Allied Academies
National Conference

Myrtle Beach, South Carolina
April 13-16, 1998

Academy of Accounting and Financial Studies

Proceedings

Affiliates	*Journals*
International Academy for Case Studies	*Journal of the International Academy for Case Studies*
Academy of Entrepreneurship	*Academy of Entrepreneurship Journal and the Entrepreneurial Executive*
Academy of Accounting and Financial Studies	*Academy of Accounting and Financial Studies Journal*
Academy of Managerial Communications	*Academy of Managerial Communications Journal*
Academy of Educational Leadership	*Academy of Educational Leadership Journal*
Academy of Marketing Studies	*Academy of Marketing Studies Journal*
Academy of Strategic and Organizational Leadership	*Academy of Strategic and Organizational Leadership Journal*
Academy of Free Enterprise Education	*The Journal of Entrepreneurship Education*
Academy of Information and Management Sciences	*Academy of Information and Management Sciences Journal*
Academy for Studies in Business Law	*Academy for Studies in Business Law Journal*

Allied Academies, Inc.
An International Non Profit Association
of Scholars and Practitioners

PO Box 2689, Cullowhee, NC 28723
Voice 704-293-9151; FAX 704-293-9407
www.alliedacademies.org

Volume 3, Number 1 1998

Proceedings of the Academy of Accounting and Financial Studies

April 13-16, 1998
Myrtle Beach, South Carolina

Jo Ann and Jim Carland
Co-Editors
Western Carolina University

The Proceedings of the
Academy of Accounting and Financial Studies
are published by the
Allied Academies, Inc., PO Box 2689, Cullowhee, NC, 28723.

The Academy of Accounting and Financial Studies is an affiliate of the Allied Academies, an international, non-profit association of scholars whose purpose is to support and encourage the exchange of knowledge.

Proceedings of the Academy of Accounting and Financial Studies

Table of Contents

DEALING WITH THE "NEW" IRS: THE CASE FOR A TAXPAYER FAIRNESS AND EQUITY STRATEGY

J. David Mason, East Carolina University

ABSTRACT

The IRS has announced it is changing the way it is does business. The IRS states it views the taxpayer as a valued customer and thus its approach is one of increased cooperation with the taxpayer. If this "new" way of doing business is in fact impacting the way individual revenue agents interact with taxpayers, it has important implications for accountants who represent clients before the IRS. This article reviews this new IRS perspective and also reports on the results of a recent independent study of individual IRS agents that measured IRS agent attitudes towards taxpayers and compared them to a control group of tax practitioners. These results, when combined with the publicized IRS emphasis on cooperation with the taxpayer suggest important planning opportunities for representing clients before the IRS and for the management of the tax practice of accounting firms.

INTRODUCTION

Cooperation with taxpayers is central to the IRS vision for the future. In recent public pronouncements, the IRS has stated it believes it is to everyone's advantage to identify, develop, and dispose of issues correctly and swiftly. Furthermore, the IRS has stated that it is their objective to "give the fullest attention to a taxpayer's position before forcing the issues to court." The reason for these pronouncements is that the IRS recognizes that there is a crisis in confidence in the tax system and that it is imperative that confidence in the tax system be reestablished. By prioritizing fair and equitable treatment of the taxpayer, the IRS hopes to contribute towards reestablishing that public confidence in the tax system.

In line with this attempt to improve its public image the IRS is also changing the way it evaluates the performance of its agents. Historically, an important part of an IRS agent's evaluation was the tax revenue outcome of the examination. The greater the revenue generated by the examination, the higher the evaluation of the agent. Thus, historically an agent’s performance evaluation scheme had no scheme to evaluate an agent’s treatment of the taxpayer. However, this is changing. Recently, Mr. Tim, a program manager at the IRS, stated that the IRS is an organization that is "striving to perfect new ways of doing business." He said the IRS has changed some of its key performance indicators to realign its performance measures to provide more accountability in the area of taxpayer relations. As a part of this process, senior managers determined that the primary 'stockholders' to whom the Service should be accountable are Congress and the taxpayer. Furthermore, the IRS has recognized that this accountability includes direct responsibility for ensuring the fair and equitable treatment of taxpayers. The new performance measures were

developed to measure achievement of the new IRS Strategic Business Plan which plan includes (1) increasing voluntary compliance, (2) improving quality, productivity, and customer satisfaction, and (3) reducing the burden on taxpayers.

To sum up, during recent years, the IRS has been an organization in transition. The motivation for this shift in emphasis is apparently the perception of widespread disillusionment with the tax system. An indication of the seriousness of the IRS commitment to this vision of the future is its implementation of new performance indicators to provide additional motivation to IRS agents to focus on fair and equitable treatment of taxpayers. What is also interesting is that this additional emphasis on taxpayer relations reinforces one aspect of the IRS agent code of conduct as stated in the Internal Revenue Manual.

THE IRS AGENT'S CODE OF ETHICS

IRS agent are subject to a professional code of ethical conduct similar in many respects to that of the CPA. This code of professional conduct and the detailed rules and procedures agents must follow in the performance of audits of taxpayers are both found in the Internal Revenue Manual of the IRS. This manual is the single official document of the policies, the procedures, the guidelines, and instructions for IRS personnel. In addition to providing specific guidance on the performance of audits of various items on a tax return, the manual provides guidance on audits of various industries as well. The Internal Revenue Manual consists of 12 parts, with part IV covering examinations. One interesting sidelight about the Internal Revenue Manual is that it is available to any accounting firm that is a subscriber of an on-line tax service such as CCH Access.

Interestingly, the IRS general standards provide for a dual responsibility to both the taxpayer and the government in a manner that in many ways reflects the dual responsibility of the tax practitioner to the client and the tax system. Specifically, the manual states, in section 4015.1(1), that ". . . It is the duty of the Service to correctly apply the laws enacted by Congress; to determine the reasonable meaning of various code provisions in light of the congressional purpose in enacting them; and to perform this work in a fair and impartial manner, with neither a government nor a taxpayer point of view." The first general standard (Section 4015.3) addresses this dual responsibility of the IRS to the taxpayer and the government as follows:

> (1) The examiner has a responsibility both to the taxpayer and to the government to determine the correct tax liability and to maintain a fair and impartial attitude in all matters relating to the examination.
>
> (a) Explanation
>
> 1. The Service's goal of achieving the highest degree of voluntary compliance depends entirely on the cooperation and confidence of the taxpaying public.
>
> 2. The fair and impartial attitude of an examiner aids in increasing voluntary compliance. An examiner must approach each examination with an objective point of view.

Thus, the individual IRS agent not only has an ethical responsibility to treat the taxpayer fairly and equitably, but in addition, the agent's performance evaluation is also dependent, so some degree, on taxpayer satisfaction with the way in which the agent handled their examination.

To gain an insight into the extent to which IRS agent attitudes toward taxpayers conform to or depart from that described in the above paragraphs, an experiment was performed that involved both IRS agents and tax practitioners. The study measured and compared the individual IRS agent's attitude toward the taxpayer with that of a control group of tax practitioners.

THE SURVEY: BREAKING NEW GROUND ON IRS COOPERATION

A sample of Fifty-eight IRS Revenue agents from a number of districts and 89 tax practitioners from local, regional, and national CPA firms participated in the study. were asked to complete a questionnaire consisting of 9 statements. The questionnaire was prepared with the aid of a panel of four tax experts (two tax professors, and two CPAs with extensive tax experience) and was pretested on a sample of CPAs in tax practice and IRS Revenue Agents who volunteered their own time to participate. Based on the pretest revisions were made and the final questionnaire developed. Participants completed the questionnaire by indicating on a 7-point

scale the extent to which they agreed/disagreed with each statement. The participant's responses on these scales were then summarized with the participant's total score on the questionnaire representing the participants attitude toward the taxpayer with higher scores representing stronger advocacy for the taxpayer and lower scores representing less advocacy. A sample of the questionnaire is presented in Appendix A.

