MEASURING CORPORATE REAL ESTATE ASSET MANAGEMENT PERFORMANCE

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ABSTRACT

It is difficult to measure relative corporate real estate asset management performance, as different organizations require different outputs from their property assets. However, prior research has identified a number of input factors or dimensions relating to corporate real estate that tend to occur together in organizations exhibiting high levels of performance. This paper proposes a methodology to combine these input variables into a single relative measure of corporate real estate asset management performance using factor analysis. The model on which the measure is based is tested by applying it to data collected in a survey of 457 organizations in New Zealand. The results show consistency in response amongst organizations and with prior research in respect of six variables that are important to CREAM performance. This leads to the derivation of a single performance measure that reflects the combined effect of these variables.

Keywords: Corporate real estate, asset management, property, performance measurement, factor analysis, New Zealand

INTRODUCTION

Identifying good performance in a corporate real estate situation is much more difficult than for traditional "investment" real estate or for the corporate organization as a whole. In the latter two situations, overall quantitative output measures such as the internal rate of return, return on equity, or return on assets, or qualitative assessments, such as comparison to core business objectives or industry benchmarks are relatively easy to apply.

In contrast, corporate real estate outputs are usually the internal inputs to another part of an overall process. As such, they are likely to be closely tied to the nature of the organization, may have no market in which pricing or performance comparisons can be made and be difficult to measure across a range of differently structured and focused organizations.

The aim of this paper is to propose a methodology for deriving a holistic measure of Corporate Real Estate Asset Management (CREAM) performance based on the inputs and process framework proposed by Gibson (1995a) and others. The model developed aims to incorporate most of the factors or dimensions of performance that have been identified as significant in earlier research by Veale (1989) and Pittman and Parker (1989). Using factor analysis, the model is then applied to a data set derived from corporate real estate asset managers' responses to a mail survey to see if a single factor output results. Tests for both consistency of response amongst the survey respondents and consistency with the results of earlier research overseas are also carried out.

LITERATURE REVIEW

Because of the difficulty in measuring CREAM outputs mentioned above, previous performance research has focused on inputs to, and the process of, corporate real estate decision-making (Gibson, 1995a). The theory is that if there are better inputs, systems and processes to deal with real estate, then better decisions more in line with the organization's overall goals will result.

Using this approach, Veale (1989) put forward and tested for significance seven "dimensions" amongst chief executive officers, namely;

- the presence of a formal, organized real estate unit,
- the use of management information systems for real estate operations,
- the use of property by property accounting methods,
- the frequency of reporting real estate information to senior management,
- the exposure of real estate executives to overall corporate strategy and planning,
- availability of information and methods for evaluating real estate performance and use,
- the performance of real estate assets relative to overall corporate assets.

A similar type of approach was also adopted by Pittman and Parker (1989). A "divergence"—based model of CREAM performance resulted in identifying the following variables as being significant:

- centralized real estate authority,
- a comprehensive computerized corporate real estate inventory,
- senior reporting level,
- having a profit centre structure,
- communication with CRE staff regarding overall corporate goals,
- having a formal real estate plan,
- real estate staff size relative to real estate assets.

The close similarity of these findings is indicating a high degree of consensus on the prerequisites for good CREAM performance. Many of these factors or dimensions have also been individually examined in more detail by other authors. For example, the existence of and structure of CREAM units has been studied by Zeckhauser and Silverman (1982), Hite, Owers and Rodgers (1987), Sandford and Hook (1987), Rutherford and Nourse (1988), Avis, Gibson and Watts (1989), Rutherford and Stone (1989), Teoh (1992), Kimbler and Rutherford (1993) plus other authors. The existence of a CREAM unit has been found to be significant in terms of a company's performance, thus reinforcing the notion that active management of real estate will contribute to the overall success of an organization.

More controversial is the effect of structuring the real estate unit as a profit or cost centre. Beherens (1982) and Plattner and Ferguson (1991) tend to favour the profit centre alternative as being the most effective, but Rutherford and Stone (1989), Avis, Gibson and Watts (1989) and Veale (1989) reveal no empirical evidence of a significant advantage with either a profit centre or cost centre structure.

