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**The Use of Organizational Controls  
and Their Effects on Data Manipulation  
and Management Myopia: A U.S. Vs.  
Japan Comparison  
WP 94-1**

**CEO Publication  
G 95-16 (292)**

**Chee W. Chow**  
Vern Odmark Professor of Accountancy  
San Diego State University

**Yutaka Kato**  
Associate Professor of Management Accounting  
Kobe University

**Kenneth A. Merchant**  
Professor of Accounting  
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**Data Manipulation and Management Myopia:  
A Japan vs. U.S. Comparison**

**Abstract**

Two prior papers by Merchant (1985b, 1990) have explored the use and effects of five management controls at the profit center level of a large U.S. firm. This study extends the investigation to a cross-cultural context. Data were collected from first-line profit center managers at Toshiba -- a Japanese manufacturer matched on size and industry to Merchant's (anonymous) U.S. firm. These data were combined with those of Merchant to test four predictions derived from Hofstede's (1980) taxonomy of national culture. The findings supported the predictions that relative to their U.S. counterparts, the Japanese profit center managers were subject to tighter procedural controls and controls via directives given at meetings. Further, when faced with the same level of control tightness, they did not engage in as high a level of dysfunctional activities. However, contrary to prediction, the Japanese managers were subject to significantly tighter controls overall than were the U.S. managers.

**The Use of Organizational Controls and their Effects on  
Data Manipulation and Management Myopia:  
A Japan vs. U.S. Comparison**

In the current era of increasing globalization of business, the transferability of management practices across national boundaries is an issue of significant concern. Much evidence has been reported on how national cultures differ and how people of different national origins have different views of, and reactions to, management practices (e.g., Itami, 1991; Bartlett and Ghoshal, 1989; Steers, 1989; Birnberg and Snodgrass, 1988; Yang, 1984; Child, 1981; Pascale and Athos, 1981; Hofstede, 1980). These studies have shown that the effectiveness of management practices often depends on the presence or absence of a set of particular cultural conditions.

One important area to explore the potential for cross-border transferability is that of management control system design. The control systems used at managerial levels in many U.S. corporations have been subjected to much criticism because the systems allegedly make U.S. managers excessively short-term oriented and prone to manipulate performance data (e.g., Business Week, 1992; Council on Competitiveness, 1992; Jacobs, 1991). Many of the critics point to the great success of Japanese corporations and suggest that managers of U.S. firms can learn from their Japanese counterparts (e.g., Gibney, 1992; Thurow, 1991; Duffy, 1988; Dore, 1987; Hasegawa, 1986; Lawrence and Dyer, 1983; Vogel, 1979; Cole, 1979; Yang, 1977).

The objective of this study is to provide evidence useful for addressing descriptive and evaluative questions about control

systems at the profit center organization level, which is often where a firm's competitive advantage is won or lost (Porter, 1980). To a large extent, this research was exploratory because little prior evidence has been reported about the features of Japanese firms' control systems at the managerial levels. Considerable research (e.g., Young, 1992; Sakurai, 1990; Cusumano, 1985) has focused on Japanese control innovations at the shop floor level of the organization (e.g., just-in-time systems, *kanban* systems, total quality control), and a few studies (Bailes and Asada, 1991; Shields et al., 1991; Tai, 1990; Anyane-Ntow, 1987; Snodgrass and Grant, 1986; Daley et al., 1985; Pucik and Hatvany, 1983) have specifically compared Japanese and U.S. firms' practices in strategic planning, budgeting, performance evaluation, and cost accounting systems. However, we are aware of no research that has addressed the transferability of management controls placed on profit center managers with the level of specificity of the current study.

This study involved collecting data from samples of profit center managers in one U.S. firm (which must go unnamed) and one Japanese firm (Toshiba). These firms were matched on size and industry. They were selected because both are prominent within their countries and representative of the local management practices. The paper documents similarities and differences between what can be called the firms' "control strategies": the types of control tools used and the importance placed on each type (Merchant, 1985a). The findings show that overall, Japanese managers are subject to tighter controls than their U.S.

counterparts. But when faced with controls of equal tightness, they are less likely to manipulate performance measures and to discard their good investment ideas.

The remainder of this paper is organized as follows. The next section discusses the notion of national culture and its potential effects on the functioning of alternate controls. This discussion is used as the basis for deriving four hypotheses regarding differences between the use and effects of controls in U.S. vs. Japanese firms. Then the data collection procedures are discussed and the results are presented. The final section provides a discussion and concluding comments.

#### NATIONAL CULTURE AND PROFIT CENTER-LEVEL CONTROL SYSTEMS

A control system can be defined to include all devices that help ensure the proper behaviors of people in the organization (Merchant, 1985a). Using a combination of unstructured interviews and a questionnaire survey of 54 profit center managers from a large, diversified U.S. manufacturer, Merchant (1985b, 1990) studied the uses and effects of controls on profit center managers' discretionary program expenditures. Such expenditures, for example for new product development, employee development, and basic research, are important to study because they are exactly the types of expenditures said to be adversely affected by systems that cause U.S. managers to be excessively short-term oriented (myopic).<sup>1</sup> The expenditures are investments

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<sup>1</sup>1. In a third study conducted at the profit center level of analysis, Merchant (1989) focused on the design and use of incentive compensation contracts. Using interviews with (coincidentally) 54 profit center managers from 12 diverse, unrelated corporations, he identified some important trade-

in the future; they produce little or no profits in the current measurement period (quarter or year).

