

Strategy Goals, Financial and Nonfinancial Measures, and Performance Evaluation in Japanese Manufacturing Companies

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Abstract

The objective of this study is to investigate strategy goals, financial and nonfinancial measures, and performance measurement systems in Japanese industrial companies. Among the companies listed on the first section of the Tokyo Stock Exchange, the study surveyed 813 manufacturing companies that are considered to be innovators and leaders in their industries. The results provide evidence on measures that have been applied to performance evaluation in determining strategy, promotion, and rewards. Further, I have researched the use of financial and nonfinancial measures. There are important differences in the ways these two types of measures are used for incentives, rewards, and promotion. My findings suggest that firms find it insufficient to focus only on financial measures; nonfinancial measures are also emphasized in evaluating performance in Japanese companies. Further, I find that the use of nonfinancial measures is positively associated with financial performance. This study further discusses improvements in management accounting systems. The results suggest that the following three approaches could motivate personnel better than the current approaches: (1) use performance evaluation measures that are linked to the incentives for a task, (2) use results-oriented performance evaluation, and (3) use process-oriented performance evaluation.

Keywords: performance evaluation; rewards; financial measures; nonfinancial measures; results-oriented; process-oriented.

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Data Availability: Data pertaining to the individual firms used in this study cannot be made public due to confidentiality agreements with the responding firms.

1. Introduction

This paper reports the results of a survey of important features of performance measurement systems in Japanese manufacturing companies. Although Japanese manufacturing companies have many things in common in terms of performance measurement, capital investment, and budgeting, there are a number of important differences among the companies. Moreover, as firms adjust to competing in a low-growth economy after many years of an expansionist economy, they will likely also adjust their performance measurement systems to adapt to the new competitive environment. The objectives of this study are to determine how achievement of goals and performance measurement are related to evaluation and rewards of managers in this new competitive environment, and to discuss the implications for human resource management. This study thus differs from Hoshino (1994), which reports only performance evaluation within the firms, and does so for a period of different competitive forces.

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Before I describe performance measurement, it is useful to address some fundamental questions concerning corporate strategy. Different corporate structures and strategies require different performance evaluation and management control systems (see Miles and Snow [1978]) so my survey addresses organization structure and variations in strategic goals. Financial performance measures indicate whether the company's strategies are contributing to profitability, growth, and shareholder value (Kaplan and Norton [1992, 77]). The purpose of performance measurement and management control systems is not only to predict and measure financial performance, but also to identify job-related problems, review budget planning, improve employees' salary and promotion opportunities, and examine personnel training requirements, among other objectives. This study therefore also addresses firms' budget planning and control practices, and the use of nonfinancial measures in addition to financial performance measures. The variance from goal achievement is analyzed before performance evaluations are completed. This variance analysis is useful for motivation to enhance production quality and efficiency and performance on other key measures. If problems such as cost inefficiency and poor product quality are discovered, there is an opportunity to eliminate the causes and make corrections for the next cycle of budgeting.

Moreover, managers are evaluated on their business unit's performance relative to performance goals, including budget targets. It is important to develop systems that link results with rewards in order to improve the effectiveness of personnel ratings and provide useful input for promotion or redeployment decisions. In Japanese companies, however, the relationship between budget performance and division manager rewards is often weak, and thus the incentives for employee goal achievement are not very strong (Hoshino [2004]).

My results provide details on measures that are used in determining strategy, promotion, and rewards. Companies find it useful to evaluate performance on not only financial measures, but also nonfinancial measures. Further, there are important differences in the ways these two types of measures are used for incentives, rewards, and promotion. I find that the use of nonfinancial measures is positively associated with financial performance. In addition, my results suggest that there are a number of significant differences between results-oriented evaluation and process-oriented evaluation.

After reporting my survey results, I suggest some improvements in how the performance evaluation systems can be used to better align individual behavior with strategic goals. The creation of performance evaluation systems that link performance and rewards is urgently needed to increase the validity of a manager's bonus and promotion. Currently, in the companies surveyed, it is generally not clear how performance is related to personal assessment, nor is it clear how a superior influences a subordinate through the management control system.

The next section describes related research and Section 3 describes the survey. Section 4 presents the empirical analysis and the results of the major questions on performance measurement and improvement of performance measurement systems. Section 5 compares results-oriented and process-oriented systems and describes compensation, incentives, and usefulness of performance evaluation. Section 6 provides a summary and offers conclusions, implications, and suggestions.

2. Related Research

The empirical research of Bales and Asada (1991), arguably the most closely related to this study, finds significant differences between Japanese and American budget and performance evaluation systems. Ittner and Larcker (1998) examine innovations and trends in performance measurement along three dimensions: economic value measures, nonfinancial performance measures and the Balanced Scorecard, and performance measurement initiatives in government agencies. Ittner and Larcker (1997) examine new trends in the use of nonfinancial measures in performance measurement systems. Ederhof's (2011) empirical study based on compensation data from a multinational corporation examines the relationship between compensation-based and promotion-based incentives and finds significant differences between implicit incentives of employees. Indjejikian and Matějka (2012) examine

the use of financial and nonfinancial measures in determining local business unit managers' bonus plans and conclude that the bonus plans are less sensitive to financial measures of business unit performance and more sensitive to nonfinancial measures. Their study has much in common with this study, in terms of survey data, financial and nonfinancial performance measures, and so on. However, their study focuses on the choice of types of performance measures used to determine managers' bonuses when managers have authority to make operating decisions or authority to make accounting system choices.

