.6	3.95	1.03
Customer satisfaction	2.3	3.8	12.9	48.5	32.6	4.05	0.902
Customer service	12.1	3.0	18.9	40.9	25.0	3.64	1.24
Number of customer compliances	5.3	11.4	17.4	37.9	28.0	3.72	1.15
Customer retention	3.8	5.3	23.5	34.1	33.3	3.88	1.06
Customer loyalty	14.4	8.3	20.5	30.3	26.5	3.46	1.35
Customer response time	9.8	6.8	20.5	43.9	18.9	3.55	1.17
On-time delivery (product/service)	6.1	4.5	22	38.6	28.8	3.80	1.10
Overall customer perspective-based performance measures						3.76	.819
Employee satisfaction	3.8	6.8	34.1	46.2	9.1	3.50	0.895
Employee loyalty	3.0	8.3	31.8	41.7	15.2	3.58	0.950
Skills development	4.5	7.6	32.6	37.1	18.2	3.57	1.02
Competitive position	5.3	7.6	31.1	41.7	14.4	3.52	1.01
Research and development activities	3.8	14.4	28.8	35.6	17.4	3.48	1.06
Employee training	6.1	10.6	25.8	35.6	22.0	3.57	1.13
Adapting to changes	6.1	8.3	33.3	36.4	15.9	3.48	1.05
New products/service innovation	6.8	9.8	26.5	33.3	23.5	3.57	1.15
Overall innovation and learning perspective-based performance measures						3.53	.866
Meeting environmental commitments (environmentally friendly)	13.6	12.1	18.9	34.1	21.2	3.37	1.32
Support of charity projects	16.7	19.7	28.8	15.9	18.9	3.01	1.34
Support of social activities	13.6	25.0	25.0	20.5	15.9	3.00	1.28
Community regulations	13.6	22.7	28.8	22.7	12.1	2.43	1.22
Government citations/certification	11.4	20.5	28.8	26.5	12.9	3.09	1.20
Participation in training and education (Community involvement)	13.6	15.2	18.9	29.5	22.7	3.33	1.35
Public image	8.3	14.4	12.1	27.3	37.9	3.72	1.33
Overall environmental and community perspective-based performance measures						3.21	1.01
Overall							
Variables			N	Min	Max	Mean	S.D
1	Financial performance measures (FPMs)		132	2.00	4.91	3.88	0.543
2	Non-financial performance measures (NFPMs)		132	1.13	4.90	3.52	0.713
3	Multiple performance measures (overall 1 and 2)		132	1.83	4.68	3.62	0.551
1= Not used at all, 2 = Slightly used, 3 = Moderately used, 4 = Significantly used, 5 = Considerably used							

The results of descriptive statistics for all 11 FPMs show that except for the last two financial measures (EVA and MVA), all other financial measures were ranked as “*used significantly*” or “*used considerably*” by more than 70%⁵ of the participating companies, with means ranging from 4.06 to 4.43. As can also be seen in this table, EVA and MVA measures were not used frequently - they were the only financial measures to be used less than average (under “*used moderately*”, 3) among Libyan companies as they have mean scores of 2.42 and 2.39 respectively. A possible explanation for this is that, as preceding research has concluded, recently developed accounting measures, such as EVA, have been criticised by many researchers and practitioners as being complex and difficult to use and understand, costly and not superior to traditional accounting measures (e.g. Ittner and Larcker, 1998; Jusoh et al., 2008). These limitations may be the reason for the low usage of these measures among Libyan companies.

Concerning non-financial measures, the descriptive statistics shown in Table 3 suggest that respondents ascribed the highest score to the usage of customer perspective-based PMs, followed by internal operations-based PMs and innovation and learning -based PMs, while environmental and community-based PMs were the least used by Libyan companies. Customer satisfaction was the most commonly used non-financial measure of performance evaluation. By contrast, the results infer that the community regulations-based measure was not a popularly used non-financial measure of performance evaluation; it was used by only 34.8% of the respondent companies with a mean of 2.43. This result was similar to that of Ismail (2007) who found evidence that customer satisfaction is the most commonly used non-financial performance measure in an Egyptian setting. One possible explanation for this is that the companies studied represent a sample of the emerging Libyan business environment most decision-makers in those organisations might be unaware of the importance of environmental and community-based measures in improving their companies’ performance.