The existence and form of real estate inventories has been studied by Zeckhauser and Silverman (1983), Avis, Gibson and Watts (1989), Veale (1988, 1989), Nourse (1986,1989, 1994), Gale and Case (1989), Teoh (1992), Apgar (1993) plus others. Authors generally found many organisations had poor or non-existent property information systems, and those that did were orientated towards accounting rather than decision-making data.

Veale (1989), Pittman and Parker (1989), Avis, Gibson and Watts (1989), Teoh (1992), Nourse (1994) and other authors have found that communications and working relationships with management, finance and operating divisions are extremely important to CREAM performance. The number of levels away from, and the frequency of contact with the CEO were used by all the above as measures of the efficiency and effectiveness of communication, and found to be significant. Also important to effective communication was the existence of centralized real estate authority, having an established corporate real estate strategic plan, and regular exposure and input to this plan by corporate real estate staff.

Veale (1989), Hurtt (1988), Gale and Case (1989) and Teoh (1992) also examined the attitude of the chief executive of an organization towards real estate assets. Their results consistently show a positive relationship between chief executive attitude and CREAM performance as measured by other performance variables.

The linkage between overall corporate strategy and real estate strategy has been investigated by many authors including Nourse (1986), Levy and Matz (1987), Avis, Gibson and Watts (1989), Duckworth (1993), Nourse and Roulac (1993), Stephens (1994), Nourse (1994), Gibson (1994, 1995) and Apgar (1995). For example, strategic thinking was rated as the number one priority skill for the future by a survey of 1246 general managers by the Institute of Management (Gibson, 1995b).

It can be concluded from the above research that there is general agreement that measuring and comparing CREAM performance across different organizations is difficult and that an inputs and process approach is usually the only practical option. There is also consensus on a relatively small number of critical input and process factors that are important, irrespective of the organisation and the nature of its activities.

There are other performance measurement techniques from outside the corporate real estate field that could also be applied to some of the issues identified in this research. However, in the interests of developing a theoretical thread already proposed in the CREAM literature, as well as drawing comparisons across time and between countries, it was decided to base the research methodology for this study on an approach that had already been applied to corporate real estate.

RESEARCH METHODOLOGY

The aim of this research was to determine if a number of previously identified important variables could be combined into a single holistic measure representing overall CREAM performance.

The data to test the model was derived from a mail survey of 457 corporate real estate executives, from a wide range of commercial and non-profit organizations in New

Zealand. Complete official listings of government departments, state owned enterprises (SOEs), energy companies and territorial local authorities were available, so for these categories the entire population was surveyed. All the non-investment companies listed on the New Zealand stock exchange were included, as were the privately owned non-investment companies identified in the government publication "New Zealand's Top 200 Companies". Finally, all churches and registered charities with substantial real estate assets were identified and included. The final mailing list had 457 entries and relative to the number of major property-owning organisations in New Zealand was very representative.

The questionnaire used was quite comprehensive, as the data collected was to be used for a number of purposes in addition to the subject of this paper. A total of 176 questions and sub-questions were included under the following sub-headings: overall organization, management of real estate assets, individual responsibilities, communication, information systems, outsourcing and property portfolio characteristics. The questions themselves were based upon interviews with 47 corporate real estate executives carried out previously by the author, as well as earlier surveys by Reading University and Teoh (1992). A fully copy of the survey can be obtained from the author on request.

The response rate of 42% was high compared to similar studies and analysis of non-respondents indicated the results should be representative. The raw data from the questionnaires returned was initially checked, coded and entered into an Excel spreadsheet. Data from this spreadsheet was then transferred to the SPSS for Windows version 9 software package for statistical analysis.

