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Michael F. van Breda
Southern Methodist University

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CLASSIFYING CONTROL VARIABLES

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by

Michael F. van Breda

Michael F. van Breda
Associate Professor of Accounting
Edwin L. Cox School of Business
Southern Methodist University
Dallas, Texas 75275

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CLASSIFYING CONTROL VARIABLES

This paper describes an empirical investigation into the control variables in use in the divisions of 20 large U.S. corporations. Several typologies are developed to give insight into their nature and their association with stated goals of the division. The vast majority of the control variables, and the stated goals, were drawn from the financial accounting system. There was no evidence of a distinct managerial accounting system and those goals that were stated in nonfinancial terms did not have corresponding control variables.

CLASSIFYING CONTROL VARIABLES

One of the major functions of a control system is the identification of appropriate variables to be used in the control process. Net income, market share, and physical output measures are examples of the many variables that have been identified in corporate environments as suitable for control purposes. These variables are used as bases for numerical targets for management, as bases for comparisons between organizational units, and as bases for standards by which management's performance might be measured, among other things. Variables, such as these, therefore, are a central part of the control system in any organization.

The primary focus of the research described in this paper was to discover just which variables were being used by managers to control the divisions of large U.S. corporations. Face-to-face interviews were conducted with 68 senior managers from 20 large US companies drawn from the Fortune 500. Lists of control variables were elicited from these managers and then classified in several different ways in an attempt to provide generalizable insights into the nature of the variables in use.

A secondary focus of the research was the nature of the relationship, if any, between these control variables and the long-term goals of the company. Control systems may be defined as the means whereby management motivates members of the organization to meet the goals of the corporation. One might expect, therefore, goals and control variables to be correlated. To test this hypothesis, the respondents were also requested to indicate their perception of the goals of the corporation; these perceptions were then compared with the respondent's list of control variables.

The main conclusion to emerge from this analysis was that financial accounting variables tend to dominate the set of control variables in use,

at least in the organizations examined. A corollary of this conclusion is that long-term goals and control variables are not well correlated. On the other hand, the typologies that are developed in this paper suggest that in some organizations, at least, a relatively wide set of different accounting measures are in use that might enable management to correlate their long-term goals with their control variables more closely than appears at first possible.

These conclusions are broadly consistent with Vancil [1980], who reported that all the companies in his sample used "the same accounting policies in designing their internal measurement systems that they use(d) for external reporting." That financial accounting variables dominate would seem to add substance to the arguments of critics of current performance measurement systems who claim that "dependence on short-term financial measurements like return on investment" was a primary cause of the decline in America's economic power [Abernethy & Hayes, 1980]. It also suggests a certain urgency to Kaplan's [1983] call for new and improved performance measures "to replace the current emphasis on short-term financial measurements." On the other hand, the wide variety of financial measures this study found in use might temper these criticisms somewhat.

The paper begins by drawing a definition of control variables from the accounting literature and by relating this study to previous research. The nature of the investigation is then described. This is followed by a first analysis of the results by categorizing the responses as financial/nonfinancial and accounting/nonaccounting. A deeper analysis is then undertaken using the nature of the measurement base and the strategic orientation of the variables as the means of classifying the responses. A discussion concludes the paper.

CONTROL SYSTEMS

Control Variables

Lorange and Scott Morton [1974, p. 42] proposed that a "fundamental purpose for management control systems is to help management accomplish an organization's objectives by providing a formalized framework for ... the identification of pertinent control variables... (emphasis added)." This suggests that alongside and supporting the financial control "process," there is a control "structure" consisting of sets of variables that are used to motivate, plan, and coordinate [Ansari, 1977].

Clearly, the list of potential control variables is very long. Divisional managers, for example, could choose to focus their control efforts on accrual net income, or they could concentrate on cash flow numbers. One publishing company in the survey reported that it rewards its editors on the basis of the present value of estimated future sales of new books.

