



MONASH University

Study Report

Performance measurement,
delegation and incentive
compensation:
Balancing the act to improve
business performance

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study's authors.**

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FINDINGS REPORT

1. Introduction

We are pleased to present our preliminary findings on the research project entitled, 'Performance measurement, delegation and incentive compensation: Balancing the act to improve business performance'. This study examines the relationships between three key management control systems (MCS) choices: delegation, incentive compensation, and performance measurement, and links the impact of these relationships to organizational performance.

We thank you for participating and providing valuable information which made this study possible. We received 152 responses to our paper survey of senior Australian business leaders. From the 152 responses, 22 responses were incomplete and hence removed, resulting in 130 *usable* responses.

This report displays the primary analysis which is mostly descriptive in nature. While further analysis is carried out to examine the relationship between different variables, the descriptive analysis provides information on the nature, pattern and shape of the key variables. We have included the main variables, such as, the extent of delegation, the weighting of incentive compensation, the noise in performance measures used, and performance. Some of these variables were measured on a 1-7 point Likert scales. In addition to these key variables, this report also shows control variables and relevant demographic information on respondents and organisational characteristics.

We hope you will enjoy this report and if you require further information please contact us.

2. The results

2.1. Univariate analysis

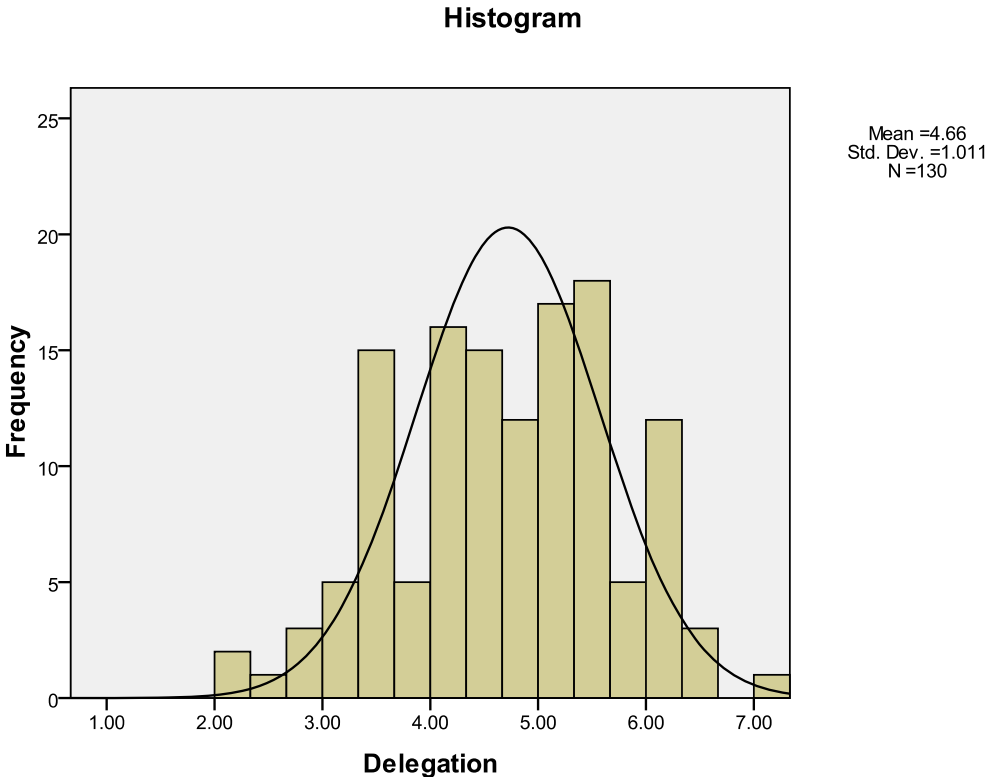
Delegation

Table 1 shows different dimensions of organisations’ delegation. The scale used to measure delegation ranges from *no delegation* (1) to *complete delegation* (7). The overall delegation item was obtained by averaging all delegation dimensions. On average, all participating organizations have some degree of delegation, with an average of approximately 4.7 and a range of 2.2 to 7.