⁵ To describe the levels of significance rates of all performance measurement groups (financial and non-financial), they were counted by the respondents’ answers for the equivalent answers of 4 and 5 in their companies.

The findings shown in Table 3 indicate that the use of customer-based PMs is quite common among Libyan companies (mean = 3.76). They indicate that market share and customer satisfaction are measures commonly used by Libyan companies. Both customer retention measures and on-time delivery (product/service) measures were ranked as “*used significantly*” or “*used considerably*” by 67.4% of the sample companies. Furthermore, a number of customer compliances and customer service levels⁶ were ranked by 65.9% of the participating companies, while customer loyalty and customer response time seem to be used to a moderate extent as they were ranked as “*used Significantly*” or “*used Considerably*” by 62.8% and 56.8% of the respondent companies. These results are in line with Jusoh et al. (2008) who found that the use of customer measures such as on-time delivery, survey of customer satisfaction and number of customer complaints was high among Malaysian manufacturing companies. Similar results were found in other studies by Hoque et al. (2001) and Gosselin (2005).

It can be seen from Table 3 that Libyan companies place a similar emphasis on the use of use both internal business process-based PMs (mean = 3.56) and innovation and learning-based PMs (mean = 3.53). For the first category, productivity was at the top of the list because it was ranked as “*used Significantly*” or “*used Considerably*” by 67.5% of respondents. There were also two measures - cost savings and defects rate of product/service - which were ranked by a similar percentage (62.1%) of the participating companies. Other measures, such as product/service quality, product/service development, safety, cycle time/lead times (product/service) were ranked as “*used Significantly*” or “*used Considerably*” by 60.6%, 57.6%, 55.3% and 56.1% respectively. Innovation and learning-based PMs appear to be used to a moderate extent as they all were ranked as “*used Significantly*” or “*used Considerably*” by between 57.6% and 52.3% of the respondent companies.

Finally, the results indicate that environment and community-based PMs are the least used measures among Libyan companies compared to the other four types of PM. Public image was ranked first among these measures - being reported by 65.2% of respondents as “*used Significantly*” or “*used Considerably*”. The findings indicate that 52.2% of the respondent

⁶ To describe the levels of significance rates of all performance measurement groups (financial and non-financial), they were

companies use environmental commitment-based PMs and 55.3% of them use community involvement-based PMs, whereas measures based on support of charity projects, support of social activities and government citations perspectives were at the bottom of this list as they were ranked as “*used Significantly*” or “*used Considerably*” by only 34.8%, 36.4% and 39.4% respectively. By contrast, community regulations-based PMs were not commonly used by Libyan companies since they have a usage rate of only 34.8%.

To sum up, MPMs are commonly used by Libyan companies. This suggests that Libyan companies are like other organisations around the world in which financial and non-financial measures are commonly used; however, they tend to place a greater emphasis on traditional (financial) measures (mean = 3.88) much more than multiple measures (3.62), in evaluating their performance, although organisations are aware of the benefits and importance of measurement diversity techniques in serving their needs and purposes. A possible explanation for the above result is that the implementation of innovative information systems and techniques (ABC, BSC, etc.) is difficult in developing countries due to the lack of infrastructure (Peasuell, 1993). Overall, these descriptive results similar to the findings of most earlier studies conducted in both developing and developed contexts (e.g. Gosselin, 2005; Bryant et al., 2005; Ismail, 2007; Neely, 2008; Jusoh et al., 2008; Fakhri, 2010; Jusoh, 2010; Al Sawalqa, 2011).