Several studies explore nonfinancial measures in light of performance measurement and management practices in Japanese companies. For example, Abdel-Maksoud et al. (2007) explore the relationship between the measurement of nonfinancial performance and innovative managerial practices in Japanese manufacturing companies. Nishii (2007) analyzes the effects on the use of nonfinancial performance measures by using a mail questionnaire survey. Based on a mail questionnaire survey, Otomasa (2003) documents differences in the frequency of utilization of business unit performance measures in the four perspectives of the Balanced Scorecard. Further, he does not find strong correlations between the financial measures and the nonfinancial measures. Asakura (2007) explores financial and nonfinancial indicators in overseas subsidiaries of Japanese companies and pursues Kaplan and Norton's (1992, 1993) Balanced Scorecard approach. Kaplan and Norton (1992, 72) suggest that the balanced scorecard allows managers to look at the business from four important perspectives between financial measures and operational measures.

3. Sample

The survey questionnaire consists of 21 questions (31 items) relating to strategy goals, divisional organization, budgeting, capital investment, performance evaluation, and performance measurement. These items are important in analyzing the relevance to firms' strategic objectives and performance evaluation. The questionnaire was administered between July 1, 2011 and July 20, 2011.

The survey questionnaire was mailed to 813 Japanese manufacturing companies that are listed on the first section of the Tokyo Stock Exchange and are considered to be innovators and market leaders in their industries. The companies were grouped into 14 categories: food, apparel, chemicals, petroleum & coal products, rubber products, ceramic, steel, non-ferrous metal, metal products, machinery, electronics, transportation equipment, precision instruments, and other manufacturing. The questionnaires were addressed to the company controller or the manager of the Accounting Department. Completed questionnaires were returned by 65 Japanese companies, which is a response rate of 8.0 percent. The highest industry response rate was 18.2 percent for rubber products; the lowest industry response rate was 2.8 percent for metal products. Table 1 shows the number of companies in the initial survey, the number of responses, and the response rates by industry classification.

The next section presents the survey results, following the sequencing in the questionnaire: strategy goals, how budgets are used in performance evaluation, type of capital budgeting techniques, important performance measurements of division managers, importance of financial and nonfinancial measures, improvement of performance measurement systems, and level of satisfaction with performance evaluation systems. Performance evaluation involves collecting information relative to corporate decisions, and is designed to promote and reward personnel. The performance evaluation system is linked to the budget planning and incentive systems. Both budgeting and capital budgeting involve predictions of planned results in pursuit of the company's goals; performance evaluation systems measure achieved results for comparison to goals. Therefore, performance evaluation has a very important influence on decisions.

Table 1- Composition of Surveys and Responses

<u>Industry classification</u>	<u>Survey</u>		<u>Responses</u>	
	<u>Size</u>	<u>%^a</u>		<u>%^b</u>
Food	65	(8.0)	5	(7.7)
Apparel, Textile	41	(5.1)	2	(4.9)
Chemicals	156	(19.2)	13	(8.3)
Petroleum & Coal Products	10	(1.2)	1	(10.0)
Rubber Products	11	(1.4)	2	(18.2)
Pottery (Ceramic)	29	(3.6)	1	(3.4)
Steel	35	(4.3)	1	(2.9)
Non-ferrous Metal	24	(3.0)	3	(12.5)
Metal Products	36	(4.4)	1	(2.8)
Machinery	119	(14.6)	9	(7.6)
Electronics	154	(18.9)	10	(6.5)
Transport Equipment	62	(7.6)	10	(16.1)
Precision Instruments	26	(3.2)	1	(3.8)
Other Manufacturing	45	(5.5)	6	(13.3)
Totals	813	(100.0)	65	

^a The percentages are the ratio of the number of industry firms surveyed to the total firms surveyed.

^b The percentages are the ratio of the number of responding companies to the survey size in each industry classification. The overall response rate is 8.0 percent.

4. Results and Analyses

4.1 Strategy Goals

The questionnaire asks the respondents to rank the top three strategy goals for their firms, from among 16 provided managerial categories. Table 2 provides the rankings in descending order of total responses for each category. The top four categories are growth of earnings, strengthening of research and development (R&D) efficiency, sales growth, and improvement of product quality. It has been proposed that, in contrast to American companies, Japanese companies stress sales volume and market share more than profit (Kagano et al. [1985, 25]).¹ However, Table 2 shows that sales growth and growth in market share are not ranked as highly as earnings growth, which is ranked first. This provides evidence of increasing emphasis on management efficiency. Consistent with the expected emphasis on sales volume and market share, strengthening of R&D efficiency ranks second, and sales growth ranks third. This indicates that the Japanese manufacturing industry is continuing to strengthen its engineering capabilities, and realizes the importance of high product quality and low cost. The capital gains of stockholders are not considered very important because the power of stockholders is weakened by cross-holdings.

¹ In particular, Kagano et al. (1985) examine important differences between Japanese and American corporate strategies.

Table 2- Important Strategy Goals

	<u>Mean</u>	<u>Responses</u>	<u>Ranking</u>					
			<u>First(%)</u>		<u>Second(%)</u>		<u>Third(%)</u>	
Growth of earnings	1.523	38	25	(38.5)	11	(16.9)	2	(3.1)
Strengthening of R&D efficiency	0.877	29	10	(15.4)	8	(12.3)	11	(16.9)
Sales growth	0.815	23	9	(13.8)	12	(18.5)	2	(3.1)
Improvement of product quality	0.585	16	8	(12.3)	6	(9.2)	2	(3.1)
Improvement in public image of the company	0.367	10	5	(7.7)	4	(6.2)	1	(1.5)
Development of human resources	0.264	12	1	(1.5)	2	(3.1)	9	(13.8)
Growth in market share	0.246	12	1	(1.5)	2	(3.1)	9	(13.8)
Strengthening of marketing capability	0.231	10	1	(1.5)	3	(4.6)	6	(9.2)
Improvement of product portfolio	0.185	8	0	(0.0)	4	(6.2)	4	(6.2)
Return on Investment (ROI)	0.169	7	1	(1.5)	2	(3.1)	4	(6.2)
Capital gains for stockholders	0.138	5	1	(1.5)	2	(3.1)	2	(3.1)
New product ratio	0.092	5	0	(0.0)	1	(1.5)	4	(6.2)
Equity ratio	0.092	4	0	(0.0)	2	(3.1)	2	(3.1)
Improvement in quality of working conditions	0.062	3	0	(0.0)	1	(1.5)	2	(3.1)
Efficiency of production systems	0.046	2	0	(0.0)	1	(1.5)	1	(1.5)
Efficiency of physical distribution	0.031	1	0	(0.0)	1	(1.5)	0	(0.0)