Table 1: Delegation - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Strategic decisions	130	1.00	7.00	4.3846	1.43805
Investment decisions	130	1.00	7.00	3.5023	1.42991
Marketing decisions	130	1.00	7.00	4.9744	1.51722
Decisions regarding internal processes	130	1.00	7.00	5.4649	1.27009
Human resource decisions	130	1.00	7.00	4.9769	1.47572
Delegation (overall)	130	2.20	7.00	4.6606	1.01141

The histogram below shows an overall mean of 4.7 with a standard deviation of 1.01. The distribution shows a normal symmetric pattern (i.e. approximately half of the organisations studied exhibit an overall delegation above the average). Only a few organisations report a low level of delegation (with the delegation score of 2).



Incentive Compensation

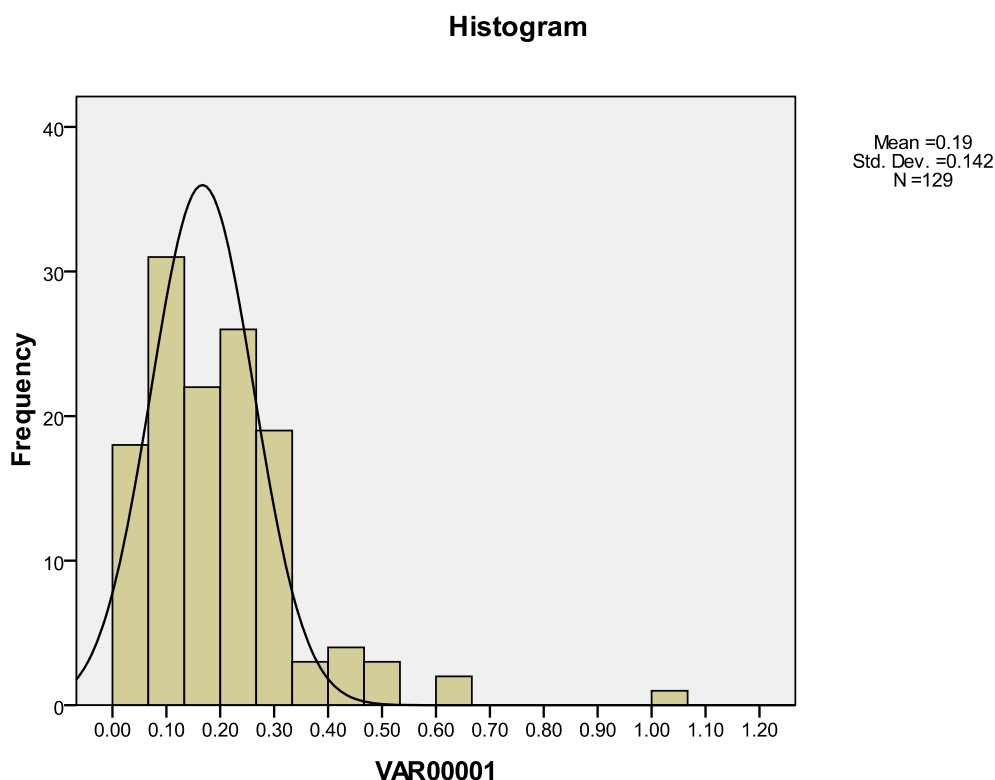
Incentive compensation was measured by the approximate bonus/incentive as a percentage of base pay that applies to a typical manager of the business unit. The percentage was later used as the measure for the weighting of incentive-based pay, where the higher the percentage the higher the weighting.

Table 2: Incentive Compensation - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Incentive Compensation	130	.03	3.00	.2237	.28413

The range for incentives starts from a minimum of 3% to a maximum of 300% of base pay. The incentive compensation of 300% was removed from our analysis as it was an outlier. The average was 19%, which is higher than the average level of 7% reported by previous research (Nagar, 2002). This shows a rise in bonus/incentives in large organizations in recent years. The histogram for incentive compensation shows a

peaked distribution and is clearly positively skewed. This is because after removing the outlier, the maximum incentive pay was 100%.



Noise in Performance Measures Used

The informational value of a performance measure is affected by its noise, or the level of precision with which the performance measure provides information about the manager’s actions. Organizations place greater weights on more objective, quantitative measures, as they are “hard” performance measures, than on more subjective, qualitative measures in order to constrain favouritism and reduce noise in performance information.