SHARED ATTITUDES BY MANY TAX PRACTITIONERS AND REVENUE AGENTS

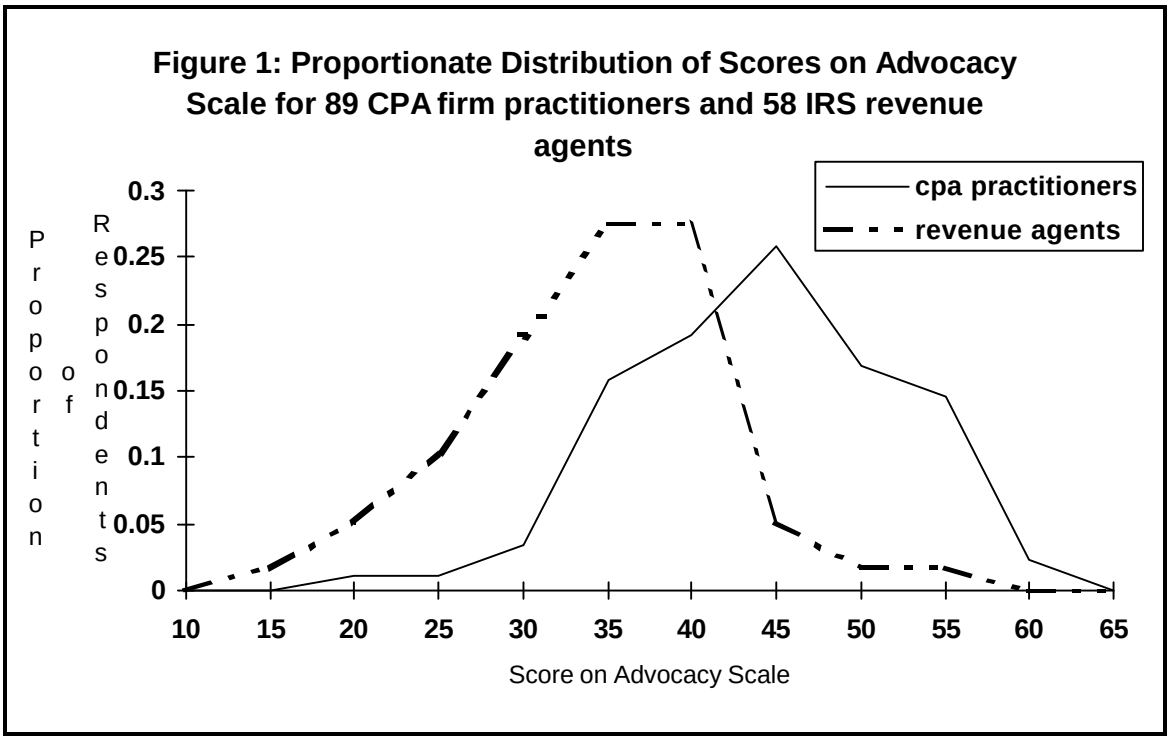
A review of the distributions as presented in Table 1 and illustrated in Figure 1 reveals that although on average tax practitioners scored higher (46.03) on the 9-item scale than did the IRS examination agents (36.29), there was a substantial degree of overlap between the two groups. Forty-nine percent of the tax practitioners' scores overlapped those of the IRS revenue agents. Only two of the IRS revenue agents scored lower than the lowest of the tax practitioners, and only two of the tax practitioners scored higher than the highest score for an IRS revenue agent. This suggests that although on average the two groups are different, for a large percentage of the participants there is a surprising amount of overlap. These results, when combined with the publicized IRS emphasis on cooperation with the taxpayer suggest important implications and planning opportunities for representing clients before the IRS and for the management of the tax practice of accounting firms.

Table 1:
Descriptive Statistics for Responses to Advocacy Measure for 147 Tax Professionals

	Number of participants	Average Score	Minimum Score	Maximum Score
CPA firm participants	89	46.03	24	63
IRS participants	58	36.29	15	56
CPA firm and IRS participants combined	147	42.19	15	63

IMPLICATIONS AND PLANNING OPPORTUNITIES

In the past, the general approach of tax practitioners has been to treat interactions with IRS agents from an aggressive adversarial viewpoint based upon the belief that the IRS was protecting



the interests of the government while the tax practitioner was protecting the best interests of the taxpayer. However the results of this study and the information presented earlier in this article suggests an approach emphasizing taxpayer fairness and equity may be more effective means of dealing with the 'new' IRS. Following are some practical suggestions for a taxpayer fairness and equity strategy.

1. Establish a fairness and equity mindset with the agent. It is clear that the agent you deal with will be evaluated on the taxpayer satisfaction dimension of their work. Thus avoid presenting an initial adversarial front. Instead, put the agent on notice at the beginning of the engagement that

you are aware of the emphasis the IRS is now placing on fair and equitable treatment of the taxpayer and that that is your goal for the taxpayer as well. This approach should benefit the client and improve the outcome of the examination in at least two ways. First, this will operate as a reminder and highlight in the agent's mind this dimension of his/her job and thus he/she should be more likely to respond to issues in a more equitable manner. Second, by putting the agent on notice that the taxpayer representative is knowledgeable of the fairness and equity expectations, this should increase the accountability the agent which is important when the agent is evaluating the taxpayer's position in ambiguous areas of the law.

2. Different agents, different attitudes. The survey suggests there is a wide spectrum of attitudes toward the taxpayer within the IRS including agents with very pro taxpayer sentiments. It may be in the best interests of the taxpayer to request a different agent be assigned to the case if you feel the agent assigned is not sensitive to the taxpayer fairness and equity issues.

3. Be informed and be prepared for the examination. The old adage, "the best defense is a good offense" applies to dealings with the IRS. With the availability of the IRS Manual to any subscriber of an on-line tax service, the tax practitioner may know both the ethical guidelines the IRS agent must adhere to and the specific procedures and policies that will be followed as well. This includes not only the information the agent is likely to request, but also the specific guidelines the agent will likely follow in any discovery procedures that will be used. Knowing this information in advance will allow the tax practitioner to more accurately anticipate and provide for the information to be requested. In addition, being able to anticipate in advance the specific procedures and guidelines the agent will follow in the examination should allow the tax practitioner to present the issues under examination in a professional manner that will most favorably represent the client's interests.

4. Know your own staff. The survey makes it clear that not all tax practitioners are alike with respect to their attitude towards the taxpayer. Some are much stronger advocates than others. This is important to know when assigning responsibilities to staff with respect to IRS examinations. In addition, it is important for recruiting and educating your staff. Training and recruiting staff to exhibit the level of advocacy you would like your firm to provide to your clients should be an important part of a CPA firms in house training. A questionnaire such as the one used in this study may be useful in evaluating the advocacy level of your firm. In addition, those who are the strongest advocates in the firm should represent the client before the IRS. This should result in the most equitable and fair outcome for the taxpayer. This in turn will result in establishing greater goodwill in the mind of the taxpayer towards his/her accountant which will help to nurture the accountant/client relationship.

APPENDIX A:
A sample of the 9-item taxpayer attitude scale completed by participants.

strongly disagree *strongly agree*

1	2	3	4	5	6	7

1. In an instance where no judicial authority exists with respect to an issue and where the Code and Regulations are ambiguous, I feel that the taxpayer is entitled to take the most favorable tax treatment.