In his U.S. study, Merchant found that profit center managers' discretionary program spending decisions were affected by a broad set of controls, the most important of which can be classified into five categories: net income targets, expense targets, headcount constraints, procedural controls (requirements for approvals), and directives given by higher management typically in formal meetings. He also found that the various types of controls tended to be used to reinforce each other, so the measures of the impacts of each of the types of controls could be aggregated to provide an indication of overall control system "tightness."<sup>2</sup>

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offs in the design of incentive contracts for profit center managers, including those between short- and long-run incentives, implicit and explicit promises, and monetary and non-monetary rewards. While the use of incentive contracts is of interest, the scope of this study was limited only to the set of controls examined in Merchant (1985b, 1990). It should be noted, however, that all firms link all of the controls studied here to one or more forms of rewards and punishments.

<sup>2</sup> To the extent that controls are aimed at influencing behavior, the ultimate measure of a control system's tightness should be the extent of its behavioral effects. Such effects probably would vary with both the number of different controls used and their stringency. Merchant (1985b, 1990) only examined a fixed set of control system elements. As such, his findings can be viewed as being focused on the stringency aspect of these controls, as manifested in their impacts on the firm's resource allocation decisions. To preserve comparability between the Japanese and U.S. data, Merchant's (1985b, 1990) approach was followed in the current study. Accordingly, our findings are silent on the effects of varying the number of control elements used.

Given the continued trend towards globalization, an obvious follow-on question to Merchant's findings is: Should we expect the control systems used in non-U.S. firms, and their effects, to be different from those used in U.S. firms? Answers to these questions are important, as they can indicate the degree to which firms can profitably emulate the control systems of their successful foreign competitors as well as export their own controls to overseas operations. Yet direct evidence on these questions has not yet been reported. In the case of Japan and the U.S., a study by Snodgrass and Grant (1986) hypothesized that individuals in Japanese organizations experience less explicit (formal) control than do their U.S. counterparts, but the empirical results failed to support this hypothesis. Further, the effects of the controls were not explored.

There is accumulating evidence that suggests the existence of a link between national cultural variables and profit center-level control system choices. A number of authors have concluded that people from different nations have diverse work-related cultures (Adler et al., 1986; Laurent, 1983; Hofstede, 1980, 1991), as well as different attitudes towards, or reactions to, the same set of controls (Chow et al., 1991, 1994; Kreder and Zeller, 1988; Birnberg and Snodgrass, 1988; Lincoln et al., 1981; Horovitz, 1980). These findings, combined with knowledge about the significantly different histories and cultures of the U.S. and Japan (e.g., McMillan, 1984), suggest that U.S. and Japanese firms' control system choices should not necessarily be identical, or even similar. Controls that are effective in one

cultural setting might not be effective, and might even be dysfunctional, in another, significantly different cultural setting.

Numerous approaches to the study of national culture have been proposed (e.g., Adler et al., 1986; Schein, 1985; Frost et al., 1985; Triandis, 1984; Brislin, 1983; Child, 1981; Hofstede, 1980, 1991). We organize our discussion around Hofstede's (1980, 1991) cultural taxonomy because it is well supported empirically and because it is arguably the most widely cited and employed in business and accounting research (e.g., Gudykunst and Ting-Toomey, 1988; Harrison, 1992; Jaeger, 1984; Kreacic and Marsh, 1986; Ronen and Shenkar, 1985; Soeters and Schreuder, 1988; Triandis, 1984).

Using a survey of some 116,000 individuals from 72 countries, Hofstede (1980) identified four important dimensions of work-related national culture and suggested (1983, 1984, 1991) that specific relationships exist between these cultural dimensions and individuals' preferences and actions in an employment setting. Hofstede's four cultural dimensions are as follows:

1. Individualism vs. Collectivism relates to people's self-concept: "I" or "we". Hofstede suggested that people from a collectivistic culture are motivated by group interests and emphasize the maintenance of interpersonal harmony, while people from an individualistic culture tend to place their self-interests ahead of those of the group.

2. Large vs. Small Power Distance relates to people's acceptance that power in institutions and organizations is distributed unequally. Hofstede suggested that individuals high on power distance prefer, or at least have greater acceptance of, centralization of decision making authority.

3. High vs. Low Uncertainty Avoidance refers to the degree to which the members of a society feel comfortable with uncertainty and ambiguity. Hofstede suggested that people high in uncertainty avoidance prefer to reduce uncertainty or ambiguity by relying on written or unwritten rules of behavior, formalization of organizational structure, and standardization of procedures.

4. Masculinity vs. Femininity reflects preferences for achievement and material success as opposed to emphases on relationships and the quality of life. Hofstede suggested that people high on masculinity tend to prefer basing rewards on performance, whereas those low on this dimension (i.e., high on femininity) prefer to base reward allocations more highly on needs.