In this study, we examine the relative importance of performance measures (i.e., financial and nonfinancial) used to assess the performance of a typical manager for his/her bonus/incentive determination. There were 7 items in it. The first 4 items (i.e., stock-price-related measures, profit measures, cost measures, and turnover measures) together measure the weighting of financial measures used, and the last 3 items (i.e.,

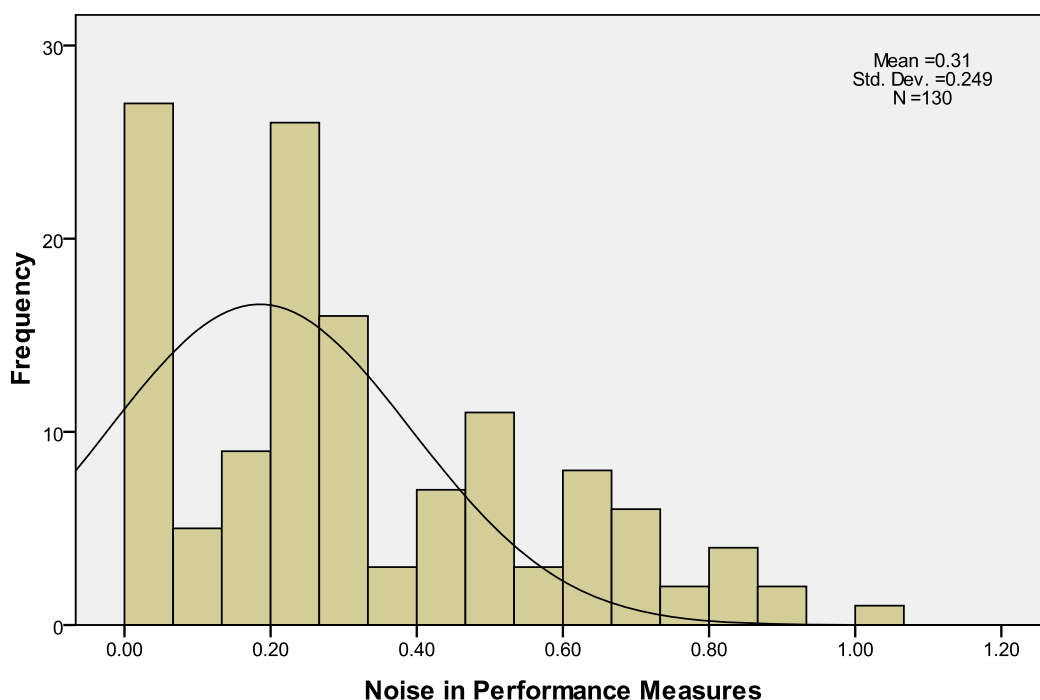
nonfinancial performance measures regarding strategy, marketing and investments, nonfinancial performance measures related to internal processes regarding personnel, and other nonfinancial measures to be specified) together measure the weighting of nonfinancial measures used. The relative importance of nonfinancial measures indicates the level of noise in performance measures, i.e. more use of nonfinancial measures implies higher noise and less use of nonfinancial measures implies lower noise.

Table 3: Noise in Performance Measures - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Stock-price-related measures	28	.04	.50	.1650	.10493
Profit measures (e.g. ROI)	120	.05	1.00	.4675	.24645
Cost measures (e.g. average cost price)	62	.03	.60	.1555	.09513
Turnover measures	75	.03	1.00	.2577	.19043
Nonfinancial measures regarding marketing, strategy, and investment	76	.02	.60	.1950	.12566
Nonfinancial measures related to internal processes regarding personnel	76	.02	.80	.1690	.12363
Other nonfinancial measures (e.g. debtors)	46	.05	.40	.1986	.08825
Other nonfinancial measures (e.g. group results)	13	.05	.50	.2392	.13009

On average, the proportion of nonfinancial measures used for performance evaluation was 31%, ranging from 0 to 100%. This suggests that financial measures dominate in the whole measurement structure in the studied organizations. This finding is consistent with prior findings that organizations use more financial measures as they were seen as “hard” data.