4.2 Testing the relationship between MPMs’ usage and organizational performance

This section deals with the testing of the three hypotheses of the research (H1-H2-H3). The statistical technique employed for testing these hypotheses was simple regression analysis. This section seeks to assess the nature and type of direct relationships between the use of financial performance measures, non-financial performance measures, multiple performance measures, and company performance.

As can be seen, traditional (financial) performance measures (FPMs), non-financial performance measures (NFPMs), and multiple performance measures (MPMs) were employed as independent variables (predictors), with organisational performance (OP) as a dependent

counted by the respondents’ answers for the equivalent answers of 4 and 5 in their companies.

variable in all three models respectively. Table 4 presents the regression analysis-based statistical findings concerning these hypotheses (H1-H2-H3), which predict a direct relationship between FPMs, NFPMs, MPMs and organisational performance respectively. As can be seen in Table 4, the regression results indicate that the effect of FPMs on organisational performance was positive; however, it is not statistically significant ($R^2 = .011$, $\beta = .107$, $p > .05$). On the other hand, the impacts of both NFPMs and MPMs on organisational performance are positive and statistically highly significant ($R^2 = .218$, $\beta = .467$, $p < .05$; $R^2 = .222$, $\beta = .471$, $p < .05$ respectively). Therefore, FPMs' usage has no significant effect on organisational performance. This confirms that relying solely on FPMs is not sufficient for enhancing company performance. Hypothesis H1 was not supported at the .05 significance level; therefore, it is rejected. It can also be concluded that the use of non-financial measures has a significant impact on organisational performance, i.e. the use of NFPMs significantly improves the ability to predict (self-rating) organisational performance. Hypothesis H2 was supported at the .05 significance level; therefore, it is accepted. It is clear from the results above that MPMs introduce valuable diverse information which contributes to improving business performance. This suggests that the more extensively multiple performance measures (financial and non-financial measures) are used, the better the organisational performance. Hypothesis H3 was supported at the .05 significance level; therefore, it is accepted.

Table 4. Relationship between MPMs' Usage and Organisational Performance

Variable (Predictors)	Dependent variable (Organisational performance)				
	Unstand. coefficient		Stand. coefficient	t-value	Sig.
	B	Std. Error	Beta		
FPMs' usage	.110	.090	.107	1.223	.223
<i>R = .107, R² = .011, Adjusted R² = .004 , F-value = 1.496, Sig. = .223</i>					
NFPMs' usage	.365	.061	.467	6.022	.000
<i>R = .467, R² = .218, Adjusted R² = .212 , F-value = 36.26, Sig. = 000</i>					
MPMs' usage (overall)	.477	.078	.471	6.083	.000
<i>R = .471, R² = .222, Adjusted R² = .216 , F-value = 37.000, Sig. = 000</i>					

The findings reveal that the use of FPMs has no significant impact on the performance of Libyan organisations (H1). This result is in line with most previous research (e.g. Ittner et al., 2003; Van der Stede et al., 2006; Jusoh et al., 2008). Using financial measures alone is not sufficient (Jusoh et al., 2008). Therefore, this research hypothesised that using FPMs alone in

the Libyan business environment can influence negatively organisational performance. However, this does not imply that FPMs are not important. In this context, most authors (e.g. Kaplan and Norton, 1992; Neely, 1999) contend that FPMs are still crucial in assessing performance in any organisation, as they are necessary in order to track revenue, profit and costs. Henri (2004) argued that using NFPMs does not suggest that non-financial measures have to replace FPMs. Instead, it means supplementing FPMs with a diverse set of NFPMs that are believed to provide better information and contribute to improving organisational performance. This can be noted in the results for H2 and H3, where the performance effect of the usage of both NFPMs and MPMs was positive and significant.