The list need not be confined to financial variables. As Anthony [1965, p. 42] observed, "although management control systems have financial underpinnings, it does not follow that money is the only basis of measurement, or even that it is the most important basis. Other quantitative measurements, such as enrollment, grades, market share, yields, productivity measures, tonnage of output, and so on, are useful. So are non-quantitative expressions of quality, ability, cooperation, and their attributes." On the other hand, "in most organizations, money is the only denominator that can relate the various pieces to one another and a financial structure is therefore essential to the management control process [ibid]."

Goals:

Organizations, like individuals, are typically perceived to engage in meaningful teleological behavior captured in the goal descriptions provided by

its members or induced from the actions of the organization. For example, Anthony [1965], Cohen & Cyert [1973], and Lorange & Vancil [1977] all provide explicit frameworks of the control process in which the determination of corporate goals precedes the determination of the means to achieve those goals.

The purpose of a control system, in this view, is to influence the behavior of members of an organization so as to enable the achievement of the goals of the organization. Control variables measure the extent to which goals have been achieved and, by their measurement, influence the behavior of people [Flamholtz, 1983]. Given the close relationship in the normative literature between goals and controls, an obvious extension of a survey of control variables is an inquiry into the goals that preceded them with a view to establishing what relationship, if any, exists between them.

Contingency Theory:

Classical management theorists treated organizational structure as an independent variable. Subsequent researchers have suggested that structure is dependent on other factors such as technology, size, and environment [Otley, 1980]. Galbraith [1974], for instance, suggests that the "greater the task uncertainty, the greater the amount of information that must be processed among decision makers during task execution in order to achieve a given level of performance." He hypothesized that the "observed variations in organizational forms are variations in the strategies of organizations" to deal with the level of task uncertainty.

Waterhouse & Tiessen [1978] extended this approach to the design of management accounting systems. They argued that organizational structure was a function of contextual variables, technology and environment, and then claimed that whether "explicitly recognized or not the efficient design of the management accounting system must recognize the effects of organization variables."

Similarly, Watson [1975] argued that "responsibility centers should reflect the environmentally demanded differentiation" and Hayes [1977] hypothesized that internal, interdependency, and environmental factors cause subunit performance evaluation to vary across an organization.

None of these authors, however, attempt to detail just how these systems will vary "structurally" as a result of the contingencies they cite.

Waterhouse & Tiessen [ibid] note that they "know of no existing studies which have examined the relationships between properties of organizations and the technology of MAS design and implementation...(however) the general thrust of the contingency approach to the study of organizations is such as to strongly suggest that organizational and MAS design variables are closely linked."

This paper is one step in the testing of that hypothesis.

Budget-related Behavior:

The issue addressed in this study is related to, but not the same as, that addressed in studies such as Bruns & Waterhouse [1975], who hypothesized that "the quantity of budget-related behavior will be high in organizations which are decentralized and structured," and that of Waterhouse & Tiessen [ibid] who hypothesized that in centralized organizations "planning through procedure specification will decrease the reliance placed on planning through the budgeting process." These are issues of process.

By contrast this study relates more to what Waterhouse & Tiessen termed the "technology of MAS design and implementation." It seeks to answer, at least partially, Ansari's [ibid] question, "What are the controlled variables and how are they to be broken down and measured at different levels?" As described there, it takes a structural perspective and focuses on performance standards and goals.

INVESTIGATION

With the exception of Mauriel & Anthony [1966], Reece & Cool [1978], and Vancil [1980] who "intended to focus on how 'profit' is calculated for profit centers in decentralized firms," few systematic descriptions of the control variables used inside organizations are found in the literature. These few have concentrated on financial control variables exclusively. The research described in this paper was intended to supplement this work by examining both nonfinancial and financial variables and by questioning a wider range of managers than just profit-center managers.