The mean scores in the table are calculated as follows: 3 points for the most important goal, 2 for the second, and 1 for the third. For each item, the points are multiplied by the associated number of responses, and the weighted scores are aggregated and divided by 65, the number of responding companies. The percentages are the ratio of the number of industry firms surveyed to the number of responding companies.

4.2 Budgeting

The next section of the questionnaire asked respondents to choose one of the provided alternatives to indicate the performance evaluation method used. It is reasonable to suppose that production departments, as cost centers, are responsible for output, whereas sales departments, as profit centers, are responsible for sales volume and costs (Hoshino 1995). Table 3 shows that 51.5 percent of the respondents reported using functional performance evaluation (evaluation through divisions) , 34.8 percent reported evaluation through profit centers, and 9.1 percent reported evaluation through informal profit centers.² It is noteworthy that functional performance evaluation shows the highest percentage of the performance evaluation budget methods.

² The informal profit center here means, for example, a corporate center such as a department of R&D and Shared Services.

Table 3- How Budgets are Used in Performance Evaluation (Short-range Planning)

	<u>Responses* (%)</u>
Functional performance evaluation	34 (51.5)
Evaluation through profit centers	23 (34.8)
Evaluation through informal profit centers	6 (9.1)
Non-evaluation	2 (3.0)
No response	1 (1.5)
Totals	66 (100.0)

*Some responding companies selected more than one use.

Table 4 reports the ranked results on the use of various capital budgeting techniques. These rankings are similar to findings by Kato (1989), Sakurai (1992), and others. Notably, Table 4 shows that the vast majority of the respondents reported using the payback method, and no other method was reported first, second, or third by more than half the respondents. There are several possible reasons for this. One reason is that early recovery of capital is necessary in order for top management to approve capital-intensive projects when technical innovation is an important competitive factor. Further, focusing on the payback period decreases the likelihood of obsolescence of equipment and products. After the payback method, the internal rate of return and the present value method are the most frequently used as an investment evaluation method.³

Table 4- Type of Capital Budgeting Techniques

	<u>Mean</u>	<u>Responses</u>	<u>Ranking</u>		
			<u>First(%)</u>	<u>Second(%)</u>	<u>Third(%)</u>
Payback method	2.015	50	38 (58.5)	5 (7.7)	7 (10.8)
Internal rate of return	0.846	26	9 (13.8)	11 (16.9)	6 (9.2)
Present value method	0.662	26	3 (5.0)	11 (21.2)	12 (27.9)
Subjective method	0.615	24	2 (3.1)	12 (18.5)	10 (15.4)
Accounting rate-of-return	0.538	19	4 (6.2)	8 (12.3)	7 (10.1)
Profitability index method	0.308	10	2 (3.1)	6 (9.2)	2 (3.1)
Other	0.138	3	3 (4.6)	0 (0.0)	0 (0.0)

The mean scores in the table are calculated as follows: 3 points for the most important goal, 2 for the second, and 1 for the third. For each item, the points are multiplied by the associated number of responses, and the weighted scores are aggregated and divided by 65, the number of responding companies. The percentages are the ratio of the number of industry firms surveyed to the number of responding companies.

4.3 Performance Measurement of Divisions

The next series of questions asks division managers to rank the top three performance measures that they use in their divisions, from among the categories provided. Table 5 shows the ranked measures, with sales volume, profit margin on sales, and contribution margin ranked the highest, followed by marginal profit, and net profits after allocation of corporate overhead cost. Note that division managers place emphasis on sales volume, but are relatively

³ See Bromwich and Inoue (1994) for a detailed empirical survey of management practices in Japanese-affiliated companies in the United Kingdom.

less concerned with return on investment. This finding is consistent with Bales and Asada (1991, 37), who found that the most dramatic differences between Japanese and American companies in divisional goals were for sales volume and return on investment.

Table 5- Important Performance Measurements of Division Managers

	<u>Mean</u>	<u>Responses</u>	<u>Ranking</u>					
			<u>First(%)</u>		<u>Second(%)</u>		<u>Third(%)</u>	
Sales volume	1.585	46	20	(30.8)	17	(26.2)	9	(13.8)
Profit margin on sales	0.923	30	9	(13.8)	12	(18.5)	9	(13.8)
Contribution margin	0.723	17	13	(20.0)	4	(6.2)	0	(0.0)
Marginal profit	0.600	19	6	(9.2)	8	(12.3)	5	(7.7)
Net profit after allocation of corporate overhead	0.477	14	7	(10.8)	3	(4.6)	4	(6.2)
Growth in market share	0.369	16	1	(1.5)	6	(9.2)	9	(13.8)
Production cost per unit	0.262	14	0	(0.0)	3	(4.6)	11	(16.9)
Controllable profit	0.231	7	3	(4.6)	2	(3.1)	2	(3.1)
Sales growth	0.231	8	2	(3.1)	3	(4.6)	3	(4.6)
Net profit after charging imputed corporate interest	0.077	2	1	(1.5)	1	(1.5)	0	(0.0)
Value added productivity	0.062	3	0	(0.0)	1	(1.5)	2	(3.1)
Return on investment (ROI)	0.046	2	0	(0.0)	1	(1.5)	1	(1.5)
Cost variances	0.031	2	0	(0.0)	0	(0.0)	2	(3.1)
Asset turnover	0.000	0	0	(0.0)	0	(0.0)	0	(0.0)
Others	0.092	3	1	(1.5)	1	(1.5)	1	(1.5)
No response		12						

The mean scores in the table are calculated as follows: 3 points for the most important goal, 2 for the second, and 1 for the third. For each item, the points are multiplied by the associated number of responses, and the weighted scores are aggregated and divided by 65, the number of responding companies. The percentages are the ratio of the number of industry firms surveyed to the number of responding companies.