2. Generally speaking, my loyalties are first to the tax system , then to the taxpayer.

3. I feel I should apply ambiguous tax law to the taxpayer's benefit.

4. When examining a tax return, I tend to point out to taxpayers reasonable positions they could have taken which would have contributed to minimizing their tax liability.

5. I believe it is important that I encourage taxpayers to pay the least amount of taxes possible.

6. I always interpret unclear/ambiguous laws in favor of the taxpayers.

7. It is important to use trends in the law by trying to establish a pattern of more favorable treatment for the taxpayer and then extending this pattern to the taxpayer's position.

8. Where no judicial authority exists with respect to an issue, I feel that the taxpayer is entitled to take the most favorable tax treatment.

9. The taxpayer has the right to structure transactions in ways that yield the best tax result, even if the law is unclear in an area.

IS IT TIME TO REVISE THE CHANGES IN ACCOUNTING PRINCIPLE REPORTING GUIDELINES UNDER SAS NO. 58?

Charles E. Jordan, University of Southern Mississippi
W. Robert Smith, University of Southern Mississippi
Stanley J. Clark, University of Southern Mississippi

ABSTRACT

Previous research on audit reporting after SAS No. 58 suggests that auditors modify reports at high rates for changes in accounting principle yielding effects traditionally considered immaterial. However, a high report modification rate could have been foreseen for the previous research because of a possible sample selection bias. The current study eliminates this potential bias and examines possible factors affecting auditors' report modification decisions.

INTRODUCTION

A change in accounting principle occurs when a company changes from one generally accepted accounting principle to another generally accepted accounting principle. Such a change requires special consideration by an auditor because it may necessitate audit report modification. SAS No. 58 (AICPA 1988) superseded SAS No. 2, the predecessor audit reporting standard, and altered the reporting requirements for changes in principle in three important ways. First, SAS No. 58 eliminated the reference to consistent application of GAAP in the audit report that existed under SAS No. 2. A standard (nonmodified) report now implies either no change occurred during the reporting period or that a change occurred but that its effect on the financial statements was deemed immaterial. Second, under SAS No. 58, a change producing a material effect requires report modification but does not result in a qualified opinion as it did under SAS No. 2. A material effect requires the auditor to modify the audit report by including an explanatory paragraph identifying the change and referring the reader to an appropriate footnote in the financial statements. Third, SAS No. 2 required report modification for material changes but did not preclude report modification for changes producing immaterial effects. SAS No. 58 specifically states that audit reports should be modified for material changes only; auditors should not modify reports for changes producing immaterial effects.

Research prior to SAS No. 58 indicates that many auditors modified reports for changes in principle producing effects traditionally considered immaterial and that the profession as a whole lacked uniformity in its modification decisions. The requirements under SAS No. 58 could be expected to yield a higher degree of reporting uniformity because the current standard removes the discretion auditors had under SAS No. 2 for reporting changes that produced immaterial effects.

Surprisingly, research subsequent to SAS No. 58 suggests that auditors continue to modify reports for changes producing seemingly immaterial effects. However, these post-SAS No. 58

studies (Jordan et al., 1997; Jordan and Clark, 1996) examined companies disclosing the cumulative effects of changes on their income statements and did not examine companies disclosing the changes in their footnotes only. By including only entities with income statement disclosure of cumulative effects, it is possible the samples in these two studies were biased because income statement disclosure of the cumulative effect might suggest that the effect of the change had already been deemed material by management or the auditor before the audit report was prepared. Thus, there may have been an *a priori* reason to believe the majority of audit reports in these samples would be modified. To avoid this potential bias, the current study includes companies that reported cumulative effects in their income statements as well as companies disclosing changes in their footnotes but not reporting the effects on their income statements.

Also, the previous studies on audit reporting of changes in principle after SAS No. 58 made no attempt to identify factors that may be related to auditors' report modification decisions. We identify and empirically test such factors. Based on our results, and the results of other research, we conclude that the auditing profession and financial statement users might be better served if SAS No. 58 were amended to remove all references in the audit report to mandatory changes in principle.

METHODOLOGY

To obtain a large number of companies with changes in principle subsequent to SAS No. 58's effective date (January 1, 1989), we searched Compact Disclosure's footnote text files for the years 1992-1994 using the key words *cumulative effect*. Entities having multiple changes during the period were omitted to isolate decisions on individual changes.

All changes in principle were included. The vast majority of the changes were mandatory (i.e., necessitated by the adoption of a new FASB standard). A total of 1,123 companies met our selection criteria.

The financial statements and footnotes for all companies were examined to classify the entities into one of the following mutually exclusive categories concerning the cumulative effects of changes in principle:

1. The amount of the cumulative effect was reported in the income statement only or in both the income statement and the footnotes (685 companies).
2. The amount of the cumulative effect was not reported in the income statement or the footnotes, and the footnotes contained a clearly worded statement by management that the effect of the change was immaterial (290 companies).
3. The amount of the cumulative effect was reported in the footnotes as zero, i.e., the change resulted in no effect (148 companies).

For each entity, selected financial statement data were collected from Compact Disclosure, and the auditor's modification decision was ascertained by reading the audit report. A separate analysis was performed on each of the three groups of companies referred to above.

For the group reporting a cumulative effect amount, the size of the effect in relation to income was used for evaluating report modification decisions. This group was divided into three categories based on the income effects of the changes in principle. The three income-effect categories were

taken from the work on materiality by Holstrum and Messier (1982, 59). For public companies, an item having less than a 4-percent effect on income from continuing operations after taxes typically would be considered immaterial by all parties. An item with a greater than 10-percent income effect would normally be considered material by all parties. An item producing an income effect between 4 percent and 10 percent falls into a "gray" area about which no consensus exists concerning materiality. Wheeler et al. (1993) also used this grouping in their analysis of pre-SAS No. 58 report modifications. Table 1 provides a comparison between the Wheeler et al. pre-SAS No. 58 data and the post-SAS No. 58 results from the current study.

Table 1
Report Modification Frequencies by Income-Effect Category

	Income-effect categories								
	Less than 4%			Between 4% & 10%			Greater than10%		
	No. mod	No. nonmod	% mod	No. mod	No. nonmod	% mod	No. mod	No. nonmod	% mod
Pre-SAS 58*	77	50	60.6%	68	8	89.5%	79	2	97.5%
Post-SAS 58	85	34	71.4%	123	19	86.6%	378	46	89.2%
Chi-square	3.186 ($p \leq .0743$)			.372 ($p \leq .5421$)			5.552 ($p \leq .0185$)		

* Pre-SAS No. 58 results are from Wheeler et al. (1993).

Table 1 shows that a decline in the modification rate occurred only for the greater-than-10-percent category. Although there was a slight decline in the gray area (i.e., income effects between 4 percent and 10 percent), this decline was not statistically significant.

The most surprising finding was in the less-than-4-percent category, which prior research suggested would be considered immaterial by all parties. A significant decline in the modification rate was expected in this category; yet, the modification rate actually increased. The statistical significance of the differences for this group is marginal by traditional standards but certainly suggests that further study of companies in this group might be fruitful.

Table 2 shows the pre-SAS No. 58 and post-SAS No. 58 report modification frequencies of those companies for which no income effects were disclosed and the footnotes contained clear statements by management that the effect of the change was immaterial. Notice that the modification rate declined by a statistically insignificant amount after SAS No. 58. For over a fifth of the post-SAS No. 58 companies, auditors modified their reports for changes producing effects judged immaterial by management.

Table 2
Report Modification Frequencies for Immaterial Effects

	Number modified	Number nonmodified	Percent modified
Pre-SAS No. 58*	72	207	25.8%
Post-SAS No. 58	64	226	22.1%
Chi-square	1.092 ($p \leq .2960$)		

* Pre-SAS No. 58 results are from Wheeler et al. (1993).