One explanation for the positive results regarding the NFPMs-OP relationship (H2) is that the NFPMs are future-oriented measures. Hence, top management tries to rely heavily on these measures in making decisions that will be useful to their organisations in the long run (Ghalayini and Noble, 1996; Chenhall and Langfield-Smith, 2007). This significant result is in line with the findings of Ittner and Larcker (2003) and Hoque (2004) who found that the extent of NFPMs usage is positively associated with performance. Archival data from 2882 UK manufacturing and service organisations revealed that the use of non-financial measures improved organisations' current and future stock market performance. These measures were also significantly and positively associated with organisations' future accounting performance but not with their current accounting performance (Said et al., 2003).

The significant and positive findings in relation of H3 are consistent with most previous research which find that the use of the combination of FPMs and NFPMs is positively associated with organisational performance (e.g. Govindarajan and Gupta, 1985; Hoque and James, 2000; Banker et al., 2000; Davis and Albright, 2004; Zuriekat, 2005; Van der Stede et al., 2006; Bryant et al., 2004; Jusoh et al., 2008; Yongvanich and Guthrie, 2009; Fleming et al., 2009; Zhu et al., 2009; Jusoh, 2010; Al-Sawalqa, 2011). For example, Davis and Albright (2004) compared the performance of a number of American banks implementing the BSC with those which were non-BSC users and they found that the branches which had implemented the BSC approach outperform branches which had not. Based on archival data from 125 US

manufacturing and service companies, Bryant et al. (2004) found that when companies implement a multiple performance measurement system, which includes both financial and non-financial measures, they benefit more than those companies which rely only on (financial) traditional measures. According to Van der Stede et al. (2006), regardless of strategy, US and European manufacturing companies which have adopted multiple performance measurement systems, particularly those which include objective and subjective non-financial measures, have superior organisational performance. However, they also partly supported the view that the strategy-measurement 'fit' influences company performance, where there is a positive impact on performance from pairing a quality-based manufacturing strategy with extensive use of subjective measures, but not with objective non-financial measures.

Using survey data for 120 manufacturing companies in Malaysia, Jusoh et al. (2008) reported that the use of non-financial measures, particularly internal business processes and innovation and learning measures, is associated with improved organisational performance. Based on archival and survey data from 104 Chinese manufacturing companies, Fleming et al. (2009) concluded that the greater use of balanced/integrated PMSs by sample companies improved their strategic performance. Al-Sawalqa (2011) found that the use of financial measures does not have a significant impact on organisational performance for 168 Jordanian industrial companies; by contrast, he found that using non-financial measures, a measurement diversity approach and the BSC contributed significantly towards improved organisational performance.

On the other hand, our results in relation to H3 contrast with others who have found no evidence for the proposition which suggests that measurement diversity is positively associated with organisational performance (e.g. Anderson et al., 1997; Ittner and Larcker, 1998; Ittner et al., 2003; Braam and Nijssen, 2004; Hoque, 2005; Franco-Santos, 2007; Neely, 2008; Schulz et al., 2010). For example, Ittner et al. (2003) found significant evidence for 140 American financial services institutions that the extensive use of a broad set of financial and non-financial measures is associated with better stock market performance and system satisfaction, but not with improved accounting performance by the organisation. Neely (2008) found that BSC usage had no significant impact on performance in terms of sales growth or gross profit growth over a

twelve month period. Similarly, studies by Hoque (2005) and Schulz et al. (2010) indicated no significant bivariate correlation between the use of MPMs and organisational performance. On the other hand, Braam and Nijssen (2004) concluded that the use of the BSC will not automatically enhance company performance, but that the manner of its use matters: BSC use which complements corporate strategy impacts positively on organisational performance, while BSC use which is not related to the strategy may reduce it. In the same context, a number of studies presented empirical evidence suggesting that the relationship between measurement diversity and organisational performance depends on contingency factors such as business strategy, uncertainty and organisational structure (e.g. Chong and Chong, 1997; Said et al. 2003; Hoque, 2004).