Histogram



Organizational Performance

To capture the performance of organizations, 11 items were included to reflect various aspects of organizational performance. Participants were required to position their organizations' performance in comparison to the industry average. A 7-point Likert scale was applied with 1 representing the performance well below industry average, 4 at industry average, and 7 well above industry average. We use self-rated performance because this study is based on cross-sectional data from multi-industries and hence it will be difficult to differentiate high performing firms from low performing firms based on hard financial data (e.g. ROI, profit), given that different industries may have different standards.

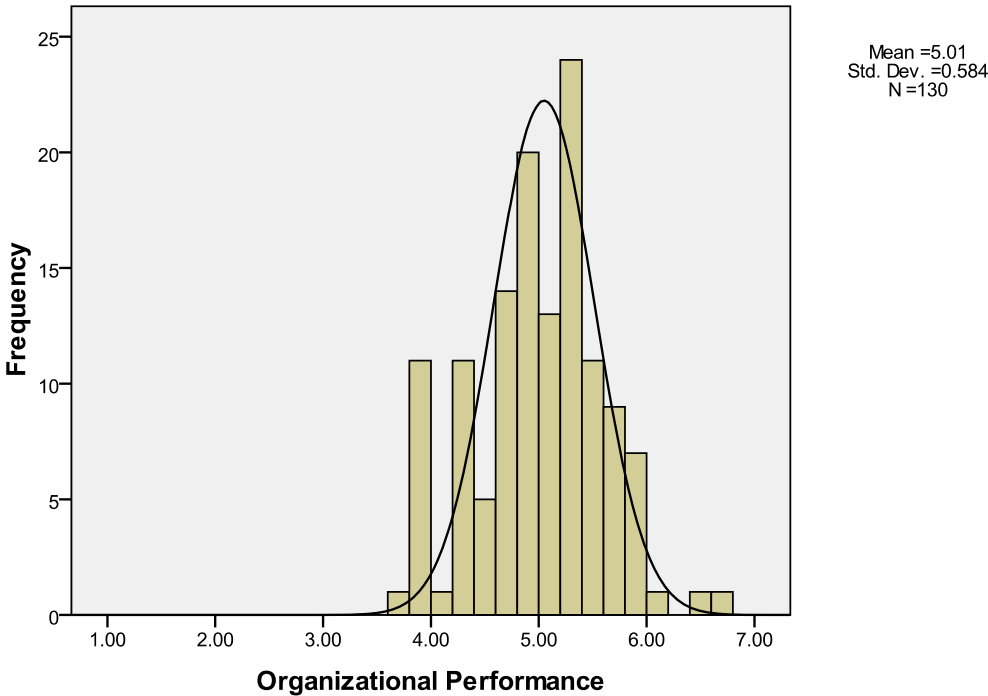
The results show that organizational performance has a range between 3.88 and 6.63 with an average of 5.01 (standard deviation of 0.584). The distribution is clearly normal. Given that the median is 5.13, more than half of the respondents rate the

performance of their organizations above the industry average (i.e. 4 on the 7-point Likert scale).

Table 4: Organizational Performance - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Short-term financial performance	130	1.00	7.00	4.8429	1.20352
Customer-relations performance	130	3.00	7.00	5.2095	.96187
Employee-relations performance	130	2.00	7.00	4.9615	1.01465
Operational performance	130	3.00	7.00	5.0308	1.05609
Quality performance	130	3.00	7.00	5.1625	.86079
Supplier-relations performance	130	2.00	7.00	4.8816	.93688
Environmental performance	130	3.00	7.00	4.9995	1.04177
Innovation performance	130	2.00	7.00	4.8215	1.30265
Alliances performance	130	2.00	7.00	4.2738	1.28609
Community-relations performance	130	2.00	7.00	4.6045	1.21629
Overall performance	130	3.00	6.00	5.2000	.70875