In Hofstede's (1980) study, workers from Japan, the U.S., and other countries had the following scores on the four cultural dimensions:

Mean for:

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	<u>Japan</u>	<u>U.S.</u>	<u>countries</u>
Individualism	46	91	51
Power Distance	54	40	51
Uncertainty Avoidance		92	46

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Thus, Hofstede's results suggest sharp differences between the U.S. and Japanese cultures. U.S. culture is much more individualistic than that of the Japanese, but Japanese culture is higher on the other three cultural dimensions, especially uncertainty avoidance.

Numerous other researchers (e.g., Harris and Moran, 1987; Locke and Latham, 1984; Mitchell, 1974; Sampson, 1977; Spence, 1985) also have isolated individualism as a predominant trait of U.S. nationals and the self-interest motive as being the cornerstone of American worldview and management theories. On the other hand, students of Japanese culture have noted the Japanese tendency to place the interests of the collective over those of the self (Befu, 1980; Kamata, 1982; Morsbach, 1980; Ouchi, 1981; Reischauer, 1977; Smith, 1983). These conclusions were supported by the finding of a recent study by Wolff et al. (1992) that employee identification with company values was significantly higher in Japan than the U.S.. Measured on a scale of 100, Japanese workers scored 85, 66% higher than the U.S. workers' score of 56. The Japanese score, which the authors (p. 147) called "astounding," was the highest rating in the 33 industrial countries surveyed; the U.S. was in the middle of the pack. Together with Hofstede, these studies provide a basis for predicting systematic differences in the use and effects of controls in the U.S. and Japan.

To the extent that U.S. nationals are more likely to emphasize their individual interests over those of the firm, a firm with predominantly U.S. rather than Japanese employees should be less able to rely on employees' self motive in achieving its objectives. These firms should have more to gain from instituting a tight management control system. Thus we predict that, overall, U.S. profit center managers are subject to tighter controls than are their Japanese counterparts:

H1: Overall, the controls imposed on U.S. profit center managers are tighter than those imposed on their Japanese counterparts.

While this holistic hypothesis is consistent with the divergence between Japanese and U.S. cultures on the (perhaps dominant) individualism dimension, the other cultural dimensions identified by Hofstede also have implications for the use of controls. Since the current study does not examine the use of incentive awards, the masculinity dimension of culture will be ignored because its control-system implications relate primarily to preferences regarding rewards. Of the remaining two dimensions, Hofstede suggested a positive relationship between uncertainty avoidance and preferences/tolerances for rules and standardized procedures. Since the Japanese are much higher in uncertainty avoidance, they can be expected to rely more heavily on procedural controls because such controls would be perceived as being more desirable (or at least less undesirable) by those whose behaviors are being controlled. The higher power distance of the Japanese, meanwhile, implies that they are more open to

receiving directives from their superiors. These two predictions are summarized in the following two hypotheses:

H2: Compared to their U.S. counterparts, Japanese profit center managers are subject to tighter procedural controls.

H3: Compared to their U.S. counterparts, Japanese profit center managers are subject to tighter controls through directives given by superiors at meetings.

An issue raised by the preceding analysis is: How can Japanese profit center managers be subject to looser controls overall, yet also face tighter controls through procedures and directives? Reconciling this apparent inconsistency requires recognizing that different types of controls function as a package. Controls can serve as complements or substitutes for one another, and they also may differ in both magnitude and area of impact.<sup>3</sup> While summing the effects of different controls is one way to measure their overall tightness, it is important to recognize that different mixes of controls can provide the same overall tightness (level of behavioral assurance).<sup>4</sup> Thus it is

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<sup>3</sup>3. Analogous to looser overall controls coupled with greater tightness for some subparts is a garment that has a loose fit overall, but is tight in some areas (e.g., the waist). The view that the various parts of a control system should be approached as an interrelated package is not new. Many writers (e.g., Flamholtz, et al., 1985; Hayes, 1977; Khandwalla, 1972; Otley, 1980; Waterhouse and Tiessen, 1978) have expressed a similar position. However, extant research still is predominately focused on small subsets of controls in isolation from the rest of the control system.

<sup>4</sup>4 To the extent that different controls may reinforce each other, a linear aggregation approach probably cannot fully capture the effects of a set of controls. We adopted the summation approach due to lack of guidance from the literature about the nature and magnitudes of such interactive/synergistic effects. Identifying and calibrating such effects is a fruitful direction for future research.

possible that overall control tightness can be higher for one national group at the same time that some individual controls have the opposite directional relationship. This would be so especially if different controls have unequal constraining or motivating effects on behavior (e.g., one control may have many times the effect of another), and each national group emphasizes those controls that are most desirable or acceptable to its members.

Beyond these control tightness issues, the Japan-U.S. cultural divergence also has implications for the effects of controls. Merchant (1990) found that pressure to meet financial targets significantly increased the U.S. managers' tendency to engage in two types of dysfunctional activities -- manipulation of performance measures and over-emphasizing projects with short-term payoffs. The other cultural dimensions are silent on this issue, but the lower individualism (i.e., higher collectivism) of the Japanese suggests that when faced with the same degree of control tightness, Japanese profit center managers would not engage in dysfunctional activities, such as excessively short-term oriented behavior or manipulation of performance measures, to the same extent as their U.S. counterparts. This prediction is based on Hofstede's (1980) suggestion, and the findings of empirical research (e.g., Bond et al., 1982; Leung and Bond, 1984; Triandis, 1986) that people higher in collectivism are more willing to subjugate their personal interests to those of the collective. Thus:

H4: Controlling for the degree of control system tightness, the extent of dysfunctional behavior is lower among Japanese than U.S. profit center managers.