5. Conclusions

This study employed 41 financial and non-financial measures in an attempt to identify the extent to which Libyan organisations use MPMs. The key descriptive results indicate that MPMs have widespread use in most Libyan companies across different industries; however, comparing the overall mean scores among performance measures indicates that the extent of FPMs' usage has a higher level (mean = 3.88) than NFPMs' (mean = 3.53) and MPMs' (mean = 3.62) usage. Therefore, Libyan organisations using measurement diversity-based systems do not employ non-financial measures more extensively than traditional performance measures. In other words, the Libyan companies surveyed in this research, like many organisations around the world, tend to rely on traditional (financial) measures much more than multiple measures in evaluating their performance, although respondents were aware of the benefits and importance of measurement diversity techniques . These results are similar to the findings of previous studies conducted in emerging market contexts (e.g. Hutaibat, 2005; Ismail, 2007; Youssef, 2007; Fakhri, 2010; Al Sawalqa, 2011) and in some developed contexts (e.g. Bryant et al., 2004; Gosselin, 2005; Neely, 2008; Jusoh et al., 2008; Verbeeten and Boons, 2009; Jusoh, 2010), which concluded that many organisations apply MPMs (financial and non-financial measures); they also indicate that most companies continue to use predominantly financial

performance measures. Furthermore, the results of the regression analysis indicate that NFPMs and MPMs have a significant positive effect on Libyan companies' performance. However, this positive effect was not significant in the case of FPMs. Consequently, the results supported and accepted the hypotheses H2 and H3, while the hypothesis H1 was rejected.

The study contributes to the body of literature looking at the practice of MPMs by investigating the extent to which 41 financial and non-financial measures are used in Libyan companies; this contributes to supporting or contradicting some of the prior theories regarding this theme. The research can therefore be used as a reference point for any future work in this field, particularly in emerging market contexts. Furthermore, this research highlights the importance and usefulness of measurement diversity in enhancing business performance. It thus contributes to the literature looking at the MPMs-organisational performance relationship by providing an empirical investigation which would present a better understanding of the core of MPMs and the effect of their usage on organisational performance. This work contributes also to the literature on organisational performance since many prior studies have defined organisational performance poorly by measuring this variable according to a single dimension only (i.e. financial indicators); this research has instead adopted a measurement diversity approach which includes both financial and non-financial dimensions in measuring the organisational performance of Libyan companies.

The study has listed around 41 financial and non-financial measures to investigate the extent of their usage in a Libyan context; therefore, it provides a practical checklist of the measures which might assist Libyan companies in improving and developing suitable performance measurement systems to reach their strategic goals. Additionally, the findings indicate that Libyan companies should be encouraged to put a balanced emphasis on all measures, particularly non-financial measures (e.g. customer, employee, innovation and environment-based measures) in order to enhance the loyalty of customers and attract new ones and serve other needs of stakeholders.

Like any other research study, this study is subject to a number of limitations. These limitations might open new directions for future research. Firstly, this study did not investigate the impact

of each category of the measurement diversity approach (e.g. customer measures, innovation measures, etc.) on organisational performance separately. Rather, it focused on the three main categories of the measurement diversity approach; namely, FPMs, NFPMs and MPMs. Therefore, future research should evaluate these individual relationships in order to gain a deeper understanding and provide explanations for these issues. Secondly, the evaluation of organisational performance by a self-rating scale is subject to criticism in terms of validity or reliability (Abernethy and Guthrie, 1994), although it has been widely used in previous studies. Thus, the search for adequate methods and manners (e.g. archival data, records) of tackling such issues could be an interesting avenue for further research. Thirdly, the current study adopted a cross-sectional questionnaire to investigate the cause and effect relationships between identified research variables via regression analysis. Future research could evaluate these causal relationships through longitudinal field research methods, and to find out whether the interactions among the contingencies, MPMs and performance are consistent over time. Finally, despite these limitations, this study has provided several important insights into issues relating to performance measurement systems. The research is a major contribution to the performance measurement and control literature, particularly in an emerging market context. As a result, this study may assist practitioners and researchers to generate ideas and issues for future research in similar contexts.

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