DATA ANALYSIS AND RESULTS

Specifying the Performance Model

As no single characteristic of an organization defines its CREAM performance, the survey asked a number of questions based on the "dimensions/factors of performance" identified by Veale (1989) and Pittman and Parker (1989). Specifically, respondents self-rated their organization via answers to the following questions spread throughout the questionnaire:

Question Numbers	"Dimension of performance" or "Performance factor" investigated
C3a, M8j	Strategic planning for corporate real estate
M8a, M8b, M8c	Attitudes towards and processes for managing CRE
I1b, I2a to I2k	Management information systems for corporate real estate
M8k, R5l, M6a to M6g	Information and techniques used for CRE decision making
C1, C2	Reporting level/frequency
M1	Existence of a separate corporate real estate unit
R5h	Cash flow contribution by the corporate real estate unit.

As some of these questions reflected matters of opinion rather than fact (questions in bold type above), a cross-check of the data was carried out in order to determine

whether respondents were consistent in their responses to multiple questions addressing the same performance issue from a different perspective.[1]

It was not the objective to increase the number of variables under consideration. Rather, if consistency of response could be shown amongst similar questions, then a variable representing the response to a single "best" question could be used in the specification of the CREAM performance model with increased confidence. If responses regarding the same issue were inconsistent, the situation could be investigated further.

Respondents were found to be consistent in their responses to almost all questions addressing the same topic. The correlation results and the rationale for the choice of each "best" question are detailed below.

Question C3a asked directly *"does your organization have a written overall strategic plan for real estate"*, whereas Question M8j addressed the issue less directly by asking if staff *"have regular exposure to and a good understanding of overall organizational strategy on which to base real estate decisions"*. A high correlation was observed between these questions (a 2-tailed p value of .021 using the Mann-Whitney U test) and therefore the more specific C3a— *"existence of a written overall strategic plan for real estate"* was adopted for the performance model.

A similar process was applied to attitude-related questions M8a, M8b, and M8c. Again the results were as expected, with highly significant correlations between M8a and M8b ($r= 0.34$), M8a and M8c ($r= -0.45$) and M8b and M8c ($r= -0.42$).

As a result, the response to question M8a *"CRE not considered important because your organisation's core activity is not real estate"* was adopted for the CREAM performance model.

Question I1b asked respondents to self-rate the overall performance of their current Management Information System (if applicable), whereas Questions I2a to I2k examined the performance of the respondent's MIS system on individual attributes. The results showed significant correlations (r value range of 0.19 to 0.51) between answers on each of the individual attributes and Question I1b. In addition, the individual attribute scores were summed to obtain a composite measure for the performance of the CREAM MIS system—named I2 *"Total"*. The result of this process was highly correlated with I1b ($r=0.37$).

The above results provided confidence that the response to the more holistic Question I1b, a rating of the overall performance of the organizations property database, was fully representative of the sample and therefore this variable was adopted for the model of CREAM performance.

In contrast, comparing individual answers to questions—M6a through M6g relating to decision-making and question R5l— *"accounting information being available on individual properties"*, with the results for the more holistic question M8k—*"sufficient info/methods available to evaluate performance"*, identified no significant correlations

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1. The statistical tests used were as follows:
For combinations of two binary variables—Chi squared
For combinations of binary with ordinal variables—Mann Whitney U—Wilcoxon Rank Sum W
For combinations of two ordinal variables—Spearman Correlation Co-efficients

(r values range -0.13 to 0.14). However, a number of highly significant correlations were measured amongst M6a to M6g questions and between these questions and the answers to question R5l.

To investigate further, the responses for questions M6a to M6f were summed to create a new variable *M6 total*. The rationale was that not all the decision making techniques identified in the individual sub-questions are appropriate for all organizations, but in general, those using more of the techniques, more frequently are likely to make better CREAM decisions. This combination of factors would be reflected in a totalled score. The result of the analysis was that the new M6 *total* variable again did not show a significant relationship with the M8k response, but was highly correlated with R5l.