Histogram



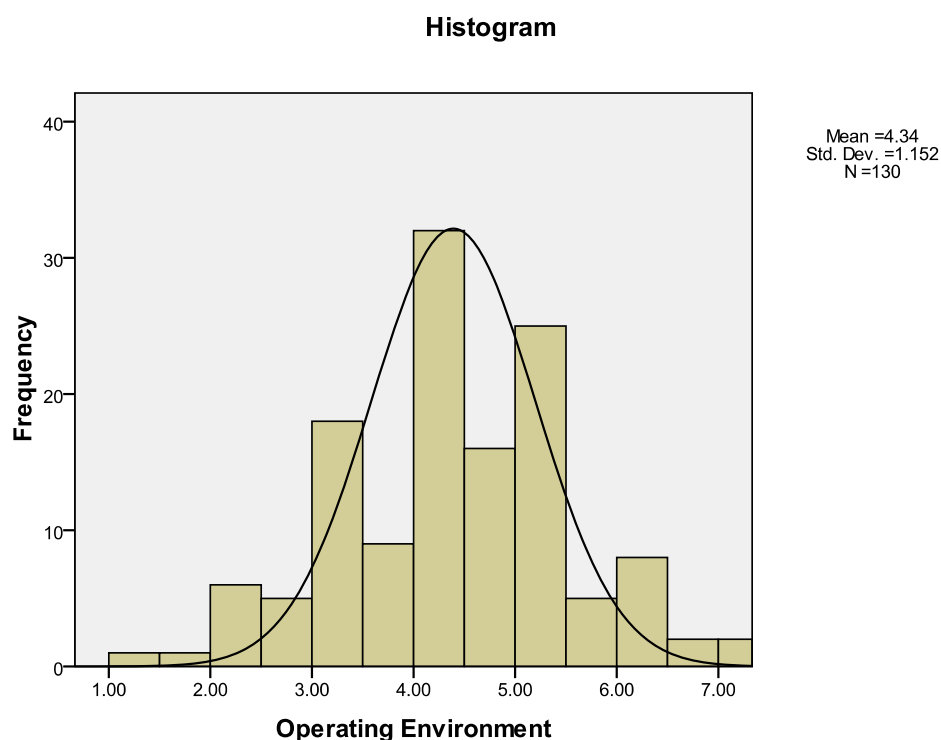
Operating Environment

The study aimed to capture environmental dynamism (e.g. environmental uncertainty & turbulence) that firms were facing. It required respondents to indicate whether or not they agree with three statements regarding the nature of the institutional environment. The three aspects were measured on a 7-point Likert scale with two anchors: 1 as “strongly disagree” and 7 as “strongly agree”. An average towards the higher end (i.e. 7) indicates that the firm was operating in an extremely uncertain and dynamic environment.

The results in Table 5 show a normal distribution. The average for the operating environment was 4.34 in between the range of 1 and 7. This suggests that respondents regard that they were operating in a dynamic and unpredictable external environment. This is especially true with the recent financial crisis.

Table 5: Operating Environment - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Regular new product introduction	130	1.00	7.00	4.0000	1.59942
Dynamic external environment	130	1.00	7.00	4.9842	1.36957
Unpredictable customers/clients tastes	130	1.00	7.00	4.0308	1.55488