4.4 Divisional Organizational Structure

Earlier research (Hoshino 1994, 29-30) found that all the surveyed Japanese companies had at least partially adopted a divisional organization structure. My study also examines the adoption of a divisional organization structure and finds that the adoption rate of this structure continues to be quite high.

Nevertheless, my interviews with Japanese companies indicate that some companies with a divisional head office system have only recently returned to this system (a divisional organization emphasizing a top-down approach); the divisional approach with divisions merely taking strategic directions from the top executive is believed to have caused organizational expansion and erosion of product development capability. Outsourcing financial and human resource duties, along with restructuring, have contributed to the reduction of the head office function to create a lean corporate center. Further, to reverse the previous increased need for coordination and control, some Japanese firms have moved the head office into regional headquarters. Yet, the divisional organization adoption trend will continue for a while in order to promote simplification and empowerment associated with a decentralized company structure.

A comparison of Tables 2 and 5 shows that the important goals (or measures) vary between top management and division managers. Next, I analyze these findings using statistical techniques. This study extracts common performance measures from Tables 2 and 5 to make a contingency table (Table 6). As a result of the chi-square test, the null hypothesis, where there are no significant differences to note between top management and division managers in terms of important goals, was rejected at a 1 percent level of significance. The results provide evidence of a considerable difference in strategy goals between top management and division managers.

Table 6- Top Management-Division Manager Comparison of Strategy Goals

<u>Selected goals</u>	<u>Top management</u>	<u>Division manager</u>
Growth of earnings (Controllable profit)	38	7
Sales growth	23	8
Growth in market share	12	16
Return on investment (ROI)	5	2

Chi-square value = 14.6324. Degrees of freedom = 3. p-value = 0.0022. Significant at 1 percent level.

Table 6 is a cross-tabulation based on the items that are common for Table 2 and Table 5. The numbers are the total number of strategy goals ranked from first to third.

As profit corresponds to growth in earnings, which is a goal of top management, I selected controllable profit as the item most comparable to a division manager performance measure.

4.5 Financial Measures and Nonfinancial Measures

The questionnaire next asked respondents to rank, in order of importance, the top three financial measures and top three nonfinancial measures that the firms use to measure performance. Table 7 shows the mean values and the percentages of firms that ranked specific financial measures first, second, and third. According to Table 7, sales volume, operating earnings rate, gross margin, growth in net profit, and profit margin on sales are ranked highest. In Table 7, I focus my attention on the tendency that profit and profit margin are ranked highly in a relative sense. It is expected that sales volume and profit margin on sales would be ranked highly, because these performance measures reflect the degree of achievement of the firm's overall goals. However, an important point to note in our research is that profit margins such as operating earning rate, gross margin, and growth in net profits are also important measures for Japanese companies. The performance measures that the sampled Japanese firms value most highly are not only the indicators which show results such as sales volume, but also measures such as profit margins, which reflect efficiency of management. The results of this research clearly show that firms place an emphasis on efficiency. The fact that cash flow planning is neglected was unexpected, but might be explained by an advantageously low cost of capital for Japanese companies.

A test for difference in means to compare the responses of the two studies in Table 7 shows a significant difference. The null hypothesis, that there are no significant differences between the findings in this study and Hoshino's (1994) research in terms of important financial measures, was rejected at the 1 percent level of significance. The results indicate a considerable difference in importance of financial measures between the two studies.

Table 7- Importance of Financial Measures

	<u>Mean</u>	<u>Responses</u>		<u>Ranking</u>			<u>Hoshino(1994)</u>		
			<u>First(%)</u>	<u>Second(%)</u>	<u>Third(%)</u>		<u>Mean</u>	<u>Responses</u>	
Sales volume	1.492	41	22 (33.8)	12 (18.5)	7 (10.8)		1.325	64	
Operating earning rate	0.985	31	11 (16.9)	11 (16.9)	9 (13.8)		—	—	
Gross margin	0.508	17	3 (4.6)	10 (15.4)	4 (6.2)		0.520	32	
Growth in net profit	0.415	13	5 (7.7)	4 (6.2)	4 (6.2)		0.407	24	
Profit margin on sales (pretax)	0.369	12	4 (6.2)	4 (6.2)	4 (6.2)		0.821	40	
Cash flow	0.308	14	1 (1.5)	4 (6.2)	9 (13.8)		0.138	13	
Rate of return on capital stock	0.292	10	4 (6.2)	1 (1.5)	5 (7.7)		—	—	
Sales growth	0.292	8	3 (4.6)	5 (7.7)	0 (0.0)		0.512	32	
Controllable profit	0.231	7	3 (4.6)	2 (3.1)	2 (3.1)		0.260	13	
Contribution margin	0.215	6	3 (4.6)	2 (3.1)	1 (1.5)		0.569	30	
Profit rate of total liabilities and net worth	0.169	6	1 (1.5)	3 (4.6)	2 (3.1)		0.220	14	
Return on Investment (ROI)	0.138	4	1 (1.5)	3 (4.6)	0 (0.0)		0.114	8	
Equity ratio	0.123	6	0 (0.0)	2 (3.1)	4 (6.2)		0.089	7	
Cash flow planning	0.077	3	1 (1.5)	0 (0.0)	2 (3.1)		0.089	8	
Inventory level	0.046	3	0 (0.0)	0 (0.0)	3 (4.6)		0.171	18	
Cost variances	0.031	0	0 (0.0)	1 (1.5)	0 (0.0)		0.098	10	
Quality cost	0.031	2	0 (0.0)	0 (0.0)	2 (3.1)		0.065	5	
Sales per employee	0.015	1	0 (0.0)	0 (0.0)	1 (1.5)		0.106	9	
Rate of return on equity	0.015	1	0 (0.0)	0 (0.0)	1 (1.5)		0.073	5	
Rate of return on asset	0.015	1	0 (0.0)	0 (0.0)	1 (1.5)		0.024	1	
Economic Value Added	0.015	1	0 (0.0)	0 (0.0)	1 (1.5)		—	—	
Cost per employee	0.000	0	0 (0.0)	0 (0.0)	0 (0.0)		0.016	2	
Profit on economic measures (price earnings ratio, etc.)	0.000	0	0 (0.0)	0 (0.0)	0 (0.0)		0.008	1	
Others	0.108	4	1 (1.5)	1 (1.5)	2 (3.1)		0.122	6	