We also analyzed modification rates for companies that stated in the footnotes that the change in principle produced no cumulative effect on the financial statements. The footnotes for these companies contained no statements concerning immateriality, possibly because management felt the absence of a cumulative effect implied that the effect was not material. The Wheeler et al. (1993) study evaluating pre-SAS No. 58 report modifications did not examine this group; thus, an examination of only the post-SAS No. 58 modification rate was possible. Of the 148 companies in this no-effect category, 43 (29.1 percent) received modified audit reports. This appears to be a high modification rate given that the changes for these companies resulted in no cumulative effect on the financial statements. Why do auditors continue to modify reports for changes producing apparently immaterial effects? The next section addresses this perplexing question.

CAN HIGH MODIFICATION FREQUENCIES BE EXPLAINED?

An economic motivation for auditors modifying reports for changes in principle producing seemingly immaterial effects might stem from the revised report format under SAS No. 58. A report modification for a change in principle no longer constitutes a qualified opinion; instead, the additional paragraph in the report merely highlights the change. Clients, therefore, could be expected to accept readily report modifications, even for changes producing immaterial effects. For individual auditors, there appears to be little cost or downside risk associated with modifying reports for immaterial changes in principle. Indeed, modifying reports for changes producing seemingly immaterial effects may be perceived by some auditors as "safe" decisions.

It is possible that auditors do not interpret SAS No. 58 to mean that reports should not be modified for changes in principle yielding immaterial effects. To explore this possibility, auditors from local, regional, and national firms were informally queried concerning (1) their interpretation of SAS No. 58 and (2) possible explanations for auditors' tendencies to modify reports for changes producing seemingly immaterial effects.

All of the auditors interviewed interpreted SAS No. 58 correctly; that is, they understood the standard to require a materiality judgment and that reports should not be modified for immaterial changes in principle. The auditors also stated that they would not issue modified reports for

immaterial changes; however, they did offer some explanations about why other auditors might. The most frequent explanations were as follows:

1. Some auditors may modify reports for immaterial effects because of the risk adverse nature of individual auditors (or firms) and their abilities to absorb lawsuit losses. Auditors in firms less able to absorb losses would be more risk adverse and, therefore, perhaps more likely to modify reports for immaterial effects.
2. Even though they know the modifications may provide redundant information, some auditors may modify reports for immaterial effects to ensure full disclosure of the change in principle.
3. "Force of habit" may be causing some auditors to modify reports for immaterial changes. When a major FASB standard (e.g., SFAS No. 109 dealing with deferred income taxes) is issued, a large number of an auditor's clients must adopt the standard within a relatively short time span. Because of the large number of clients adopting the change, report modification may become a routine matter with little attention paid to materiality.
4. The riskiness of an individual client might prompt an auditor to modify a report for a change that might be considered immaterial for a less risky client. An auditor might consider almost any change in principle material for a client experiencing financial difficulties.
5. In addition to the relative size of a change's income effect, the direction of the effect may impact the report modification decision. Because of the conservative nature of accounting in general, a change producing a positive income effect might be considered material while a change of the same magnitude causing a negative income effect might be perceived as immaterial by the auditor.

Prior studies (e.g., Kinney 1986; Morris and Nichols 1988; Mutchler and Williams 1990) suggest that audit firm structure may affect report modification decisions. Firms with more structured audit technology could be expected to have more clearly defined guidelines specifying when a report should be modified.

Some evidence (Wheeler et al. 1993) indicates that modification decisions may differ among firms because of their relative litigation experiences. Firms that have been frequently sued might be more prone to modify reports for immaterial effects for added comfort.

Client size may also impact auditors' decisions to modify reports for changes in principle producing immaterial effects. Carcello and Palmrose (1994) found that litigation against auditors is likely to involve large clients. Thus, auditors may have a greater tendency to modify the reports of large clients to reduce the litigation risks associated with issuing a nonmodified report when a modified report is warranted.

Some of the above factors involve an auditor's state of mind (e.g., modification due to "force of habit") and cannot be tested empirically; however, others (e.g., client size) can be tested empirically. To examine further these possible explanations, multivariate logit models were developed.

LOGIT MODELS

The primary purpose of our multivariate analysis was to determine if the measurable factors identified above could be linked statistically to auditors' report modification decisions for changes in principle producing effects traditionally considered immaterial. Because the main issue is whether explanations can be found for auditors' tendencies to modify reports for apparently immaterial changes, only two multivariat models were developed. Model One used companies with changes producing income effects less than 4 percent. Model Two used companies that did not disclose the income effect of a change and the footnotes contained clear statements by management that the change's effect was immaterial as well as companies that stated in their footnotes that the change produced no cumulative effect on the financial statements. Model One and Model Two included 119 and 438 companies, respectively. The dependent variable in both models was binary and represented the type of report issued (modified=1, nonmodified=0).

The independent variables captured the measurable explanatory factors described in the previous section; in Model One, these variables were

INCEFF - is the absolute value in percentage terms of the cumulative effect of the change in principle on current period's income from continuing operations. This variable is identified in the prior literature as probably the most important factor in report modification decisions.

RISK - is the client company's owners' equity as a percentage of total assets. This variable provides a surrogate measure for the riskiness of the client. For example, a low percentage suggests a highly leveraged company or one which has relatively unprofitable operations.

LOGTA - is the log of the client company's total assets and represents a relative measure of client size. Total assets generally exhibit nonnormal distributions and logging them is a common means of normalizing the distribution for more meaningful statistical results.

SIGN - is a dichotomous variable representing the direction (positive=1, negative=0) in which the cumulative effect impacted income. A positive income effect is captured in this variable; a negative income effect impacts the intercept.

AUDITOR - is six dichotomous variables representing the Big 6 firms. The impact of the non-Big 6 firms affects the intercept. If auditors' report modification decisions vary by firm structure, litigation experiences, or other firm differences, this information should be captured in these variables.

Table 3 presents the results of Model One. The model overall was statistically significant with a p-value of .0005; it yielded a respectable R-square of .225. Thus, Model One seemed to explain at least some of the variation in auditors' report modification decisions for changes in principle producing income effects less than 4 percent. Two variables (INCEFF and RISK) were individually significant at the .05 level.

The significance of a change's income effect (INCEFF) was somewhat surprising given that all changes in this group produced income effects less than 4 percent, which has traditionally been considered immaterial. One might assume that, for this group, the income effect would have had little impact on modification decisions and auditors would have modified reports for factors other than an item's income effect; however, this was not the case. This finding suggests a minimal income effect

materiality threshold for these report modification decisions may not exist, or if it does exist, it is much lower than is generally thought.

Table 3
Logit Results for Companies with Income
Effects Less than 4 Percent (Model One)

Variable	Coefficient	Chi-square	p-value
INTERCEPT	-0.837	0.16	.687
INCEFF	0.671	7.90	.005
RISK	-0.023	6.28	.012
LOGTA	0.053	0.11	.741
SIGN	-0.113	0.04	.845
AUDITOR (AA)	0.715	0.57	.452
AUDITOR (C&L)	-0.230	0.06	.803
AUDITOR (D&T)	1.630	2.57	.109
AUDITOR (E&Y)	1.303	2.03	.154
AUDITOR (KPMG)	1.373	1.87	.171
AUDITOR (PW) 16.231	0.00	.988	

Model Chi-square = 31.34 ($p \leq .0005$)
Model R-square = .225

The statistical significance of the owners' equity variable (RISK) provides empirical evidence that the riskiness of a client company impacts an auditor's report modification decision for this low-income effect group. The negative sign for this variable's coefficient was as expected and suggests that companies with low equity ratios are more likely to receive modified reports. The positive sign for the INCEFF variable was also expected and indicates that changes producing larger income effects are more likely to result in modified reports.