Given the apparent paucity of empirical evidence relating to control variables, as defined above, an exploratory field study was planned to gain initial insights into the range of performance measures being used by businesses, and the relationship, if any, of these measures to the companies' goals as perceived by a sample of managers. Face-to-face interviews were conducted with 68 senior managers from the divisions of 20 Fortune 500 companies. Of the 68, 33 were divisional, marketing, or production managers, 15 were planners, and 20 were controllers.

The four industries selected for this exploratory study were banking, electronics, book publishing, and petrochemicals. These industries were selected based on the a priori belief that they would provide a wide range of different practices given their distinctive technologies. Woodward [1965], Thompson [1967], Perrow [1967], and others have suggested that technology is a major factor in the development and form of organizations. Hall [1972] notes, in this context, that technology does not act alone but "interacts with the ongoing social system" to create its effects. It was anticipated that such effects would be readily visible in a sample which included "high" technology manufacturing companies and relatively "low" technology service companies.

The companies selected for study within each of these industries were publicly-quoted, widely-held companies. This was done in an attempt to exclude from consideration companies which might be pursuing idiosyncratic policies stemming from the specific utility of a dominant ownership coalition, rather than from policies which might be attributed to more impersonal contextual factors such as the nature of the industry's technology. Time and financial exigencies further constrained the population to companies in the North East U.S. corridor. Given the diversity of companies in this area, this was not perceived as a restriction on generality.

Research was further confined to a single division from each of these companies. These divisions could be defined as having single, or dominant, product technologies such that senior management could be expected to be very familiar with the business characteristics of operations and could exercise a relatively unrestricted choice of emphasis between various sets of potential control variables. A judgmental, rather than a random, sample resulted.

Initial contact with each firm in the sample was made by letter. A subsequent telephone call was made within two weeks of mailing. It was necessary to follow this up with a brief interview with the firm's contact person to explain more fully the intended research design. Damage to the integrity of the research was limited since only the initial contact person was involved in these discussions. Interviews with each manager lasted for approximately one hour.

Hypotheses and Questions

Since the primary intent of the research was simply to establish the nature of control variables in use, the basic interview question asked was: What measures are used to assess the performance of your unit? The secondary focus of the research was how these measures related to the long-term goals of

the corporation, hence each manager was also asked: What long-term goals has the firm established for your unit?

INITIAL FINDINGS

Responses to these two questions were quite diverse. The goals mentioned included increasing market share, achieving a target return on assets, building a particular customer portfolio, and improving plant efficiency. Measures included profits, sales, return on investment, return on assets, return on sales, and expenses. Exhibit I lists the goals and measures mentioned by the managers of the publishing house sample by way of illustration.

There appeared to be little insight to be derived from a mere listing of these goals and measures. Various classification schemes were therefore built in an attempt to shed some light on these systems. This section details the result of simply classifying management's responses in terms of whether they were financial or not, and whether they were drawn from financial accounting or not. The section that follows develops two new classification schemes and analyzes management's responses in terms of these new typologies.

Financial

A first, and obvious way to classify these goals and measures is to divide them according to whether they are financial in nature or not. For purposes of this study, a financial measure or goal was defined as one that could be denominated in dollars or was a ratio of two dollar-denominated variables. This definition is not quite as narrow as it sounds since it includes share prices and present values as well as accounting net income. The definition also encompasses measures such as return on investment and dividend yield.

Exhibit II reveals the mean percentage and standard deviations of goals and measures by industry which fall into the financial category. For example,

in the petrochemical industry 95.5 percent of the measures used were financial in nature while in the banking industry 70.3 percent were. Petrochemical companies with a standard deviation of 7.8 percent were found to be remarkably consistent in the nature of their measures while the percentage of bank goals that were financial varied quite substantially across the industry (the standard deviation is 29.3 percent.)

A Mann Whitney U test was used to examine how statistically similar the responses to the goals' and to the measures' questions were. The percentage of goals and measures that are financial for each company in an industry were combined in a single ranking. This ranking was then examined for whether the measures or goals were evenly scattered. The more unevenly they were distributed in the list, the more certain one could be that the responses were significantly different.