t-value = 4.7302. Degrees of freedom = 19. p-value = 0.0001. Significant at 1 percent level.

The mean scores in the table are calculated as follows: 3 points for the most important goal, 2 for the second, and 1 for the third. For each item, the points are multiplied by the associated number of responses, and the weighted scores are aggregated and divided by 65, the number of responding companies. The percentages are the ratio of the number of industry firms surveyed to the number of responding companies.

Table 8 shows the mean values and the percentages of firms that ranked specific nonfinancial measures first, second, and third. Table 8 shows that, on average, the firms place a high value on growth in market share and forecasted sales growth. The firms also attach importance to differentiators such as product quality, effect of product development, and new product ratio (for instance, measures showing product added value). Further, customer satisfaction and effort to achieve goals related to nonfinancial measures ranked highly. Conversely, personnel issues,

Table 8- Importance of Nonfinancial Measures

	<u>Mean</u>	<u>Responses</u>			<u>Ranking</u>			<u>Hoshino(1994)</u>	
			<u>First(%)</u>		<u>Second(%)</u>		<u>Third(%)</u>	<u>Mean Responses</u>	
Growth in market share	0.969	27 16	(24.6)	4	(6.2)	7	(10.8)	0.984	47
Product quality	0.862	25 10	(15.4)	11	(16.9)	4	(6.2)	0.537	33
Prediction of sales growth	0.492	14 6	(9.2)	6	(9.2)	2	(3.1)	0.553	27
Customer satisfaction	0.477	14 7	(10.8)	3	(4.6)	4	(6.2)	0.301	21
Effect of product development	0.431	14 5	(7.7)	4	(6.2)	5	(7.7)	0.325	21
Effort to achieve goals	0.385	13 5	(7.7)	2	(3.1)	6	(9.2)	0.634	37
Inventory turnover	0.308	10 3	(4.6)	4	(6.2)	3	(4.6)	0.366	28
Ratio of distribution cost of sales	0.262	10 1	(1.5)	5	(7.7)	4	(6.2)	0.154	10
Effort to achieve production planning	0.185	7 0	(0.0)	5	(7.7)	2	(3.1)	0.431	25
New product ratio	0.154	6 1	(1.5)	2	(3.1)	3	(4.6)	0.309	20
Engineering level (defect rates)	0.154	6 0	(0.0)	4	(6.2)	2	(3.1)	0.081	7
Total factor (labor, equipment, and raw material, etc.) productivity	0.169	6 2	(3.1)	1	(1.5)	3	(4.6)	0.211	12
Output (performance) for one day	0.108	4 1	(1.5)	1	(1.5)	2	(3.1)	0.033	2
Balanced Scorecard	0.092	2 2	(3.1)	0	(0.0)	0	(0.0)	—	—
Production engineering capability (eg. process innovation)	0.077	3 0	(0.0)	2	(3.1)	1	(1.5)	0.130	13
Safety	0.077	3 0	(0.0)	2	(3.1)	1	(1.5)	0.122	7
Ratio of R&D cost to Sales	0.077	2 1	(1.5)	1	(1.5)	0	(0.0)	0.081	6
Degree of global environment protection	0.062	2 1	(1.5)	0	(0.0)	1	(1.5)	0.016	2
R&D capability of technological experts	0.046	2 0	(0.0)	1	(1.5)	1	(1.5)	0.041	3
Sales according to distributors	0.046	2 0	(0.0)	1	(1.5)	1	(1.5)	0.016	1
Development of human resources	0.031	2 0	(0.0)	0	(0.0)	2	(3.1)	0.081	6
Return on investment to R&D	0.031	2 0	(0.0)	0	(0.0)	2	(3.1)	0.016	1
Important technique holding degree	0.031	1 0	(0.0)	1	(1.5)	0	(0.0)	0.041	3
Jidoka of production (i.e., manufacturing automation)	0.015	1 0	(0.0)	0	(0.0)	1	(1.5)	0.106	5
Human cost-benefit	0.015	1 0	(0.0)	0	(0.0)	1	(1.5)	0.041	4
Intangible assets	0.015	1 0	(0.0)	0	(0.0)	1	(1.5)	—	—
Register number of industrial property (eg. intellectual estate productivity)	0.000	0 0	(0.0)	0	(0.0)	0	(0.0)	0.041	3
Order number (value) of R&D	0.000	0 0	(0.0)	0	(0.0)	0	(0.0)	0.016	1
Reduction of labor turnover	0.000	0 0	(0.0)	0	(0.0)	0	(0.0)	0.008	1
Others	0.031	1 0	(0.0)	1	(1.5)	0	(0.0)	0.016	1

t-value = 4.4952. Degrees of freedom = 27. p-value = 0.0001. Significant at 1 percent level.