#### METHOD

##### Sample

Data from the U.S. firm came from Merchant's (1985b, 1990) sample of 54 first-level profit center managers. Toshiba was selected as the best Japanese match, in terms of size and industry, to the U.S. firm. Both are among the 50 largest industrial firms in the world; both have many profit centers; the core businesses of both firms are electronics-related, but both firms are somewhat diversified; both firms are considered to be well managed and leaders in their industries; the firms' management styles are considered to be representative of those predominating in their country; and neither firm was involved in any unusual activities at the time of the study, such as the restructuring that has been taking place at Matsushita (Ono and Williams, 1992). The Japanese researcher on the team approached Toshiba's top management, and consent was given for the firm's participation in the study.

To ensure comparability between the two national samples, the Toshiba sample, like its U.S. counterpart, was limited to: (1) the lowest level of profit center managers (i.e., the managers had functional, not profit center, managers, reporting to them); (2) profit centers which included both manufacturing and marketing functions (i.e., no "pseudo" profit centers were included); and (3) profit centers run by managers based in the

corporation's home country, so as not to dilute the effects of national culture. Following Merchant's (1985b, 1990) procedure, the survey was distributed with a cover letter from corporate management. Both strict confidentiality and anonymity were guaranteed, and the survey included a pre-stamped return envelope addressed to the Japanese member of the research team. Surveys were distributed to all 37 of Toshiba's division managers. All responded, yielding a 100% response rate as compared to 95% for the U.S. sample. However, only 28 of the Japanese responses were usable because nine of the respondents indicated that they had profit center managers reporting to them.

Descriptive data suggested that the two national samples were comparable on some key characteristics. The profit centers in both firms were large; the mean (standard deviation) number of employees for the Japanese profit centers was 1,570 (1,729), as compared to 2,001 (1,743) for the U.S. sample. These two means were not significantly different ( $t = 1.05$ ,  $p = 0.30$ ).<sup>5</sup> And both the Japanese and U.S. managers had worked for their current firm

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<sup>5</sup>5. In all cases where  $t$ -tests were conducted, nonparametric Wilcoxon rank sum tests also were performed. Only the  $t$ -test results are reported because both sets of tests yielded exactly the same levels of significance.

for an extended period (Japanese mean = 30.29 years; U.S. mean = 22.37 years).

### Measures

All of the data were obtained using Merchant's (1985b, 1990) questionnaire which was administered to the Toshiba managers in Japanese. To ensure that the Japanese version used wording that was consistent with Toshiba's corporate vocabulary, the translation was done jointly with Toshiba personnel over a series of meetings. Also, following the suggestions of Brislin (1980), the Japanese version was back-translated into English to ensure equivalence.

Control tightness was measured by a question which asked about the extent to which each of 14 control devices "... has affected the decisions your company made in the past year for expenditures on discretionary programs in your profit center." The 5-point response scale was anchored by 1 = "no effect", 3 = "some effect", and 5 = "great effect." The controls were organized into five categories, each with several subparts (the number of which is shown in parentheses): headcount controls (2), net income targets (3), discretionary program expense targets (2), procedural controls (3), and directives from top management (which are typically given at meetings) (4).<sup>6</sup>

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<sup>6</sup> This way of phrasing the question does not differentiate among types of effects (e.g., positive vs. negative). Its aim is simply to produce a general measure of control system tightness. In the current study, a control's impact is measured using separate questions (i.e., those focusing on the dysfunctional effects). To obtain a more direct tie-in of specific controls and impacts, the questions can be modified to specifically ask how much, and in what

The incidence of dysfunctional effects of controls was measured through two questions. The first asked the extent to which the controls had discouraged the generation of new ideas for expenditures in each of eight areas (e.g., new product development, basic research). The 5-point fully-anchored response scale for each area ranged from 1 = "great encouragement" to 5 = "great discouragement". The second question asked how frequently in the past year the respondent or someone within his/her profit center had manipulated performance measures in one of four ways (e.g., shifted funds between accounts to avoid budget overruns). The four-point response scale was anchored as follows: 1 = "never", 2 = "rarely", 3 = "occasionally", and 4 = "frequently."

## RESULTS

### Descriptive Statistics

Table 1 presents the means and standard deviations of the Japanese and U.S. managers' responses to each control tightness and dysfunctional effects question. Some large differences are apparent both between items and between the two national samples. Almost all of the mean responses reflecting control tightness are lower for the U.S. managers than for the Japanese managers (Panel A) while the dysfunctional effects (short-term emphasis and data manipulation) scores for the U.S. managers are consistently higher (Panel B). These data were subjected to formal statistical analyses in the hypotheses tests described below.

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direction, each control had affected specific decisions or actions.