It was apparent that question M8k was significantly out of step with other questions on decision making processes, which were displaying the expected consistency of response. An examination of the distribution of responses to question M8k shows little variation between options 3, 4 and 5. This may indicate a problem with the wording of the question. This proposition is also supported by the lack of expected correlation between question M8k and other performance variables, as reported later in this paper.

Use of R5l as the performance variable was theoretically more defensible than use of the calculated M6 *total* variable, as the use of property-by-property accounting methods was specifically identified as a "dimension of performance" by Veale (1989). Further weight was lent to this decision by significant correlations between R5l and four of the seven M6 sub-questions, as well as the highly significant correlation with the new M6 total combined variable.

As a result of the above analysis, the response to question R5l—"*Accounting information being available on individual properties*" was chosen as the best variable to holistically represent corporate real estate information and decision-making processes.

Questions C1 and C2a addressed "*reporting level* and *frequency*", but the results highlighted particular problems in using these questions in a New Zealand setting. New Zealand organizations are relatively small, with few levels of management. This meant there was insufficient differentiation within the sample on the basis of organizational level alone. Therefore, a refinement was adopted where "*reporting level*" (question C1) was combined with "*frequency of liaison*" (question C2a) to arrive at a composite measure named "*report*". In subsequent analysis, this new "*report*" variable was used, but this was not completely satisfactory as will be discussed later.

The last two questions relating to the performance model, M1—"*existence of a separate CRE unit*" and R5h—"*cash flow contribution by the CRE unit*" reflected variables that were matters of fact and unlikely to be misinterpreted, so the results were included directly in the CREAM performance model.

Checking for Previously Observed Correlations

The next step was to determine if individual respondents exhibited strong correlations across questions dealing with different aspects of CREAM performance, as found by previous research (Veale, 1988, 1989; Pittman and Parker, 1989). The hypothesis was that no statistically significant correlation exists between any of the variables reflecting

different CREAM performance factors or dimensions of performance established by earlier research.

The results in Table 1 show significant associations exist for most combinations of variables, supporting earlier research findings and giving confidence to the theory that the identified variables may be able to be condensed into a single measure of CREAM performance. As a result, the hypothesis was rejected.

Table 1: Associations Between CREAM Performance Variables *

P values	M1—Existence of a separate CRE unit	R5h—Cash flow contribution by the CRE unit	C1&C2a—Combined reporting level and frequency of liaison	C3a—Existence of written CRE strategic plan	M8a—CRE not considered important to organization	I1b—Overall performance c current MIS
M1—Existence of a separate Corporate Real Estate unit	#					
R5h—Cash flow contribution by the CRE unit	0.002	#				
C1&C2a—Combined reporting level and frequency of liaison	0.000	0.706	#			
C3a—Existence of written CRE strategic plan	0.000	0.000	0.003	#		
M8a—CRE considered not important to organization	0.000	0.049	0.563	0.000	#	
I1b—Overall performance of current MIS	0.000	0.004	0.039	0.000	0.000	#
M8k—Availability of info/ methods for evaluating CRE	0.631	0.953	0.317	0.389	0.005	0.128

* Cells highlighted show relationships significant at the 5% level

However, the correlations for variables reflecting *reporting level/frequency (Report)* and *information availability/decision-making methods* (M8k) were not so strong, and so investigation into these variables was carried further.

In respect of the *Report* variable, it was considered that the 17 level categorization used relative to the five or six categories used for many of the other variables might be responsible for the lack of correlation. It was also noted that in using 17 levels, the distribution was very heavily skewed towards the lower end of the scale; again the result of small organizational size in New Zealand and thus close relationships existing with the CEO.

To address these problems of combining 17 levels to 6 categories created a new variable. The same analysis was then carried out using the newly created *Combined Report* variable instead of the original *Report* variable. A comparison of the results is shown in Table 2 and while many of the results improved slightly, the differences were not large and half the performance variables still showed no significant relationship with *Combined Report*.