Exhibit II reveals the probability for each industry that the measures and goals were equally financially oriented. It is apparent that the null hypothesis of similarity cannot be rejected in the case of banks and electronics. On the other hand, it does appear that both the publishing and the petrochemicals industries have significantly more financial performance measures than goals. Both industries, though, laid great stress on market share as a goal. Were this treated as a financial goal the statistical difference would disappear.

What emerges from this analysis is that in most industries a very high percentage of their measures are stated in financial terms. The lowest average in the sample is 70.3 percent for banks. More surprising is the number of goals that were expressed in financial terms or in closely related terms such as market share. Very few managers expressed their goals in terms such as

"excellence" or "quality." Most said their goal was to achieve a certain return on investment or a certain level of sales.

Accounting

The conclusion that few variables other than financial variables are in use either as measures or goals might be tempered somewhat if it were found that at least a significant minority of them were drawn not from financial accounting but from management accounting. Unlike financial accounting, management accounting is not limited to accrual accounting, especially not that brand of accrual accounting defined by generally accepted accounting principles. It could be completely cash-based or it could involve direct costing. Management accounting offers greater flexibility, therefore, than financial accounting.

Exhibit III presents the mean and standard deviation of the industry percentages that are accounting based. "Accounting" is being used here in the sense of financial accounting, i.e., the numbers being generated for external reporting purposes. It is apparent from a comparison of Exhibits II and III that almost all the financial measures in the petrochemical industry are accounting based and all the financial goals in the publishing industry are accounting based.

Cash and cash flow were treated as a non-financial accounting based measure -- not a single divisional manager and only a handful of line managers reported that their units were evaluated in terms of their ability to generate cash. Contribution, another non-financial accounting variable, was not mentioned by a single manager, divisional, departmental, or staff as a measure of goal. In short, the full cost assumptions of the financial accounting model were encountered throughout the sample.

Stated otherwise, there was no sign in any company in the sample of an internal reporting system that differed significantly from the external reporting system except in level of aggregation. In particular, not a single firm had more than one financial goal or measure that was not based strictly on external reporting. The inevitable conclusion is that management accounting, at least in the way it is taught in textbooks, does not appear to exist in practice.

TWO TYPOLOGIES

Given the great preponderance of financial or accounting measures, it became apparent that to gain further insight into these goals and measures a finer typology was necessary. As a first attempt at this, each goal and each measure was classified according to the measurement bases with which it was directly or indirectly associated. A second attempt at building a suitable typology involved the strategic posture that appeared to be inherent in a particular goal or variable. These two typologies are discussed below.

Measures

The classifications involving the measurement base appear on the left-hand side of Exhibit IV. All responses of returns on investment, returns on assets, and returns on equity were categorized as concerned with "investment." Return on sales, on the other hand, was classified as a measure of "margins" along with items such as gross profits. "Size" was used to capture the additional banking locations that some banks planned. "Market" includes all responses of market share and market dominance. "Personnel" includes items such as career development, affirmative action, personnel turnover. "Research and development" was intended to capture what one might ordinarily

consider as R&D and also items such as the banks' move into electronic funds transfers.

The first line in Exhibit IV shows the percentage of goals for each industry that fell into that category while the second line shows the same for the control variables. The size of each percentage indicates the importance placed on that category in the organization as measured by its frequency of mention. Each pair of responses may be compared for the relative frequency of mention and therefore the relative importance that appeared to be placed on it.

In an attempt to identify which classes of goals and measures were mentioned by a significant percentage of the managers, a test devised by Grinyer & Norburn [1975] was used. This test uses as its null hypothesis that responses are random and examines whether a particular response has occurred sufficiently many times to indicate that it could not simply be random. Depending on the number of responses in an industry, if approximately 20 percent or more of them fell into the same category, that category would be deemed significant at the 10% level.