Business Strategy

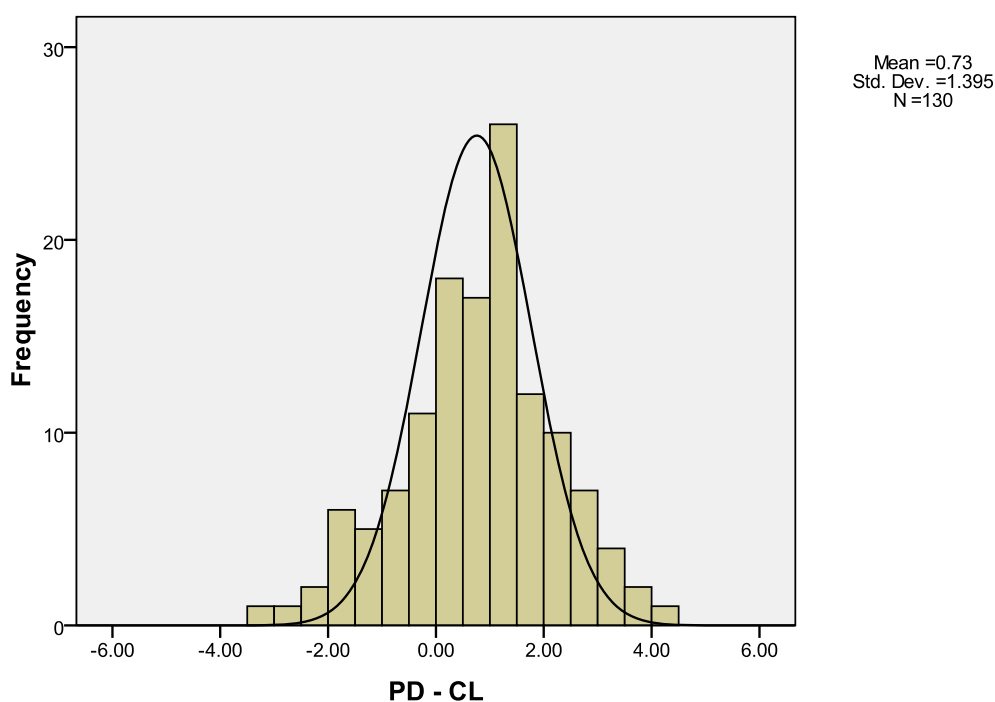
To understand the impact of business strategies on the interplay of MCS choices, respondents were required to indicate the importance of 11 competitive strategic priorities to their companies. We differentiate business strategies as cost leadership (measured by 2 items) and product differentiation (measured by 9 items). As some companies may not adopt a clear-cut cost leadership or product differentiation strategy, in this study, the difference between the average of the items for product differentiation strategy and the average of the items for cost leadership strategy was used to recognize the magnitude of tendency towards either of the two strategies (shown in the histogram as PD – CL). The theoretical range was between 6 and -6, where 6 reflecting a “pure” product differentiation and -6 a “pure” cost leadership.

Results show that respondents place slightly more weights on product differentiation strategy, with a mean of 0.73 (standard deviation of 1.395). The distribution of the proxy for strategy shows a relatively normal distribution. This suggests that the number of organizations that adopt either of the two strategies was about the same.

Table 6: Business Strategy - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Low production costs	130	1.00	7.00	4.9682	1.46239
Offering low prices	130	1.00	7.00	4.1462	1.46331
Providing high quality product/services	130	3.00	7.00	6.2165	.78714
Providing unique product/service features	130	2.00	7.00	5.3538	1.19988
Making changes in design quickly	130	1.00	7.00	4.4769	1.42631
Making rapid volume and/or product/service mix changes	130	1.00	7.00	4.0003	1.55519
Providing fast deliveries	130	1.00	7.00	5.0461	1.59875
Making dependable delivery promises	130	3.00	7.00	6.0538	.97497
Providing effective after-sale service	130	1.00	7.00	5.4231	1.44601
Offering a more expanded range of products	130	1.00	7.00	5.0077	1.38931
Customizing products and services to customer needs	130	1.00	7.00	5.2231	1.50588

Histogram



2.2. Empirical Analysis and Findings

We predicted that there would be a positive association between delegation and incentive-based pay, a negative association between delegation and noise in performance measures, and a negative association between incentive-based pay and noise in performance measures. Further, it was expected that when there is a match among the three MCS choices, organizational performance would be better than when there is a mismatch in the design. In other words, organizations would perform better if they have the following two combinations of MCS design choices: a) low noise in performance measures was matched with high levels of delegation and high weighting of incentive-based pay; and b) high noise in performance measures was matched with low levels of delegation and low weighting of incentive-based pay. The two scenarios that meet our prediction are presented in Table 7.

Table 7- Match vs. Mismatch Associations of Delegation, Incentive Compensation, and Noise

				Delegation	
				High	Low
Incentive Compensation	High	Noise in performance measures	High	Mismatch	Mismatch
			Low	Match	Mismatch
	Low	Noise in performance measures	High	Mismatch	Match
			Low	Mismatch	Mismatch

Following the matched and mismatched scenarios in Table 7, main tests involved independent samples t-test between two sub-samples (i.e. matched and mismatched sub-samples) in stage one, one-way ANOVA to compare the eight matched and mismatched groups in stage two, and simultaneous equations to examine the difference of MCS choices between high performing firms and low performing firms in stage three. Our **findings** are as follows:

- The mean performance of matched sample is higher than that of the mismatched sample, and the difference is statistically significant. This is

consistent with our expectation that firms with the predicted associations in their MCS design out-perform those that do not have the suggested associations.