Table 2: *Report* (17 level) and *Combined Report* (6 level) Results Comparison *

P values	M1—Existence of a separate CRE unit	R5h—Cash flow contribution by the CRE unit	C3a—Existence of written CRE strategic plan	M8a—CRE not considered important to organization	I1b—Overall performance of current MIS	M8k—Availability of info/ methods for evaluating CRE	M6—Total of decision-making scores	R5l—Accounting info. available on individual properties
C1&C2a—Combined reporting level and frequency of liaison (17 level)	0.000	0.706	0.003	0.563	0.039	0.317	0.299	0.006
Combined Report (6 level)	0.000	0.592	0.001	0.512	0.023	0.574	0.148	0.001

* Cells highlighted show relationships significant at the 5% level

It was concluded that due to organizations having few levels in New Zealand, and corporate real estate people reporting at higher levels as a result, the reporting level factor in CREAM performance may be relatively insignificant here compared to overseas research. Therefore, in the interests of simplicity, reporting level/frequency could potentially be excluded from the model of CREAM performance in New Zealand. This aspect will be considered further in the factor analysis stage of this research.

In respect of the other variable showing weak correlation within organisations surveyed (M8k—*Availability of info/ methods for evaluating CRE*), a preliminary assessment was made earlier that R5l—"*Accounting information available on individual properties*" was the best information/decision making process variable to include in the performance model. In order to further test this choice, correlations were calculated between all the other components of the performance model and the three decision-making variables.

The results are shown in Table 3 and indicate that R5l—"*Accounting information available on individual properties*" is highly correlated with the other six performance variables. M6 "*Total*" is slightly worse, but both are significantly better than M8k— "*Availability of info/methods for evaluating CREAM*", again supporting the rejection of this variable as a significant performance factor.

As R5l had the stronger associations and it was theoretically more justifiable to use this variable than the calculated variable M6 "*Total*", a final decision was arrived at to use the R5l "*Accounting information available on individual properties*" in the final model of CREAM performance.

Table 3: Associations Between Decision Making Variables and Other Performance Variables *

P value	M1—Existence of a separate CRE unit	R5h—Cash flow contribution by the CRE unit	C1&C2a—Combined reporting level and frequency of liaison	C3a—Existence of written CRE strategic plan	M8a—CRE not considered important to organization	I1b—Overall performance of current MIS	M8k—Availability of info/ methods for evaluating CRE
R5l—Accounting information available on individual properties	0.000	0.000	0.006	0.020	0.003	0.020	0.170
M6—Total of decision-making scores	0.003	0.000	0.299	0.076	0.037	0.003	0.175
M8k—Availability of info/ methods for evaluating CRE	0.631	0.953	0.317	0.389	0.005	0.128	#

* Cells highlighted show relationships significant at the 5% level

Applying Factor Analysis to the Data

The last stage was to apply principal components analysis in an attempt to distil the chosen variables listed below representing "factors" and "dimensions of performance" down to a single composite relative performance measure for CREAM. The null hypothesis reflecting this process is that no single factor measure can be derived that adequately represents the combination of multiple CREAM performance factors or dimensions of performance established by earlier research. The variables were:

C3ASPLA   = Existence of written CRE strategic plan
COMBREP   = Combined reporting level and frequency of liaison
I1BMIS   = The overall performance of current MIS system
M1UNIT   = Existence of a separate corporate real estate unit
M8ATTUD   = *CRE* considered important to organization
R5HCFLO   = Cash flow contribution by the corporate real estate unit
R5LACIN   = Accounting information available on individual properties.

This analysis resulted in two factors being extracted, but the relative contribution of each of the seven variables to the two factors was very different (for detailed results, see Appendix 1). For Factor 1, the contribution of all variables is relatively even, but for Factor 2, the contribution is primarily from COMBREP (*Combined Report*). Factor 1 explained 35.1% of variation and Factor 2 explained 14.4% of variation.

The *Combined Report* (COMBREP) variable was also associated with inconsistent results in the correlation analysis section of this study. The highly skewed distribution of the *Combined Report* data reflects the small number of levels typical in New Zealand organizations and it was proposed that reporting level might be a relatively insignificant factor in CREAM performance in this context. The above results seem to confirm this proposition, with the *Combined Report* variable again significantly out of step, so the factor analysis was re-run with the *Combined Report* variable deleted.