This test revealed that company goals and measures appear to be heavily biased towards the financially measurable. Measures related to research and development and to personnel, when mentioned at all, were mentioned by so small a sample of managers that the percentage of their responses cannot be distinguished from zero, which confirms the earlier conclusions.

A Mann Whitney U test was used to test for consistency between the goal statements of the corporation as reported by these managers and the variables used for control purposes. The underlined pairs in Exhibit IV indicate that, at the 10 percent level of significance, one cannot accept the hypothesis that the two sets of responses were drawn from the same population. Stated

otherwise, it would appear that the median goal responses for that industry differed from their median measure responses.

It is apparent from this test that there are several inconsistencies between goal and control variable statements. For example, managers in the publishing industry stated frequently that market share was an important goal, yet few measures of market share were used in their performance evaluations; instead, they place a heavy emphasis on measures related to cost containment which do not figure in their goal statements at all and which might even be counterproductive to their stated goals. In general, goals are heavily weighted towards return on investment and market share while measures include a greater emphasis on cost containment and operating profitability.

Strategic Orientations

Categorizing goals and measures on the basis of measurement is inherently unsatisfactory in that it is a purely technical device. A slightly more satisfactory approach might be to use implicit strategic postures as the discriminator. Hofer & Schendel [1978], for example, identify six generic types of strategy: share-increasing strategies, growth strategies, profit strategies, market concentration and asset reduction strategies, turnaround strategies, and liquidation and divestiture strategies. Bourgeois [1980], used a different schema: financial strategies, marketing strategies, operating strategies, product characteristic strategies, and environmental control strategies.

Neither of these typologies was found to be totally satisfactory for purposes of this study. Instead, nine categories of strategy were developed for use in this paper (see Exhibit V). These categories are a relatively sparse representation of the underlying data and can be said to have emerged from the measures and goals themselves. Each goal and each measure was fitted to one

and only one strategy. It must be emphasized that the fit is purely "technical" -- there is no claim here that these categories represent the "actual" strategies of the companies. For example, the possibility exists that company strategy is simply inconsistent with its control variables.

Responses of market share and market position as well as of increasing revenue were categorised under the strategy of "growth." The "financial" strategy category contains all mention of returns, profits, and expenses. "Technology" includes all statements of efficiency and productivity as well as the intention to introduce new computer facilities to improve data handling. "Quality" is just that. "Human resources" covers all personnel related matters such as affirmative action and career development. "Public image" includes items referring to the company's reputation, its contribution to society, and all other superordinate goals and related measures. Inventory turnover falls into the "inventory" category. The desire to broaden the product range and, in one case, the customer portfolio, were classified within "diversification."

The first line of each category, as before, is the percentage of goals that were classified as being in the category; the second line of each is the percentage of measures so classified. Overall, growth and financial strategies account for 76 percent of the goal statements and 80 percent of the measure statements. The Grinyer-Norburn test, described earlier, confirms that these were the only two significant response categories.

Quality, either as a goal or as a performance measure, was mentioned only in a very few instances. The development of employees is excluded from the set of performance measures by two industries entirely while it is only lightly touched on by two others; the banks are a marginal exception. Superordinate goals, considered so important by Pascale & Athos [1981] do not rate in

these categories. This is perhaps surprising in the light of examples such as Delta Airlines which considers "its key to success in the highly competitive and largely undifferentiated airline industry to be service..." and "... preserving the 'family feeling'..." in preference "...to near-term profits and return on investment."

A Mann-Whitney U test was again used to test for consistency; significantly different ($p < .10$) pairs are underlined. The inconsistencies noted earlier are observed again. Companies in the publishing industry stressed growth-related goals but did not measure progress towards these goals. All companies placed more emphasis on finance-related measures than on finance-related goals. Apart from the publishing industry with its inventory-related measures, all other responses of goals and measures were so infrequent as to be statistically indistinguishable from zero.