[Please place Table 1 about here ]

### Tests of Hypotheses One, Two and Three

H1 predicted that U.S. profit center managers would be subject to tighter controls overall than their Japanese counterparts. The overall control system tightness score for each manager was computed by summing the responses to all 14 control-question subparts. The means (standard deviations) of this score for the Japanese and U.S. samples were 50.50 (9.25) and 42.74 (7.27), respectively. The difference between these means was highly significant ( $t = 3.02$ ,  $p = 0.003$ ), but its direction was contrary to that predicted.

As a second test, each manager's vector of responses to the 14 control system subparts was used as the dependent variable in a multivariate analysis of variance (MANOVA). National origin was the between-subjects factor. The main effect due to national origin was highly significant ( $F = 7.89$ ,  $p = 0.0001$ ). An examination of Table 1 (Panel A) reveals that out of the 14 control system subparts, strict headcount targets has a lower mean for the Japanese managers (2.96 vs. 3.57 for the U.S.), the means for hiring freezes and annual net income targets are about equal between the two national samples, while the 11 remaining means are higher for the Japanese. This absence of total uniformity in the direction of Japan-U.S. differences provides some assurance that the results were not simply artifacts of response set bias.

A third test focused on Merchant's (1985b) five *a priori* control categories. To conduct this test, the responses were summed for the items within each category. Table 2 provides the means (standard deviations) and Cronbach alphas for these aggregate scales. All five scales had Cronbach alphas in the acceptable range (Price and Mueller, 1986; Nunnally, 1967).

[Please place Table 2 about here]

The vector of five aggregate control scores was used as the dependent variable in a MANOVA with national origin as the between-subjects factor. This factor was highly significant ( $p = .0001$ ), again indicating that control system tightness differs significantly between the U.S. and Japanese managers. Table 2 also reports *t*-test results for each control category. Four of the five categories were significantly tighter for the Japanese managers. The fifth category -- headcount controls -- was not significantly different between the two national samples. Taken as a whole, these results again are contrary to H1. On the other hand, both H2 and H3 are supported, as both procedural controls and controls through directives given at meetings were significantly tighter for the Japanese managers.

A key assumption in the preceding use of Merchant's five *a priori* control categories was that they were orthogonal. To evaluate the validity of this assumption, the tightness scores of the 14 control subparts were factor analyzed using a Varimax rotation. Five orthogonal factors were identified with eigenvalues greater than one. Together these factors explained 72.3% of the total variance. The factor structure was pure;

using a loading criterion of  $|0.60|$  or greater, each subpart loaded on only one factor.

Two of the five factors exactly matched Merchant's *a priori* categories -- Factor 2 (directives given at meetings), and Factor 4 (headcount controls). The departures from Merchant's structure were that (1) "total program expense targets" loaded with the net income target items on Factor 1, which we label "Summary Financial Controls"; (2) Factor 4, which we label "Line-Item Controls," consisted of two items -- "individual program expense targets" and "spending discretionary program money already in the budget," and (3) Factor 5, which we label "Exception/Capital Controls," consisted of two procedural control items -- "approvals required for spending discretionary program money in excess of budgeted levels" and "approvals required for making capital expenditures."<sup>7</sup>

Table 3 shows the results of testing H1, H2 and H3 using factor scores. Panel A presents the result of a MANOVA using the vector of five factor scores as the dependent variable, and national origin as the between-subjects factor. Consistent with the H1 findings based on Merchant's *a priori* categories, the main effect due to national origin was highly significant. Panel B shows the results of separate *t*-tests for each factor. Consistent with H2 and H3, Factor 2 (directives given at

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<sup>7</sup> A caveat in interpreting the factor analytical results is that they were based on a small sample size. Nevertheless, within the limits of the available data, they do provide a means of assessing the hypothesis testing results' robustness to alternate aggregations of the control subparts.

meetings) and the two factors (4 and 5) that had procedural control variables as components were significantly higher (i.e., tighter) for the Japanese managers. Neither of the other two factor scores was significantly different between the two samples.

[Please place Table 3 about here]

#### Test of Hypothesis Four

H4 predicted that for a given tightness of controls, the level of dysfunctional effects would be lower among Japanese than among U.S. profit center managers. To test this hypothesis, an aggregated score for each of the two dysfunctional effects was formed for each country. All of the Cronbach alphas were acceptable (range .57 to .86).

It might seem appropriate to test H4 with a regression using control tightness and national origin as independent variables. This is not so, however, because the significant correlation between these two variables would make the significance tests of their coefficients unreliable. To overcome this collinearity problem, matched pairs of Japanese and U.S. managers were first identified based on the tightness of their controls, then their dysfunctional effects scores were compared.

Three sets of matched samples were generated. One was based on the overall tightness score. A second was based on simultaneously matching the aggregate tightness scores for each of Merchant's five *a priori* control categories. The third was based on the factor scores for all five orthogonal factors, again matched simultaneously. (Matching on all 14 control subparts

simultaneously proved to be infeasible.) All three matching approaches were successful, as there was no significant ( $p > 0.10$ ) Japan-U.S. difference in any of the matching variables.

Table 4 presents the results of comparing short-term emphasis and manipulation of performance measures for each matched sample. For all three matched samples, both dysfunctional effects scores were significantly lower for the Japanese managers. Thus, H4 was supported: Japanese managers who faced the same levels of control tightness as their U.S. counterparts did not engage in dysfunctional activities to the same extent as the latter.