- Significant difference only exists between sub-samples with high delegation and low delegation, but not between high and low incentive compensation or high and low noise in performance measures. We may interpret this as that, irrespective of the design of firms' incentive compensation and performance measures used, firms tend to have a higher performance if they delegate more authority to employees. In other words, the extent of delegation is likely a more important determinant for performance, in comparison to the weighting of incentive compensation and the level of noise in performance measures.
- The mean performance score was used to separate high and low performing firms. By comparing the 35 matched firms with the 54 high performing firms, we find that 30 matched firms were within the high performing sub-sample. In other words, more than half (55.56%) of the high performing firms have the suggested matches in their MCS design. This is evidence to show that an appropriate fit among MCS choices is an important determinant of organizational performance. However, it seems that the rest of the 24 high performing firms (44.44%) were also able to perform above industry average although they do not have the suggested matches. This indicates that there were other factors, which were not captured by this study, affecting firm's choices of MCS design and performance outcomes. These may include technology, organizational/national culture, quality, customer relations, and leadership effectiveness. It may also reflect the way the sample is split between high performing and low performing firms using the median performance score, given that the matched firms rank high in the high performing sub-sample.
- None of the control variables (i.e. operating environment, business strategy, and organizational size) were statistically significant in the regression result for the sub-sample of high performing firms. This is not consistent with some

prior findings that discovered these control variables as important explanatory factors of the test variables. One possible explanation for this is the different ways used to measure the control variables.

3. Demographic information of study participants

Demographic information of respondents and organizations are presented in Table 8. The table shows that on average respondents had been in their current position for 7.4 years, with some being just appointed (approximately one month) and some with many years of experience (35 years). Their average time of working for their organizations was 13.38 years, ranging from 0.14 years to 51 years, suggesting adequate knowledge and experience of respondents. Organizations had an average of 1291 employees, although the smallest one of them had only 11 employees. Lastly, the average sales turnover is \$724 million, ranging from a minimum of \$2.65 million to a maximum of \$18,750 million per year.

Table 8

Descriptive Statistics for Demographic Variables (N=130)

Variables	Minimum	Maximum	Mean	Std Dev
Time in current position	0.08	35	7.40	8.03
Time in company	0.14	51	13.38	10.85
No of employees	11	38,000	1,291	4,402
Sales Turnover (in millions)	2.65	18,750	724	2,683

Table 9 indicates the number of respondents working at different levels. This shows that 86 respondents work solely at the corporate level and 29 respondents at the business unit level only. Some organizations had no divisions and the 15 respondents indicate they work at both corporate and business unit levels. As expected, out of the 130 respondents, at least 101 respondents had corporate level experience, indicating the accuracy and reliability of the data collected. In addition, the proportion of responses per industry is presented in Table 10. More than one third (38.46%) of the participating organizations were from the manufacturing industry, and this is followed by the service industry (13.85%), wholesale & retail trade (10.77%), and construction (10.77%). No response was received from communication services.

Table 9

Descriptive Statistics for Demographic Variables (N=130)

Variables	No. of respondents
Holding position at the corporate level only	86
Holding position at the business unit level only	29
Holding position at both levels	15

Table 10

Breakdown of Responses by Industry (N=130)

Industry	Responses	Percentage
Agriculture	6	4.62%
Communication Services	0	0%
Construction	14	10.77%
Electricity, Gas or Water Supply	3	2.31%
Finance, Insurance or Real Estate	5	3.85%
Manufacturing	50	38.46%
Mining	4	3.08%
Services	18	13.85%
Transport & Storage	6	4.62%
Wholesale & Retail Trade	14	10.77%
Other	10	7.69%
Total	130	100%

We hope that you have enjoyed the findings of this report. As indicated earlier, this study aims to provide a clear picture of the associations in MCS choices which is expected to be useful in helping organizations to identify potential areas for improvement in MCS design. Organizations having low noise in performance measures can consider using delegation to a greater extent and giving more weighting to incentive-based pay; and organizations with high noise in performance measures can choose to adopt lower level of delegation and low weighting of incentive-based

pay. These choices are likely to contribute to improvement in organizations' performance. Thank you for participating in this research project.