Using six variables shows a much-improved result, with only one factor extracted and the contribution from all variables quite even. The one factor accounted for 39% of the variation (for detailed results, see Appendix 1).

In light of the above result, the earlier lack of correlation with other variables and the shape of the response distribution, it was decided that in a New Zealand context, reporting level was a factor or dimension of performance of relatively minor significance in the assessment of the performance level of CREAM.

As a result, the hypothesis was rejected and a model of CREAM performance including the following six variables adopted:

1 C3A   Existence of a strategic plan for corporate real estate
2 M1   Existence of a separate corporate real estate unit
3 I1B   High performing corporate real estate management information system
4 R5H   Contribution of cash flow from corporate real estate assets
5 M8A   Corporate real estate considered important to the organization
6 R5L   Accounting information available on individual properties.

Inputting these variables into factor analysis applied to the 193 survey responses resulted in a single factor score representing overall CREAM performance being associated with each of the respondent organizations. This will facilitate the future investigation of a number of issues related to CREAM performance.

CONCLUSION

There was generally a high degree of consistency of response amongst organizations to the multiple questions addressing individual CREAM performance issues. This meant that responses from a single "best" question could be relied upon for inclusion in the CREAM performance model, greatly simplifying its derivation and application. Also, the model arrived at encapsulated most of the dimensions of performance identified by earlier researchers. Any inconsistencies in response were investigated further, and feasible explanations for such results arrived at.

The consistency of respondents means that future application of the CREAM performance model should not be overly sensitive to questionnaire design. In addition, the fact that a relatively simple model encapsulates much of the variability amongst a wide variety of organisations means a much shorter survey than used in this research may be all that is required in future to assess CREAM performance using the model developed.

As found in earlier studies, statistically significant correlations were observed amongst almost all of the individual performance variables. This means that, while no single variable can be said to definitively indicate an organization's CREAM performance, a small group of variables tend to occur together and provide a strong indication of performance. This lent further support to the concept of deriving from survey data, a single composite performance factor reflective of the overall CREAM performance of each surveyed organization. These findings may also indicate that an organisation needs to progress the management of its real estate assets on a number of different fronts in parallel. For example, an improvement in the state of its MIS may not yield the expected results if corresponding improvements in organisational structure, decision-making processes, strategic planning and corporate attitude are not carried out.

As a final step, factor analysis was applied and was successful in extracting a single factor representing the combined impact of six of the seven factors or dimensions of CREAM performance established by earlier research. The single factor that presented analysis problems in this process was also found to generate problems in other forms of analysis, and an adequate explanation for this situation in a New Zealand context was arrived at. As a result, a simple model of Corporate Real Estate Asset Management Performance had been developed.

Such a singular measure of CREAM performance has not previously been identified and is a significant contribution, primarily in that it facilitates the investigation of a wide range of other CREAM issues. These could include the impact on CREAM performance on organisational restructuring, outsourcing or enhancement of an individual asset manager's education or experience. In addition, the identification of organisations exhibiting a high level of CREAM performance may facilitate their use as exemplars, for benchmarking exercises or an increased focus on the key performance factors

identified, rather than ad hoc and uncoordinated efforts at improving CREAM performance.

A limitation of this research was that it was based on findings and techniques derived from the limited range of previous studies carried out in the corporate real estate field. If a broader range of literature from the general management area was reviewed, in particular in respect of strategic planning, decision-making and performance measurement, it is likely that other performance models that could equally be applied would be identified.

CREAM is a relatively new area of study and, combined with the lack of professional qualifications of survey respondents, a wide range in the level of understanding of concepts and terminology was likely. This may have impacted on the responses.