[Please place Table 4 about here]

#### SUMMARY AND DISCUSSION

Given the current trend towards globalization of business, the transferability of management practices across national boundaries has become an issue of increasing importance. This study sought to shed light on this issue by means of a cross-cultural comparison. The tightness and effects of five organizational controls were compared between profit center managers from a Japanese and a U.S. manufacturing firm matched on both size and industry. The taxonomy of national culture developed by Hofstede (1980), supplemented by knowledge of other studies on Japanese and U.S. culture, provided the basis for predicting systematic differences between the two national samples.

We predicted (H1) that, relative to their U.S. counterparts, Japanese managers would be subject to looser controls overall.

This prediction was based on the premise that Japanese nationals are much higher in collectivism, which in turn provides greater assurance to their employers that they would place the collective interest of their firm ahead of their personal interests. Contrary to this prediction, our data suggested that Japanese managers are subject to significantly tighter controls than their U.S. counterparts.

We also predicted that because Japanese culture is higher in uncertainty avoidance and power distance, Japanese managers would be subject to tighter procedural controls and controls through directives, typically given in meetings with superiors (H2 and H3). Both of these predictions were supported.

The contrary finding of the use of relatively tight controls in a culture high in collectivism seems interesting and important, but we do not yet have a complete understanding of its causes and implications. This finding might be related to a similar apparent contradiction described by McCraw (1986), who noted that the high emphasis on "consensual" decision making in Japan would seem to imply high decision making participation, yet data suggest that "the Japanese system of relationships and hierarchies tends to channel vital decisions into a few hands" (p. 375). McCraw speculated that the Japanese tendency toward centralization may be derived from the Tokugawa period in Japan with its systematic stifling of dissent.

Our overall control-tightness finding may have a similar historical cause as that noted by McCraw, or it may be due to any of many possible unmeasured variables, such as the ease with

which these forms of controls can be used in Japan. For example, high use of directives from upper management and procedural controls may be linked to the Japanese firms' lifetime employment policies which may limit employees' abilities to leave their firm even when faced with these relatively stifling forms of controls.

Our final hypothesis addressed the interaction between controls and national culture in producing dysfunctional behavioral effects. We predicted that when faced with the same control tightness as their U.S. counterparts, the more collectivistic Japanese managers would not be as short-term oriented or as prone to manipulate performance measures as the U.S. managers. This prediction was supported.<sup>8</sup>

Relating to the effects of controls, one unexpected finding was that while the Japanese managers are subjected to tighter controls than their U.S. counterparts, they are **encouraged** to make all of the types of discretionary investments we listed, while the U.S. managers are **discouraged** from making all of these investments except short-term cost reductions (see Table 1, Panel

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<sup>8</sup> An alternate interpretation of our finding relating to H4 is that relative to their U.S. counterparts, the Japanese profit center managers may have been less willing to disclose their participation in dysfunctional behaviors even anonymously. If such "social desirability" bias did affect the Japanese managers' responses, this still would suggest a greater perceived social cost to such behaviors, and would imply a greater reluctance among Japanese managers to engage in them. On the other hand, Japanese managers' ability to engage in such behaviors may be restricted due to their firm's other controls (e.g., centralized accounting for revenues and expenses). Our data did not permit us to differentiate among these alternate explanations, and we acknowledge this as a limitation that needs to be overcome by future studies.

B). Culture would seem certain to play a role in the explanation of this finding.<sup>9</sup>

As a whole, our results support the contention that differences in national culture do affect individuals' preferences for and reactions to controls at the profit center level. For purposes of designing controls in a cross-national setting, these findings suggest the need to identify both the key dimensions on which national cultures differ and how these cultural differences influence individuals' reactions to controls. In the specific case of transferring control systems between Japan and the U.S., our findings suggest that both the composition and tightness of the system may need to be modified to fit the other nation's culture.

It must be emphasized, however, that this study was subject to several significant limitations. Overcoming these limitations is a worthwhile direction for future research. First, our data were collected from only one firm from each country, and these findings certainly require validation by other studies of other

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<sup>9</sup> To develop a fuller understanding about this and our other findings, including those that were contrary to our expectations, followup interviews and discussions of our findings were conducted with three of the Toshiba profit center managers in our sample. (We were unable to get permission for a more broad-based followup such as was feasible for Merchant (1985b, 1990).) Unfortunately, after a wait of over three years and a number of enquiries, we still have not heard from the firm regarding our request to incorporate materials from these interviews. We attribute the lack of action from Toshiba to personnel reassignments within the company and the company's management having been pre-occupied with substantial restructuring subsequent to our data collection, rather than concern over the sensitivity of the interview contents.

firms and larger sample sizes. Firms tend to have their own corporate cultures (e.g., Hofstede, 1991; Schein, 1985), so no firm provides a perfect representation of central national cultural tendencies, and the findings of the current study may have been confounded by this omitted variable.

Second, the data from the U.S. and Japan were collected several years apart, and control practices and the economic environment may have changed in the interim. This temporal separation admittedly is a concern, but we believe that its effect was probably minimal because the data were collected during similar recessionary periods in each country. Another consideration is that control systems at the organizational and aggregation level of this study tend to change slowly.