Model Two contained companies that disclosed no cumulative effect for the change in principle either because the effect was stated as immaterial by management or because the change produced no cumulative effect. Of the 438 companies included in this group, 107 (24.4 percent) received modified reports. It is for this group that the auditors' report modification decisions are most perplexing. Model Two contained the same variables as described earlier for Model One except that INCEFF and SIGN were excluded because both were based on the change's income effect, which either did not exist or was not disclosed for the companies in Model Two. Table 4 presents the results for Model Two.

Table 4 shows that Model Two overall was insignificant at the .05 level. In addition, none of the independent variables were individually significant.

Table 4
Logit Results for Companies with No Income Effects or Effects
Stated as Immaterial in Footnotes (Model Two)

Variable	Coefficient	Chi-square	p-value
INTERCEPT	-1.429	3.25	.072
RISK	-0.001	0.16	.693
LOGTA	0.023	0.13	.718
AUDITOR (AA)	-0.460	0.70	.401
AUDITOR (C&L)	0.222	0.20	.655
AUDITOR (D&T)	0.343	0.48	.490
AUDITOR (E&Y)	-0.316	0.42	.516
AUDITOR (KPMG)	0.587	1.60	.206
AUDITOR (PW)	-0.139	0.05	.821

Model Chi-square = 11.70 ($p \leq .1650$)
Model R-square = .026

SUMMARY, DISCUSSION, AND IMPLICATIONS

Our results demonstrate that, even after SAS No. 58, auditors continue to modify reports for seemingly immaterial changes in principle at high rates. Because of the nature of the report format under SAS No. 58, modifying reports for changes producing immaterial effects probably results in little or no undesirable consequences for individual auditors or their clients. Also, it is unlikely that third-party users would be harmed by an audit report modified for an immaterial change. Such an audit report would simply be providing users with additional, albeit unnecessary, information.

Perhaps the primary damage from the propensity to modify reports for seemingly immaterial changes lies in the possibility that the audit profession will be perceived to be sending an unclear message. Every study (both before and after SAS No. 58) examining audit report modifications for changes in principle has drawn a similar conclusion (i.e., reports are routinely modified for changes producing apparently immaterial effects.) These actions do not imply improper behavior by auditors and may result simply from the subjective nature of materiality decisions. However, this propensity to modify reports for seemingly immaterial changes may be *perceived* by financial statement users as evidence of inaccuracy or inconsistency on the part of the auditors or, perhaps worse, as evidence of self-serving behavior.

In the Exposure Draft preceding SAS No. 58, the Auditing Standards Board (ASB) wanted to eliminate all audit report references to changes in principle because such information is already provided in the footnotes. However, the SEC disagreed, and SAS No. 58 represents a compromise. Research after SAS No. 58 seems to indicate that the ASB might have had the right idea in its Exposure Draft; no audit report reference to changes in principle seems warranted, at least with respect to mandatory changes.

Mittelstaedt et al. (1992) present evidence indicating that SAS No. 58 report modifications for changes in principle do not provide useful information to equity markets. Only Geiger (1992)

found evidence supporting the usefulness of the modification requirement under SAS No. 58. However, his experiment examined bankers' reactions for only one type of change, a discretionary change in depreciation methods. Since the vast majority of changes occurring in practice are mandatory, Geiger's results do not apply universally.

Our results, and the results of others, suggest that audit reporting could be improved by eliminating the reference in the audit report to mandatory changes in principle. Little or nothing would be lost by eliminating such references, and reporting uniformity would be gained.

REFERENCES

Carcello, J. & Palmrose, Z. (1994). Auditor litigation and modified reporting on bankrupt clients. *Journal of Accounting Research*, 32(Supplement), 1-30.

Geiger, M. (1992). Audit disclosures of consistency: an analysis of loan officer reaction to SAS No. 58. *Advances in Accounting*, 10, 77-90.

Holstrum, G., & Messier, W. (1982). A review and integration of empirical research on materiality. *Auditing: A Journal of Practice and Theory*, 2(1), 45-63.

Jordan, C., & Clark, S. (1996). An examination of audit reporting for accounting principles changes. *Journal of Applied Business Research*, 12(3), 1-8.

Jordan, C., Clark, S. & Smith, W. (1997). Audit Report Modifications for Changes in Accounting Principles: Are Auditors Too Enthusiastic? *Academy of Accounting and Financial Studies Journal*, 1(2), 7-16.

Kinney, W. (1986). Audit technology and preferences for auditing standards. *Journal of Accounting and Economics*, 8(2), 73-89.

Mittelstaedt, H., Regier, P., Chewning, G., & Pany, K. (1992). Do consistency modifications provide information to equity markets? *Auditing: A Journal of Practice and Theory*, 11(1), 83-98.

Morris, M., & Nichols, W. (1988). Consistency exceptions: materiality judgment and audit firm structure. *The Accounting Review*, 63(2), 237-254.

Mutchler, J., & Williams, D. (1990). The relationship between audit technology, client risk profile, and the going-concern opinion decision. *Auditing: A Journal of Practice and Theory*, 9(3), 39-54.

Wheeler, S., Pany, K., & Chewning, G. (1993). Inter-firm differences in propensities to modify audit opinions for pre-SAS No. 58 accounting principles changes. *Accounting Horizons*, 7(3), 46-54.

GASB STATEMENT NO. 14
THE FINANCIAL REPORTING ENTITY
A STUDY OF INITIAL IMPLEMENTATION

Bruce W. Chase, Radford University
Nathan J. Kranowski, Radford University

ABSTRACT

The Governmental Accounting Standards Board (GASB) issued Statement No. 14, THE FINANCIAL REPORTING ENTITY, in 1991, to provide guidance on the definition of governmental reporting entities and the proper format of reporting by such entities. This study examines the June 30,1994 Comprehensive Annual Financial Reports (CAFRs) of all governmental entities in the Commonwealth of Virginia: ninety-five counties and thirty-nine independent cities. Financial reports are analyzed from the perspective of GASB No.14, to determine how the Statement was implemented with respect to component units reported on. The results are summarized and grouped depending on how reporting governments include--or fail to include--the related organizations in the financial statements: discretely presented component units, and blended component units.

The study found that population size of reporting entities was directly proportional to the percent of such entities reporting discretely presented and blended component units, with a greater percentage of high population entities reporting such components. However, this finding did not apply to counties and cities with populations in the range of 30,000 to 49,000 inhabitants. Furthermore, no significant relationship was found between population size and average number of component units reported by a local government.

Because all reporting entities of the Commonwealth of Virginia were included, and given that the time period covered by the financial reports examined was the first year of implementation for GASB Statement No. 14, the study should be of interest to governments affected by the standard, as well as to accounting practitioners and interested academics.

INTRODUCTION

State and local governments vary widely in the types of services they provide and the organizational structure they use to provides such services. Often, governments will establish legally separate entities to provide certain services and meet certain needs. Alternatively, they may provide financial support to existing separate organizations or may join with other governments in a regional approach to providing services. Jails, airports, housing and building authorities are a few examples. Should these separate legal entities be included in the governments financial reports, and if so, how?

The Governmental Accounting Standards Board (GASB) issued Statement No. 14, *The Financial Reporting Entity*, in 1991 to provide guidance on what should be considered the reporting entity of a government. The statement uses a financial accountability criterion to determine which

separate legal entities should be included in the financial statements of a government. The statement was effective for fiscal years beginning after December 15, 1992.