The mean scores in the table are calculated as follows: 3 points for the most important goal, 2 for the second, and 1 for the third. For each item, the points are multiplied by the associated number of responses, and the weighted scores are aggregated and divided by 65, the number of responding companies. The percentages are the ratio of the number of industry firms surveyed to the number of responding companies.

such as the reduction of labor turnover and development of human resources, did not rank highly. The question we have to ask here is whether current performance evaluation systems are capable of revealing the results of the overall company activities. The current method of using accounting systems without important nonfinancial performance measures is not appropriate for successful management of companies. In other words, it should be clear that reform of firms' accounting systems is necessary in order for the firms to make effective operating decisions. We need to incorporate both financial and nonfinancial measures to appropriately evaluate production results.

Table 9- Improvement of Performance Measurement System

	<u>Mean</u>	<u>Responses</u>			<u>Ranking</u>			<u>Hoshino(1994)</u>	
			<u>First(%)</u>		<u>Second(%)</u>		<u>Third(%)</u>	<u>Mean</u>	<u>Responses</u>
Strengthening of long term profitability	1.323	36	20 (30.8)	10 (15.4)	6 (9.2)	1.130	59		
Analysis of variances from budget	0.600	18	6 (9.2)	9 (13.8)	3 (4.6)	0.634	37		
Increase in market share	0.492	16	6 (9.2)	4 (6.2)	6 (9.2)	0.252	19		
Measurement of productivity	0.446	17	3 (4.6)	6 (9.2)	8 (12.3)	0.691	45		
Responsibility accounting system	0.400	12	5 (7.7)	4 (6.2)	3 (4.6)	0.927	47		
Measurement through cost variances	0.369	12	3 (4.6)	6 (9.2)	3 (4.6)	0.203	15		
Adoption of nonfinancial measure	0.200	7	3 (4.6)	0 (0.0)	4 (6.2)	0.211	12		
Not necessary	0.185	4	4 (6.2)	0 (0.0)	0 (0.0)	0.114	5		
Measurement of product development cost	0.169	6	0 (0.0)	5 (7.7)	1 (1.5)	0.398	25		
Ratio of R&D cost to sales	0.154	8	0 (0.0)	2 (3.1)	6 (9.2)	0.203	15		
Strengthening of engineering efficiency	0.123	4	1 (1.5)	2 (3.1)	1 (1.5)	0.293	16		
Strengthening of short term profitability	0.123	4	2 (3.1)	0 (0.0)	2 (3.1)	0.033	3		
Return on investment(ROI)	0.108	3	2 (3.1)	0 (0.0)	1 (1.5)	0.276	18		
Measurement of inventory control cost	0.108	5	0 (0.0)	2 (3.1)	3 (4.6)	0.114	10		
Strengthening of exceptions report	0.046	1	1 (1.5)	0 (0.0)	0 (0.0)	0.154	10		
Others	0.138	3	3 (4.6)	0 (0.0)	0 (0.0)	0.065	5		
No response		39	—	—	—		29		

t-value = 4.3522. Degrees of freedom = 15. p-value = 0.0006. Significant at 1 percent level.

Note: This table compares my survey results with those of Hoshino (1994). The effective number of responses of Hoshino (1994) is 123 companies. The mean scores in the table are calculated as follows: 3 points for the most important goal, 2 for the second, and 1 for the third. For each item, the points are multiplied by the associated number of responses, and the weighted scores are aggregated and divided by 65, the number of responding companies. The percentages are the ratio of the number of industry firms surveyed to the number of responding companies.

In any case, it is important for firms to establish new performance measurement systems. Indeed, the character of the firm's incentive system for division managers and top management influences management decision-making. In my understanding, it has not always been clear that we have been making steady progress in the study of the relationship between managerial accounting planning and control systems and performance measurement systems as a basis for evaluation and reward schemes.

A test for difference in means to compare the responses of the two studies in Table 8 shows a significant difference. The null hypothesis, that there are no significant differences between the findings in this study and Hoshino's (1994) research in terms of important nonfinancial measures, was rejected at the 1 percent level of significance. The results indicate a considerable difference in importance of nonfinancial measures between the two studies.

4.6 Improvement of Performance Measurement Systems

The next section of the questionnaire asked respondents to rank the top three measures or aspects of the performance measurement system needing improvement, in order of improvement prioritization. Table 9 lists the items ranked in order of improvement prioritization. Strengthening of long-term profitability has the highest rank, followed by analysis of variances from budget, increase in market share, measurement of productivity, responsibility accounting systems, and so on. Hoshino (1994, 32) found similar tendencies and reached similar conclusions as this study regarding the improvement of performance measurement systems for the measures included in the prior study. The analyses in this study employed new measures and studied firms to discover the characteristics of performance measurement in the Japanese manufacturing sector. As these measures are ranked in order of improvement prioritization, the results indicate that each company is moderately satisfied with the present performance measurement function of their system (also see Table 10). In light of this result, it is clear that the desire for improvement of managerial accounting systems is reasonably high.

An issue of note in Table 9 is that the ratio of R&D cost to sales and the strengthening of engineering efficiency are listed as relatively low priorities. In an environment where firms are trying to intensify their international competitiveness, it is difficult to survive for long if the firm does not recognize the importance of such measures. As times change, measures of performance evaluation must also change.