Third, while the set of controls studied was broad, it still did not capture all the aspects and attributes of the companies' control systems. Other aspects of the control system (e.g., the selection and socialization process, nature and size of performance-based incentives, the degree of difficulty and extent of participation allowed in setting performance targets) also are likely to play significant roles in motivating employees and constraining their behaviors. Inclusion of these additional variables can sharpen the findings, in part by capturing their interaction with the controls included in this study. Another reason for expanding the set of control system features is that different cultures may use different mixes of control system subparts.

Fourth, the current study has examined only two potential effects of controls, and both were dysfunctional (discouragement of new ideas and manipulation of performance measures). Controls can be expected to have other behavioral consequences that have major implications for the organization's short-term and long-term success, such as job effort, cooperativeness, truthfulness of communications with colleagues, job tension, and turnover. Expanding the set of dependent variables to include other consequences -- both positive and negative -- could provide additional insights.

Fifth, our study has focused on Japanese and U.S. managers in their home-country settings. If national culture does have a major impact on people's preferences for, and reactions to, controls, then we might expect Japanese (U.S.) managers working in U.S. (Japanese) settings to exhibit behaviors similar to those of their fellow nationals in their respective home-countries. Studies which examine such mixes between individuals' national cultures and employment settings can provide further insights into the role of national culture in controls.

Sixth, further work to refine cultural concepts and measures of controls would provide sharper predictions and tests. For example, Hofstede (1991) acknowledged that his ideas may be biased due to their being based on Western conceptions of culture. The risk of bias may be small because, for example, the Chinese Cultural Connection (1987) has found a high degree of empirical convergence between Hofstede's cultural dimensions and dimensions identified with a "Chinese Value Survey" (CVS)

instrument based on Chinese cultural concepts. Hofstede's dimensions of power distance, individualism and masculinity were all highly correlated with cultural dimensions identified by the CVS. The Chinese value study, however, identified a fifth dimension, labelled Confucian Dynamism. Hofstede (1991) suggests that this additional dimension and his uncertainty avoidance dimension are perhaps less universal than the other three of his dimensions. We did not extend our discussion to include the Confucian Dynamism concept because we were unable to discern clearcut implications for control systems, but tests of potential relationships might provide interesting findings.

Studies of cultural effects are complex undertakings in poorly charted waters. As is apparent from our finding regarding overall control tightness that was contrary to our prediction, we still have much to learn about the relationships between national culture and controls. The relationships are probably more complex than that implied by our univariate and linear aggregation approach. Just as the parts of a control system operate as a package, each individual simultaneously embodies all the dimensions of national culture. Furthermore, just as controls have the potential to complement or substitute for one another, multiple cultural dimensions may affect individuals' preferences for, and/or reactions to a given control in interactive ways. For example, in an uncertain environment, one way to insulate individual managers' measured performance from the effects of noncontrollable factors is to evaluate managers relative to one another (i.e., relative performance evaluation)

(Chow and Haddad, 1991; Maher, 1987). Because of their higher uncertainty avoidance, the Japanese can be expected to have a higher preference for this evaluation approach. Yet relative performance evaluation also entails explicit interpersonal comparisons and overt competition, both of which are inconsistent with the preference of high collectivism individuals to avoid interpersonal conflict and to preserve interpersonal harmony. Thus, the net preference for and reactions to relative performance evaluation will depend on the relative strengths of the effects of each of these cultural dimensions. While our findings about procedural controls and controls through directives suggest that univariate approaches can provide insights into some relationships, it is almost certain that more complex relationships exist. Much room exists for future research to explore how the various cultural dimensions interactively affect individuals' preferences for and reactions to various forms and mixes of controls.

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TABLE 1

Means (Standard Deviations) of Japanese and U.S.  
Profit Center Managers' Responses

Panel A

Tightness of Controls

Question\*: A number of control devices are listed below. Please indicate the extent to which each has affected the decisions your company made in the past year for expenditures on discretionary programs in your profit center.

	Japanese managers	U.S. managers
<b>A. HEADCOUNT CONTROLS</b>		
a. Hiring freezes	2.25 (1.16)	2.24 (1.45)
b. Strict headcount targets	2.96 (1.23)	3.57 (1.33)
<b>B. FINANCIAL CONTROLS</b>		
Net Income Targets:		
a. annual	4.32 (0.72)	4.28 (0.88)
b. quarterly	3.84 (1.25)	3.33 (1.24)
c. monthly	3.75 (1.24)	2.98 (1.51)
Discretionary Program Expense Targets:		
a. total program expenditures	3.84 (0.75)	3.76 (1.06)
b. individual program expenditures	3.52 (0.92)	2.81 (1.13)
<b>C. PROCEDURAL CONTROLS</b>		
Approvals required for:		
a. hiring new employees	3.67 (1.20)	2.37 (1.20)
b. spending discretionary program money already		

in the budget	2.86 (1.24)	2.15 (0.90)	
c. spending discretionary program money in excess of budgeted levels	3.69 (0.97)	3.15 (1.09)	
d. making capital expenditures	4.16 (1.03)	2.81 (1.07)	
<b>D. DIRECTIVES GIVEN AT MEETINGS</b>			
a. Formal reviews of your profit center's performance	4.07 (1.02)	3.37 (1.03)	
b. Formal group- or sector- level committee meetings	(1.07)	4.21 (1.14)	2.78
c. Informal contacts with higher-level managers	3.36 (1.06)	3.13 (0.97)	

\* Response scale: 1 = "no effect"  
3 = "some effect"  
5 = "great effect"

Panel B

Dysfunctional Effects of Controls

Short-Term Emphasis

Question \*\*: In your profit center, have the controls encouraged or discouraged the generation of new ideas for expenditures on the following?