DISCUSSION

It is not difficult to conclude from the above results that the firms in the sample concentrate both their statements of their long-term goals and their performance measures on a very small set of possible variables and that this set is drawn from financial accounting predominantly. There seemed to be little or no disagreement among the managers, either interviewed formally or consulted informally afterwards, with the basic tenor of this finding. Everyone seemed to agree that, formally at least, there were few performance measures that were not based on financial accounting measures.

Financial vs Managerial Accounting:

This finding is in direct conflict with the normative managerial accounting literature which suggests, for the most part, that performance measures inside the enterprise should differ from those used for external performance

measurement. For instance, Anthony and Reece [1983], assert that in the interest of fairness, "it is essential that controllable costs be clearly separated from noncontrollable costs." On this basis, one should exclude net income, a measure which featured prominently in the survey, from the list of acceptable measures.

Management appeared to be divided on the significance of this finding. They felt quite strongly that even though a goal such as quality might not be formally measured, it was nevertheless taken into consideration informally. Moreover, the sense was that the informal system took precedence over the formal, mitigating the effects of the accounting system. On the other hand, almost every manager in the sample admitted that they knew personally of instances where decisions that might not otherwise have been taken were prompted by the financial accounting-based measurement system.

This still leaves open the question of why distinct management accounting systems had not been installed. Discounting the notion that management is not smart enough to design and implement an accounting system that is independent of the financial accounting system, a more plausible answer is that the cost of an alternative accounting system outweighs its benefits although this equation might change with the further introduction of computer systems.

Meyer [1983] introduces another possible explanation for the dominance of financial accounting variables. This hypothesis is based on the dynamics of organizational power which is attributed to legitimization [Meyer & Rowan, 1977]. He notes that accountants themselves are legitimized and therefore gain power in an organization through the use of externally-legitimized data. An internal, managerial accounting system that contradicted the external, financial accounting system would not increase the organizational power of the accountant and would therefore, probably, not be introduced.

Accounting vs. Control Variables:

This hypothesis explains why financial accounting dominates managerial accounting but it does not explain why accounting variables, more broadly defined, dominate the set of control variables. This is a different question from whether accounting variables are used as control variables. As Flamholtz [ibid, p. 159] notes one cannot automatically assume that budgets are part of a control system unless "there are certain implied or perceived connections between budgetary measures and organizational rewards." However, the accounting variables listed in this study were, by definition, those used to evaluate performance. They are self-reported control variables.

It also does not explain why management itself chooses so many accounting variables for control purposes. One explanation may be that the terms "performance evaluation" and "accounting-based system" are simply too broad and too crude to reveal the subtleties of variations in the structure of control systems. Follow-up discussions with management, for example, revealed that the control variables reported were the basis for short-term rewards such as bonuses and to a lesser extent salary increments but were less used in deciding promotions. A follow-up study that distinguishes between different types of performance evaluations is planned to test this explanation.

It would appear, though, to have the support of the two typologies developed in this paper. For example, it is apparent that when measures and goals are broken out by measurement bases or by strategic orientations, the tightness with which measures are linked to the goals of the organization varies considerably. For instance, among the electronic companies the linkages appeared to be fairly loose and intuitive, whereas among the petrochemical companies the linkages appeared to be tightly specified in a formal control system syntax.

Second, the types of accounting variables used appeared to vary across industries. For instance, the publishing companies appeared to emphasize cost related variables while the banks laid more stress on investment variables. Petrochemicals spoke for the most part in terms of maintaining margins as did the electronic companies. It is possible that a follow-up study using typologies such as those developed in this paper might find that the range of accounting variables used is wide enough to encompass most contingencies.

Conclusion:

The impetus for this research was based on the belief that inconsistencies, such as those reported in this paper, are dysfunctional [Markus & Pfeffer, 1983]. Hopwood [1983], though, notes that the "accountant's Account is merely one of many that attempt to make visible and salient particular aspects of organizational life..." It is possible then that the inevitable tensions that are engendered by the inconsistencies reported above are functional in that they generate the conditions necessary for organizational learning. This conclusion would not be inconsistent with Waterhouse and Tiessen's [1983] that accounting rules are part of an organization's constitution.