Table 10- Level of Satisfaction with Performance Evaluation Systems

	Greatly Dissatisfied (%)		Moderately Satisfied (%)		Greatly Satisfied (%)
<u>Department's responses</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Accounting Department (Current study, n = 65)	5 (7.8)	14 (21.9)	30 (46.9)	13 (20.3)	1 (1.6)
Accounting Department (Hoshino [1994], n = 123)	4 (3.3)	25 (20.3)	62 (50.4)	30 (24.4)	2 (1.6)
Personnel Department (Hoshino [1996], n = 132)	6 (4.5)	27 (20.5)	69 (52.3)	28 (21.2)	2 (1.5)

The effective number of responses of Hoshino (1994) is 123 companies out of 407 companies contacted.

The effective number of responses of Hoshino (1996) is 132 companies out of 703 companies contacted.

In the satisfaction columns, numbers without parentheses are the number of responses in that category. Numbers within parentheses are the ratio of the number of responses to the total responses in the respective department.

Accounting Department (current study): Mean = 2.857; Standard deviation = 0.895

Accounting Department (Hoshino [1994]): Mean = 3.008; Standard deviation = 0.805

Personnel Department (Hoshino [1996]): Mean = 2.946; Standard deviation = 0.813

A test for difference in means to compare the responses of the two studies in Table 9 shows a significant difference. The null hypothesis, that there are no significant differences between the findings in this study and Hoshino's (1994) research in terms of important improvements, was rejected at the 1 percent level of significance. The results indicate a considerable difference in perceived needs for improvement of performance measurement systems between the two studies.

Consequently, in addition to the financial measures analysis of the firm, it is important to evaluate invisible capabilities such as management power and the potential of the firm. Although it is extremely important to evaluate qualitative factors, which show the potential efficiency of the firm, it is my opinion that no investigation has taken place concerning the evaluation of these factors. To further evaluate overall performance, top management places more emphasis on nonfinancial than on financial measures. To summarize, top management sees room for improving the performance evaluation information provided by the present accounting measurement systems.

4.7 Summary of Results

Thus far, I have reported and analyzed significant features of performance measurement systems in large Japanese manufacturing companies. The key empirical findings and interpretations from my survey and interviews are as follows:

1. When companies execute corporate strategy, top management places emphasis on management efficiency, as indicated by high rankings of operating earning rate, growth in net profit, and profit margin on sales.
2. However, division and department managers place emphasis on sales volume. There seems to be a very important difference in goal treatment among managers.
3. Firms have a tendency to adopt the investment evaluation methods that are related to the innovations that the firm recognizes as an important competition factor.
4. The percentage of firms adopting a divisional organization structure is quite high. Nevertheless, there is a trend for top managers to return to a divisional organization with a top-down approach if the decentralized authority associated with a divisional structure has led to overexpansion.
5. Japanese companies place emphasis on such nonfinancial measures as product quality and customer satisfaction.
6. The demand to improve the managerial accounting systems is growing stronger.

Based on my analysis, I offer the following proposals:

1. If a firm moves from an expansionist economy to a low-growth economy, it will need to increase its emphasis on management efficiency.
2. As far as performance evaluation is concerned, it is not enough to focus on financial measures such as profit. Nonfinancial measures also need to be monitored in order for firms to achieve their strategic goals.
3. To increase a firm's effectiveness in achieving its strategic goals, incentives should be based on achievement of strategic goals.

The next section discusses the importance of both results-oriented and process-oriented performance evaluation in order for firms to achieve their strategic goals.

5. Results-Oriented and Process-Oriented Performance Evaluations

In the final section of this study, I consider how organizational goals can be directly related to the performance appraisal of professional employees. There are still many questions that must be asked about the relationship between performance and compensation. For example, what kind of personnel performance evaluation can be adopted to increase the effectiveness of the organization?

5.1 Compensation and Incentives in Results-Oriented Evaluation

I begin this analysis by comparing performance evaluation in Japanese and American companies. Japanese companies measure the results of the group, but not in terms of personal efficiency. Conversely, research has revealed that the performance evaluation systems in American firms function not only to evaluate organizational effectiveness, but also to evaluate personal efficiency. This is an important difference in the treatment of performance evaluation between these two methods. This difference between the individualism and “groupism” of the two countries applies to decision-making as well. Japanese companies have the tendency to reach decisions within groups, and these decisions are also evaluated by groups. Consequently, in the Japanese system, it is difficult to explain the causal relationship between personal endeavor and eventual results. Generally, it is said that performance and remuneration are not always linked and an employee is rewarded by promotions and job rotations in Japan.

Characteristics of the Japanese style of management include a lifetime employment system, a seniority wage system, and in-house unions. These systems have played an important part in maintaining good business results when the company enjoys steady growth and there is not much variety in work content. In seniority wage systems, performance-based incentives are never high. To date, most Japanese firms have not used performance-based incentives as an important part of their management control systems. From the perspective of employees, however, performance-based incentives reduce the percentage of labor turnover because future wages depend on current effort and performance. Without objective indicators, such as those based on performance measures, or remuneration contracts based on performance, it will be difficult to get an accurate understanding of an employee's morale, organizational commitment, contribution to company's goals, etc.. When the economic growth rate drops and business profits fall, it becomes necessary to reform the seniority wage system. Furthermore, in this low-growth era, Japanese companies will have to change their investment behavior and improve the low distribution of profits to labor and the low returns to shareholders in order to be responsive to criticism from European and North American investors.

Let us consider now the implications of the performance evaluation systems used to increase the incentives for remuneration. Levinson (1970, 126) suggests the following purposes regarding management by objectives or performance appraisal:

- Measure and judge performance.
- Relate individual performance to organizational goals.
- Clarify both the job to be done and the expectations of accomplishment.
- Foster the increasing competence and growth of the subordinate.
- Enhance communications between superior and subordinate.
- Serve as a basis for judgments about salary and promotion.
- Stimulate the subordinate's motivation.
- Serve as a device for organizational control and integration.