The purpose of this study is to examine the results of the initial implementation of this statement by local governments in one state. This study examined the June 30, 1994 financial statements of all counties and cities in Virginia. The findings indicate a wide range of organizations that were included in the reporting entity for some governments and a large number of governments that reported no organizations meeting the criteria. This suggests that additional research is needed to determine if the requirements of Statement No. 14 are being consistently interpreted by these organizations.

THE REPORTING ENTITY

The financial reporting entity for a local government is defined as the primary government and all of its "component units". Component units are legally separate entities that meet either of the following two primary tests:

1. The primary government appoints the voting majority of the board of the entity and is a) able to impose its will on the entity, and/or b) there is a financial benefit or burden relationship with the entity.
2. The entity is fiscally dependent on the primary government.

For many governments, the first test will be the determining factor as to which separate legal entities will be included in the financial statements of the government. Governments often appoint the majority of certain entities' boards. In these cases, if the government can impose its will or if there is a financial benefit or burden relationship, the entities are component units and must be included in the financial statements. Exhibit 1 list the examples of the government's ability to impose its will and financial benefit and burden relationships.

For entities where the majority of the board is not appointed by the government, the second test applies. In most cases, an entity will be considered a component unit if it is fiscally dependent on the primary government. Exhibit 1 also lists examples of the financial dependency criteria.

The guidelines listed in Exhibit 1 appear fairly easy to apply, however there are several areas where subjective professional judgement is required. For example, if an entity's budget is regularly presented and approved by a local government, does this mean the government can impose its will? It depends on whether this is just a formality or if the government's approval has any real substance. What would happen if the government did not approve the budget?

Another example where professional judgement may be needed is in determining if the primary government is obligated in some manner for the debt of another entity. One of the criteria assumes that a primary government will be considered to be "obligated in some manner" if its past actions make it probable that it will assume some responsibility for the debt of another entity in the event of default. Professional judgement will again be needed in applying such criteria.

There is one additional test regarding whether a legally separate entity should be included in the financial statements of a primary government. An entity which does not meet the above two tests should be included in the financial statements of the primary government if the relationship of the two

entities are such that the financial statements would be misleading if data from the entity were not included. Again, the criteria for this test will require subjective professional judgement.

Once an entity has been determined to be a component unit of the primary government, the next decision is how should it be reported in the financial statements. There are two different methods of reporting a component unit in the financial statements -- "blending" and "discrete presentation". Blending combines the financial information of the component unit with the existing funds of the primary governments in the financial statements. Discrete presentation reports the financial information of the component units in separate column/columns in the financial statements.

A government is required to blend the financial information of a component unit if the board of the component unit is "substantively" the same as the board of the primary government, or the component unit serves the primary government exclusively, or almost exclusively. An example of the second criterion is a financing authority used to finance a government's construction projects.

STUDY

In Virginia there are 95 counties and 39 independent cities. The school systems in the state are legally separate entities but are an integral part of the counties and cities. The schools receive their funding from the local government and, in most cases, the local government appoints the school boards. The Auditor of Public Accounts, a state agency, has oversight responsibility over the financial reporting of local governments. Because of this oversight, the financial reporting of these governments is fairly consistent. All local governments have a June 30th year-end and are audited by independent public accounting firms.

This study examined the June 30th, 1994 Comprehensive Annual Financial Reports (CAFRs) of all counties and cities in Virginia. This was the first year of implementation of Statement No. 14. The study first identified governments that reported discretely presented component units by reviewing the balance sheets in the CAFR. The study then identified governments that reported blended component units by reviewing the reporting entity note in the financial statements. It should be noted that the Auditor of Public Accounts required that school board's funds be reported as their own separate component unit column in the financial statements. Because all counties and cities reported school boards' funds as a separate component unit, they were not considered in reporting the results of this study.

RESULTS

Table 1 provides data, by population size, on the counties and cities that reported component units. The data generally reflect a clear pattern: as the population size increases, a higher percentage of local governments report component units. The major exception to this pattern is for governments having a population size of between 30,000 and 49,000. This group reports a much higher percentage of governments with component units than the next higher size level of governments. The table also breaks down how the component units are reported: discretely presented component units (DPCU) and blended component units (BCU). The trends for these two subgroups are also similar. Table 2 presents the same data from a different perspective. The table reports the percentage of

governments with no reported component units and indicates that close to half the counties and cities reported no component units.

TABLE 1
Percent and Number of Virginia Counties & Cities with Component Units

Population in Thousands	Total No. of Governments	Percent (No.) with CUs*	Percent (No.) with DPCUs*	Percent (No.) with BCUs*
<100	13	100% (13)	92.3% (12)	53.8% (7)
50-99	15	60.0% (9)	40.0% (6)	33.3% (5)
30-49	19	68.4% (13)	52.6% (10)	26.3% (5)
20-29	23	47.8% (11)	34.7% (8)	17.4% (4)
10-19	38	34.2% (13)	28.9% (11)	10.5% (4)
<10	26	34.6% (9)	26.9% (7)	7.7% (2)
Total	**134**	**50.7% (68)**	**40.3% (54)**	**20.1% (27)**

*CU = Component Unit
*DPCU = Discretely Presented Component Unit
*BCU = Blended Component Unit

TABLE 2
Percent and Number of Virginia Counties & Cities without Component Units

Population in Thousands	Total No. of Governments	Percent (No.) without CUs*	Percent (No.) without DPCUs*	Percent (No.) without BCUs*
<100	13	0% (0)	7.7% (1)	46.2% (6)
50-99	15	40.0% (6)	60.0% (9)	66.7% (10)
30-49	19	31.5% (6)	47.4% (9)	73.7% (14)
20-29	23	52.2% (12)	65.2% (15)	82.6% (19)
10-19	38	65.8% (25)	71.1% (27)	89.5% (34)
<10	26	65.4% (17)	73.1% (19)	92.3% (24)
Total	**134**	**49.3% (66)**	**59.7% (80)**	**79.9% (107)**

*CU = Component Unit
*DPCU = Discretely Presented Component Unit
*BCU = Blended Component Unit

It is clear from Tables 1 and 2 that fewer governments report BCUs than DPCUs. As stated above, the main criterion for blending the financial information of a component unit is whether the board of the component unit is "substantively" the same as the primary government. The data indicate that this is not the case for the majority of reported component units. Forty percent of governments reported discretely presented component units, while only twenty percent reported blended component units.

Table 3 reports the range and average number of component units for only the counties and cities that reported component units. The data indicate that while larger governments have a greater

range in the number of component units, the average number of component units remained fairly constant across size of government.

TABLE 3
Average Number of Component Units (CUs) for Virginia Counties and Cities Which Reported Component Units

Population in Thousands	Discretely Presented CUs Average (Range)	Blended CUs Average (Range)
>100	2.00 (1-4)	2.28 (1-5)
50-99	1.17 (1-2)	1.00 (1)
30-49	2.10 (1-8)	1.50 (1-3)
20-29	1.43 (1-2)	1.00 (1)
10-19	1.27 (1-2)	1.75 (1-4)
<10	1.28 (1-2)	1.00 (1)
Total	**1.61 (1-8)**	**1.56 (1-5)**

Table 4 reports the types of DPCUs included in the annual reports. The table shows a total of eighty-seven DPCUs classified into sixteen categories, with the category of industrial development authorities occurring the most often (24 times). Table 5 reports the types of BCUs included in the annual reports. The table shows a total of forty-two BCUs classified into seven categories. With the exception of retirement systems, the types of BCUs are similar to the DPCUs.