What causes an industry or a company within an industry to adopt one set of performance measures or another must be a matter of ongoing research. This particular paper was concerned only with how to classify the enormous variety of measures, especially financial measures, encountered. It is the first systematic study, as far as is known, that has attempted to categorize control variables. One hopes that it will not be the last because it is apparent from this study that, whether functional or dysfunctional in their consequences, considerable inconsistencies in the design of management planning and control systems appear to exist in organizations today.

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Exhibit I

Publishing Houses

<u>Goals</u>	<u>Measures</u>
Above-average growth	Revenue
Industry leadership	Profit
Market share	Return on assets
Unrelated diversification	Cash flow
Survival	Inventory turnover
International growth	Profit margins
Use of electronic technology	Prepublication expenses
Return on sales	Budget variances
Return on investment	Expenses
Cash flow	Overhead
Earnings per share	Service levels
Build reputation	Personnel development

Exhibit II

Financial Classification[†]

	Goals	Measures	Significance*
Publishing	50.5 (16.5)	86.0 (14.0)	5.7
Banking	58.0 (29.3)	70.3 (14.6)	22.8
Electronics	75.2 (12.8)	78.4 (19.5)	34.5
Petrochemicals	69.3 (16.1)	95.5 (7.8)	2.9
Overall	63.1 (23.1)	80.6 (17.6)	0.47

[†]Standard deviations are presented in parentheses.

*Probability that goals and measures were drawn from the same set.

Exhibit III

Accounting Classification

	Goals	Measures	Significance*
Publishing	50.5 (16.5)	82.5 (18.4)	5.7
Banking	53.4 (27.8)	65.3 (15.8)	22.8
Electronics	72.2 (11.6)	73.4 (22.6)	42.1
Petrochemicals	63.8 (21.0)	90.8 (9.3)	5.7
Overall	59.6 (22.8)	75.9 (19.9)	0.82

[†]Standard deviations are presented in parentheses.

*Probability that goals and measures were drawn from the same set.

Exhibit IV

Measurement Base Classification[†]

	Publishing	Banking	Electronics	Petrochemicals	Overall
Investment	22 29*	38* <u>25*</u>	37* <u>15</u>	20 24	31* 23*
Cost	0 <u>33*</u>	2 <u>16</u>	4 <u>18</u>	12 24	4 20*
Market	61* <u>14</u>	14 14	37* 28*	52* <u>24</u>	37* 19*
Size		8 4	0 3		3 3
Margins	17 19	19 22*	18 28*	16 <u>28*</u>	18 23*
Personnel	0 5	11 12	4 3		4 7
R & D		8 7	0 5		3 5

[†]Line 1: Percentage of goals in each category.

Line 2: Percentage of measures in each category.

*Significant at $p < 0.10$ using Grinyer-Norburn [1975] test.

Note: Underline indicates significance at $p < 0.10$ using Mann-Whitney U test.

Exhibit V

Strategy Classification[†]

	Publishing	Banking	Electronics	Petrochemicals	Overall
Growth	44* <u>12</u>	5 9	33* 20*	35* 25*	26* 15*
Financial	40* <u>67*</u>	56* 68*	58* 58*	45* <u>70*</u>	50* 65*
Technology	4 0	7 7	3 8	10 5	7 5
Quality	0 4	5 2	0 10	3 0	2 5
Human Resources	0 4	12 12	3 0		5 5
Inventory	0 <u>13</u>		0 4		0
Public Image	8 0	10 4	3 0		6 2
Diversification	4 0	5 0		7 0	4 0

[†]Line 1: Percentage of goals in each category.

Line 2: Percentage of measures in each category.

*Significant at $p < 0.10$ using Grinyer-Norburn [1975] test.

Note: Underline indicates significance at $p < 0.10$ using Mann-Whitney U test.

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