There is evidence that in recent years, when companies that have adopted techniques of management by objectives assess their financial performance, they incorporate the elements listed above (Mohrman, Jr. et al. [1989, 12]).⁴ Mohrman, Jr. et al. (1989, 64 and 142) suggest that management by objectives and review systems are examples of a results-oriented method and define performance in terms of measurable outcomes or objectives.

5.2 The Use of Process-Oriented Evaluation

Meyer (1994, 95) states that the design of any performance measurement system should reflect the basic operating assumptions of the organization it supports. Even if it is assumed that the measurement system is effective with control-oriented functional organizations, it may not always be effective in faster and flatter team-based organizations. If the organization changes and the measurement system does not, then the latter will be, at best, ineffective. Meyer (1994, 97) argues that:

Many managers fail to realize that results measures like profits, market share, and cost, which may help them keep score on the performance of their businesses, do not help a multifunctional team, or any organization, monitor the activities or capabilities that enable it to perform a given process. Nor do such measures tell team members what they must do to improve their performance.

Companies that operate in a competitive environment must build a performance system that uses process measures effectively to motivate the desired activities. When the improvement of processes and the creation of results are closely related, a business organization can grow smoothly. The most commonly used results measures in product development are schedule and cost (Meyer [1994, 97]). One goal that is realized, for example, is a substantial savings through reduction of inventory or the shortening of a business cycle. The process may differ depending upon the undertaking, but it is clear that the condition common to successful businesses is having a system to evaluate such factors as quality, cost, and time.

From the viewpoint of organizational change, the Balanced Scorecard procedure that Kaplan and Norton (1992) suggested is probably useful to better refine and understand existing strategies.⁵ In other words, the Balanced Scorecard is more than just a measurement system; it can also serve as a management system that can motivate breakthrough improvements in such critical areas as product, process, customer, and market development. A Balanced Scorecard supplements financial indicators by measuring such elements as customer satisfaction, re-engineering, and improvement (Kaplan and Norton [1993, 134]). In this way, the Balanced Scorecard is a management system that helps motivate breakthrough competitive performance (Kaplan and Norton, 1993, 142).

Because Japanese firms can anticipate positive business opportunities in the future, they need to reorient human resources towards management innovation. This will require building performance measurement systems that measure the short- and long-range strategy goals of the organization from such perspectives as customer orientation, organizational change, and competitive advantage.

⁴ According to Mohrman, Jr. et al. (1989), an appraisal system involves the following key issues: (1) appraisal tools and methods, (2) degree of fit between other features of organization and the appraisal system, (3) system design, and (4) introduction of the system and training of individuals.

⁵ Kaplan and Norton (1992) state that managers need a balanced presentation of both financial and operational measures. According to Kaplan and Norton (1992, 71-72), the Balanced Scorecard allows managers to look at the business from four important perspectives designed to address four basic questions: (1) How do we look to shareholders? (financial perspective), (2) How do customers see us? (customer perspective), (3) What must we excel at? (internal perspective), (4) Can we continue to improve and create value? (innovation and learning perspective).

6. Summary and Conclusions

This paper reports the results of a survey on strategy goals, financial and nonfinancial measures, and performance measurement systems in Japanese manufacturing companies. Overall, my study finds that the development of effective performance evaluation methods increases production efficiency and reinforces incentives and rewards.

My findings contribute to prior research in the following ways. First, I find that Japanese companies place emphasis on management efficiency when they execute corporate strategy. As companies move from an expansionist economy to a low-growth economy, they need to place greater emphasis on management efficiency. Second, I find that Japanese companies place great emphasis on such nonfinancial measures as product quality, customer satisfaction, and effect of product development. It is insufficient to focus only on financial measures, such as profit. My results suggest that nonfinancial measures are also emphasized in evaluating performance in the companies. Third, I find that there is gradually increasing demand to improve management accounting systems.

Traditional financial accounting measures such as return on investment and earnings-per-share can give misleading signals for the continuous improvement and innovation that today's competitive environment demands. Financial performance measures merely indicate whether the company's strategy, implementation, and execution are contributing to bottom-line improvement. In light of today's business environment, however, managers need operational measures related to customer satisfaction, organizational innovation, and internal processes.⁶ Traditional financial measures do not evaluate customer satisfaction, quality, production lead time, and employee motivation. Performance measures we have considered here reflect not only the financial perspective, but also nonfinancial measures that expand the performance measurement system so that it can play a role in a management system to improve a firm's competitive edge.

The reform of managerial accounting systems is necessary for companies to encourage new personnel policies. In particular, the refinement of performance evaluation systems as a foundation for performance feedback and rewards to individuals is indispensable in order to stimulate employee incentives to improve performance. To increase the effectiveness of an organization using responsibility accounting and analysis of variances from budget, I propose that firms implement schemes that strengthen management and employee incentives by linking rewards to performance in a way that motivates alignment with organizational goals. Although salaries and promotions have limited motivational effects, individual performance feedback will have an incentive effect for employees. Further, the findings suggest that performance measurement itself is closely related to technical contributions, customer satisfaction, and corporate image (or corporate reputation).

My findings provide some empirical evidence of how the budget, performance measurement, and reward systems may contribute to managers' incentives. Future research will also need to test the theoretical model based on this research data and analyze the relevant strategies and key success factors of individual firms.

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⁶ See Prietura and Simon (1989, 124), who argue that innovation comes from employees with extensive job experience and knowledge, good intuition, and the ability (and desire) to see their jobs from several perspectives.

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