TABLE 4
Discretely Presented Component Units for Virginia Cities and Counties by Category and Number of Units

Industrial Development Authorities	24
Public Service Authorities	7
Library	7
Parks and Recreation Authorities and Commissions	6
Economic/Community Development Authorities and Commissions	5
Airport Authorities	5
Hospital/Nursing Home Authorities and Commissions	4
Redevelopment and Housing Authorities	3
Transit Authorities	3
Parking Authorities	3
Water and Sewer Authorities	3
Social Services Boards	3
Jails	2
Port Authorities	2
Harbor Committees	2
Other	8
Total	**87**

TABLE 5
Blended Component Units for Virginia Cities and Counties
By Category and Number of Units

Industrial Development Authorities	5
Retirement Systems	5
Sewer and Water Authorities	5
Community Service Boards	5
Solid Waste Authorities	4
Transit Companies	3
Others	15
Total	**42**

CONCLUSIONS

The general findings of this study are consistent with what one would expect from the implementation of this new reporting standard. A higher percentage of larger counties and cities reported component units than smaller counties and cities. It is reasonable to assume that larger governments generally provide more services and, therefore, would likely use more legally separate entities to provide such services.

There was one major exception to the general trend that a higher percentage of larger governments reported component units than smaller governments. This exception was for governments with populations between 30,000 and 49,000 people. One possible explanation for this finding may be the role of the auditor. In Virginia, a regional CPA firm dominates the audit of small to medium size counties. This firm audits close to half of the counties in Virginia. Primarily Big-6 firms audit the larger counties and cities. Because the new standard requires subjective professional judgement in determining component units, different interpretations can exist among different audit firms. This may be the reason for the exception to the general trend in the percent of governments reporting component units. Additional research is needed into the role of the auditor in the implementation of this standard.

This study also finds that there is not a significant difference among different sizes of governments as to the average number of component units reported (by those governments reporting component units). The average was between 1 and 2.28 component units. If we assume that larger governments provide more services, it seems reasonable that they would have more component units. However, the findings do not report a major difference in the average number of component units reported among different size governments. One possible explanation for this finding is that larger governments provide more services through the primary government – not through legally separate entities. Again additional research is needed to determine possible causes for this finding.

This study also reports the kinds of organizations reported as component units. There is a wide range of organizations listed. The most common type of organization identified as a component unit was industrial development authorities (IDAs). The study found that 24 governments reported

IDAs as discretely presented component units, while 5 governments reported them as blended component units. However, this means that 105 governments did not report them as component units at all. For all the different types of organizations listed, a large majority of governments did not report them as component units. This may be because the governments do not have such organizations, the organizations have different structures, or that the requirements of the new standards were interpreted differently. Each of these factors may play a role in explaining this finding.

This study represents an initial investigation into the implementation of GASB's Statement No.14. The focus of this study was on Virginia counties and cities that reported component units. Although the results of the study are generally consistent with the expected outcome of the implementation of the new standard, there were some interesting findings. Further research is needed to determine the causes for differences in the number of governments reporting component units. Two possible areas of future research are the role of the auditor and the different types of services provided by primary governments. Additional research is also needed on the large number of governments reporting no component units.

EXHIBIT 1

Imposition of Will, Financial Benefit or Burden, and Fiscal Dependency Examples

Examples of a government being able to impose its will are as follows:

The ability to remove appointed members of the entity's board at will,
The ability to modify or approve the entity's budget,
The ability to modify or approve rate or fee changes affecting revenue,
The ability to veto, overrule or modify decisions of the entity's board, or
The ability to appoint, hire, reassign, or dismiss those persons responsible for the day-to-day operations of the entity.

Examples of a government's financial benefit or burden are as follows:

The government is legally entitled to the entity's resources,
The government has access to the entity's resources,
The government is legally obligated or has assumed the obligation to finance entity's deficit or to provide support,
The government is "obligated in some manner" for the debt of the entity.

Examples of fiscal dependency are as follows:

The government's approval is needed for the entity's budget,
The government's approval is needed for the entity to set taxes or charges, or
The government's approval is needed to issue bonded debt.

SHIFTING THE ECONOMIC LOCUS OF CONTROL: IMPROVING FINANCIAL DECISION-MAKING IN HIGH-RISK POPULATIONS

Pamela P. Stokes, Texas A&M University at Corpus Christi
Sharon Polansky, Texas A&M University at Corpus Christi

ABSTRACT

A previous study of participants in a financial planning class conducted for Chapter 13 Bankruptcy filers revealed positive results as to changes in their behavior and attitudes regarding their personal money management. In addition, these changes appeared to be fairly long term in nature, as opposed to a brief reaction resulting from the initial "halo effect" of the motivational aspects of the class. A follow-up study was done to explore what changed and why. The results indicate a change occurred in the participants' economic locus of control, which may provide at least a partial explanation for the success of the class and related changes in financial decision-making.

One hypothesis for the success of the class is that a shift occurs in participants' locus of control, moving them more toward an internal attribution, thus enabling them to make and execute higher quality decisions about how to use their money. In order to pursue this query, an economic locus of control questionnaire was given in pre-class and post-class settings. The results indicate a change occurred in the participants' economic locus of control, which may provide at least partial explanation for the success of the class and related changes in financial decision-making.

This study has potentially important ramifications in various areas: adult education, preventive education for identified high-risk groups in other subject areas, debtor rehabilitation programs, credit risk analyses, pre-adult financial education, and, on a broader scale, design of legislation and government programs with a rehabilitation component. Possible issues for further research involve specific class content, methodology, the effect of bankruptcy as a change stimulus, secondary and higher education curricula, and self-efficacy measures.

INTRODUCTION AND BACKGROUND

The study discussed in this paper is the second one done in connection with a financial management class offered for bankruptcy filers. A brief description of the class and the results of the first study will set the stage for a discussion of the current research effort.

Under a program sponsored by a regional Chapter 13 Bankruptcy Trustee, people who file for Bankruptcy are required to attend a financial management class. In accordance with one of the stated purposes of the Bankruptcy Act, which is the rehabilitation of the debtor, the course was begun as an effort to help filers resolve their immediate financial issues, pay off their debts faster, and avoid similar problems in the future. The class combines traditional financial planning concepts with

personal motivation and goal-setting techniques. The session incorporates adult education principles, which encourage participation through verbal and written exercises.

As initial post-course evaluations were very positive, the author/instructor wanted to examine the long-term effectiveness of the class. Therefore, a survey was done to determine if the participants used the information presented in the course, and, if so, whether or not they found it to be beneficial in improving their financial situation. Results indicated participants did make positive, lasting changes in their financial management practices (Stokes, 1995). In an effort to discover what changed and why, this second study was formulated to further explore the reasons behind the success of the class. While many complex variables exist in such situations, the factor chosen as the focus of this research is the concept of economic locus of control.

LOCUS OF CONTROL

The locus of control theory proposes that one determinant of human behavior is the degree to which an individual perceives that a reward follows from her own behavior versus the degree to which she feels the reward is controlled by forces outside of herself. If a person perceives that a reward is the result of luck, chance, fate, or the control of powerful others, she believes in external control. If the person perceives the event is based on her own behavior and characteristics, she believes in internal control.

One of the factors studied in the original investigations on locus of control is the effect of external manipulation. Results showed external control subjects yielded more easily to persuasion and conditioning. The individual with internal control is more likely to (a) be aware of useful information; (b) take action to improve his situation; (c) value skill or achievement and pay attention to his ability and failures; and (d) resist subtle attempts to influence him (Rotter, 1966).

One of the primary assumptions behind the original course design for the Chapter 13 classes is that people who are in extreme financial problems are more likely to have an external locus of control. This would lead them to defer to others in making financial decisions, and make them more vulnerable to the many negative influences that exist in American society. For example, those with an external locus would be more likely to take advantage of opportunities for over-extensions of credit, buy unnecessary items due to sales pressure, and let friends talk them into spending more than they can really afford. Another consequence of having an external locus is that people have difficulty accepting responsibility for their situation, as they customarily attribute the cause of their problems to the actions of others. A self-defeating and negative cycle then emerges, as they also do not believe they have the ability to change their troubled circumstances.