	Japanese managers	U.S. managers	
a. New product development	2.41 (1.45)	3.31 (0.99)	
b. Product engineering (improvement of existing products)	2.56 (1.34)	3.09 (0.90)	
c. Manufacturing process engineering (cost reductions)	(1.27)	2.33 (1.04)	2.72
d. Basic research	2.60 (0.87)	3.43 (0.92)	
e. Capacity expansion	2.70 (1.14)	3.20 (0.79)	
f. Advertising and sales promotion	2.86 (1.04)	3.39 (0.86)	
g. Employee development	2.79 (0.69)	3.22 (0.86)	
h. Information systems	2.61 (0.83)	3.15 (0.81)	

\*\* Response scale: 1 = "great encouragement"  
 2 = "some encouragement"  
 3 = "no effect"  
 4 = "some discouragement"  
 5 = "great discouragement"

## Manipulation of Performance Measures

Question \*\*\*: In the past year, how frequently have you (or someone within your profit center) engaged in each of the following behaviors in order to comply with the controls?

	Japanese managers	U.S. managers
a. bought equipment from outside so that the design portion of the expenditure could be capitalized, even though the job could have been done as well within	1.39 (0.57)	1.48 (0.69)
b. Shifted funds between accounts to avoid budget overruns	1.18 (0.39)	1.74 (0.87)
c. Pulled profits from future periods into current period by:		
i. deferring a needed expenditure	1.21 (0.50)	2.89 (0.92)
ii. accelerating a sale	1.14 (0.45)	2.69 (0.99)

\*\*\* Response scale: 1 = "never"  
2 = "rarely"  
3 = "occasionally"  
4 = "frequently"

TABLE 2

Descriptive Statistics and Japan-U.S. Comparisons  
for Merchant's (1985) Five A Priori Control Categories

Control Category	Japanese Sample		U.S. Sample		t	p
	Mean (s.d.)	Alpha	Mean (s.d.)	Alpha		
Net Income Targets	11.96 (2.95)	0.893	10.59 (3.13)	0.577	1.88	0.070
Discretionary Program Expense Targets	7.36 (1.55)	0.856	6.57 (1.84)	0.795	1.85	0.068
Headcount Controls	5.05	0.837	5.81	0.571	-1.25	0.215
Procedural Controls	14.71 (3.50)	0.768	10.48 (2.72)	0.512	5.56	0.000
Directives Given at Meetings	11.64 (2.68)	0.813	9.28 (2.53)	0.720	3.93	0.000

TABLE 3

Japan-U.S. Comparisons Using Factor ScoresPanel AMANOVA on Vector of Control Factor ScoresNational Origin Main Effect:  $F_{5,76df} = 5.21$ ,  $p = 0.0001$ Panel BSeparate t-tests

Factor	Mean Factor Score		t	p
	Japan	U.S.		
1: Summary financial controls	3.895	3.646	0.728	0.469
2: Directives given at meetings	3.437	2.836	1.779	0.080
3: Headcount controls	2.489	2.121	0.873	0.386
4: Line-item controls	2.133	0.884	3.851	0.000
5: Exception/capital controls	3.448	2.848	1.711	0.092

TABLE 4

Comparisons of Dysfunctional Effects Scores Between Matched Japanese and U.S. Profit Center Managers

Panel A

Matching Variable = Overall Control Tightness

Means (Standard Deviations)

<u>Dysfunctional Effect</u>	<u>Japanese Sample (N=25)</u>	<u>U.S. Sample (N=25)</u>	<u>t</u>	<u>p</u>
Short-term Emphasis	21.160 (6.459)	25.880 (4.447)	3.009	0.004
Manipulation of Performance Measures	4.960 (1.428)	8.680 (2.268)	6.940	0.000

Panel B

Matching Variables = Vector of Tightness of Merchant's (1985b) Five A Priori Control Categories

Means (Standard Deviations)

<u>Dysfunctional Effect</u>	<u>Japanese Sample (N=22)</u>	<u>U.S. Sample (N=22)</u>	<u>t</u>	<u>p</u>
Short-term Emphasis	21.864 (6.534)	25.409 (4.885)	2.038	0.048
Manipulation of Performance Measures	4.773 (1.193)	8.773 (2.617)	6.523	0.000

**Panel C**

Matching Variables = Vector of Five Factor Scores

Means (Standard Deviations)

<u>Dysfunctional Effect</u>	<u>Japanese Sample (N=23)</u>	<u>U.S. Sample (N=23)</u>	<u>t</u>	<u>p</u>
Short-term Emphasis	21.522 (6.591)	25.304 (4.800) 2.225	0.032	
Manipulation of Performance Measures	4.739 (1.176)	8.739 (2.562)	6.804	0.000