As with all surveys of this kind, the results depend on the respondent accurately and honestly reporting and interpreting the situation under study. In this case, a large number of the questions required statements of opinion rather than fact and, although important questions were cross checked for consistency of response, it is still likely that some respondents misrepresented the situation applying in their organization for a variety of reasons. In addition, as only a single individual within each organization was surveyed, their opinion of corporate issues may differ from that of others, and a distorted picture result.

The survey was carried out only in New Zealand at a particular point in time and the findings may not reflect the situation in a different place and/or at a different time. The sample size was relatively large and the response rate high compared to some similar studies, so the results should be reasonably representative of the New Zealand situation. However, central government and territorial local authorities represented large sub-groups with a high response rate, so an enhancement of the research would be to compensate for this effect and see if the results were affected. There is also potential for non-response bias, and although the types of organizations not responding were similar to those that did, they may have held a significantly different set of opinions.

The development of the above model of CREAM performance has opened up a wealth of future research opportunities. For example, the relationship between CREAM performance and organisational characteristics such as ownership structure, core business, size of the organisation, degree of organisational restructuring, qualifications and responsibilities of management, extent of outsourcing and CREAM stage of development. A number of these are already underway and will be the subject of forthcoming papers.

Other potential research questions include the following. Do people holding different positions within organizations have the same perception of the factors influencing CREAM performance? Are respondent ratings of situations in their own organizations accurate or is bias evident? Is there a correlation between an individual's subjective assessment of the level of CREAM performance in their organization and the CREAM performance measure arrived at for that organization using the process developed in this study?

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APPENDIX

Factor Analysis 1 Pairwise deletion of cases with missing values

Initial Statistics:

Variable	Communality	Factor	Eigenvalue	%of Variation	Cumulative %
C3ASPLA	1.00000	1	2.45772	35.1	35.1
COMBREP	1.00000	2	1.00637	14.4	49.5
I1BMIS	1.00000	3	.95982	13.7	63.2
M1UNIT	1.00000	4	.79381	11.3	74.5
M8ATTUD	1.00000	5	.67507	9.6	84.2
R5HCFLO	1.00000	6	.57700	8.2	92.4
R5LACIN	1.00000	7	.53021	7.6	100.0

PC extracted 2 factors.

Factor Matrix:

	Factor 1	Factor 2
M1UNIT	.70512	.21076
C3ASPLA	.69044	.03601
I1BMIS	.61572	-.09977
R5LACIN	.56312	-.07656
R5HCFLO	.54176	-.40191
M8ATTUD	.53642	-.3380
COMBREP	.4542	.79261

Final Statistics:

Variable	Communality	Factor	Eigenvalue	%of Variation	Cumulative %
C3ASPLA	.47800	1	2.45772	35.1	35.1
COMBREP	.83458	2	1.00637	14.4	49.5
I1BMIS	.38906				
M1UNIT	.54161				
M8ATTUD	.44283				
R5HCFLO	.45503				
R5LACIN	.32297				

Factor Analysis 2 Pairwise deletion of cases with missing values

Initial Statistics:

Variable	Communality	Factor	Eigenvalue	%of Variation	Cumulative %
C3ASPLA	1.00000	1	2.32635	38.8	38.8
I1BMIS	1.00000	2	.96008	16.0	54.8
M1UNIT	1.00000	3	.79976	13.3	68.1
M8ATTUD	1.00000	4	.70263	11.7	79.8
R5HCFLO	1.00000	5	.65312	10.9	90.7
R5LACIN	1.00000	6	.55805	9.3	100.0

PC extracted 1 factors.

Factor Matrix:

	Factor 1
C3ASPLA	.68965
M1UNIT	.68571
I1BMIS	.62768
R5HCFLO	.58286
M8ATTUD	.57547
R5LACIN	.56183

Final Statistics:

Variable	Communality	Factor	Eigenvalue	%of Variation	Cumulative %
C3ASPLA	.47561 *	1	2.32635	38.8	38.8
I1BMIS	.39398 *				
M1UNIT	.47020 *				
M8ATTUD	.33117 *				
R5HCFLO	.33972 *				
R5LACIN	.31565 *				