The idea that individuals with money problems have more of an external locus is supported by the fact that people in the class usually explain their financial problems as being caused by forces outside of their control (Stokes, 1995). For instance, if the problem is the loss of a job, most debtors say they were fired or laid off, that is, "the company did it to me." A person with a strong internal locus of control might instead say they did not have sufficient savings to tide them over until they found another job, or that they incorrectly assessed the future of their particular position within that company, accepting that "I did it to myself" in some respects. Not accepting individual responsibility for the results of one's actions is clearly related to locus of control issues as they affect one's financial status.

Based on this premise, one of the goals of the class is to make participants aware of the many areas in which they have a financial choice. A second goal is to encourage participants to consciously use that choice in order to improve their financial situation. If these goals are accomplished, the individuals would then be relying on themselves more than others in such decision-making, and moving more toward an internal locus of control in financial matters. These goals parallel the locus of control measures as discussed in Rotter's study.

To test this hypothesis, a pre-post class study was formulated to answer the question of whether the participants' locus of control shifted from an external to an internal one after the class. Rotter's original locus of control concept has been expanded by others to measure numerous specific areas, such as political, health, religious, and work behaviors. In 1986 an economic locus of control scale was developed which was found to have both face and construct validity, and that is the survey instrument used in this project. The scale produced four interpretable factors: internal, chance, external-denial, and powerful others (Furnham, 1966).

THE STUDY

The survey design was to administer Furnham's 40 item questionnaire [see Appendix] to a number of individuals, in person, just prior to the beginning of the financial management class. Post-class questionnaires were then mailed to participants from different class sessions, anywhere from one to twelve months after the classes were held. The results from these two groups were then compared to assess the effects of the class on the participants' economic locus of control scores.

The pre- and post-class groups did not include any of the same individuals, as it was believed that administering the same questionnaire to the same people would unduly bias the responses. Unlike content based pre-post questionnaires, this study explores attitudes and viewpoints, which are more easily influenced by a desire to give the "right" answers. This would be particularly true for external locus of control individuals. As the pre- and post-class groups all have in common the key characteristic of being in severe financial problems, they comprise valid comparison groups for the purposes of this study.

Post-class questionnaires were not administered immediately after the class for a number of reasons. First of all, due to the motivational nature of the class and for the reasons mentioned above, participants may be unduly influenced to give the "correct" answers if the questionnaire were administered right away. Furthermore, a certain amount of time is needed for the participants to consider the ideas presented, try them, evaluate their effectiveness, and then decide to continue to use them or not. Therefore, the periods between one and twelve months after the class were selected to provide a reasonable "incubation" period to use and assess the course materials, and a sufficient period for evidence of a measurable change in locus of control to emerge.

Surveys were administered to 72 pre-class participants, and 58 of these completed usable surveys. Of the ones that were not completed, 8 were due to the inability of participants to read or write at a level sufficient to complete the instrument, and 6 did not wish to participate for unspecified reasons. Post-class questionnaires were mailed to 485 individuals, 8 of which were returned as undeliverable, and 61 of which were completed and returned (12.8% response rate). Coincidentally the number of post-class responses received was almost exactly the same as the number of pre-class responses initially gathered.

RESULTS

This study is concerned with the influence of the financial planning class on shifting the participants' locus of control from an external to an internal orientation. A hypothesis test was performed comparing the survey participants' responses to the economic locus of control questionnaire before and after taking the class. The hypothesis is that there would be a significant increase in the percentage of respondents agreeing with those statements on the questionnaire that reflected an internal locus of control.

As shown in the following table, differences were computed between the percentage of participants agreeing with each of the forty statements in the questionnaire before and after taking the class. A hypothesis test was performed to determine if there had been a significant increase in the percentage of participants agreeing with those statements reflecting an internal locus of control. Those statements are:

2. Saving and careful investing is a key factor in becoming rich.
3. Whether or not I get to become wealthy depends mostly on my ability.
5. Anyone can learn a few basic economic principles that can go a long way in preventing poverty.
19. In the long run, people who take very good care of their finances stay wealthy.
31. If I become poor, it's usually my own fault.
36. I am usually able to protect my personal interests.
38. My life is determined by my own actions.

A Z test-statistic was computed for each of the forty statements. At the 5% significance level (with a critical Z value of 1.645), there were significant increases for statements 2, 3, and 5. The increase for statement 31 was significant at the 10% level (with a critical Z value of 1.282). While there were increases for statements 19, 36, and 38, they were not significant at the 5% or 10% levels.

Question #	Pre-class: Percentage Who Agree	Post-class: Percentage Who Agree	Difference	Z-statistic	Significant Increase at 5% Level
#1	63.6%	56.1%	-7.5%	-0.80894	No
#2	78.2%	95.0%	16.8%	2.675096	Yes
#3	72.2%	86.7%	14.4%	1.918851	Yes
#4	32.1%	40.0%	7.9%	0.874315	No
#5	79.6%	93.3%	13.7%	2.161223	Yes
#6	32.1%	43.3%	11.3%	1.230058	No
#7	44.4%	60.0%	15.6%	1.660879	Yes
#8	61.1%	65.0%	3.9%	0.429793	No
#9	30.2%	31.7%	1.5%	0.169567	No
#10	20.8%	20.3%	-0.4%	-0.05438	No

Question #	Pre-class: Percentage Who Agree	Post-class: Percentage Who Agree	Difference	Z-statistic	Significant Increase at 5% Level
#11	56.6%	75.0%	18.4%	2.065661	Yes
#12	75.9%	76.3%	0.3%	0.042991	No
#13	35.2%	50.0%	14.8%	1.595388	No
#14	13.5%	26.7%	13.2%	1.725321	Yes
#15	43.4%	44.1%	0.7%	0.071531	No
#16	28.3%	39.0%	10.7%	1.192021	No
#17	32.1%	36.7%	4.6%	0.512307	No
#18	20.8%	16.7%	-4.1%	-0.55753	No
#19	81.1%	83.3%	2.2%	0.305962	No
#20	78.4%	85.2%	6.8%	0.937748	No
#21	41.2%	49.2%	8.0%	0.847049	No
#22	12.2%	11.5%	-0.8%	-0.12425	No
#23	60.8%	60.7%	-0.1%	-0.01388	No
#24	25.5%	18.0%	-7.5%	-0.95786	No
#25	61.5%	48.3%	-13.2%	-1.39952	No
#26	92.2%	91.8%	-0.4%	-0.06855	No
#27	38.5%	48.3%	9.9%	1.050302	No
#28	24.0%	44.3%	20.3%	2.224854	Yes
#29	49.0%	49.2%	0.2%	0.016944	No
#30	17.6%	20.0%	2.4%	0.31543	No
#31	47.1%	60.7%	13.6%	1.438962	No
#32	37.3%	33.3%	-3.9%	-0.4313	No
#33	31.3%	20.0%	-11.3%	-1.34164	No
#34	38.3%	45.9%	7.6%	0.792282	No
#35	61.7%	70.0%	8.3%	0.901577	No
#36	76.1%	80.0%	3.9%	0.484417	No
#37	95.7%	88.5%	-7.1%	-1.31505	No
#38	87.0%	91.8%	4.8%	0.81725	No
#39	26.1%	40.0%	13.9%	1.499096	No
#40	23.9%	31.1%	7.2%	0.82478	No

CONCLUSIONS

As was hypothesized, participation in the financial planning class was associated with a shift in the participants' locus of control to an internal orientation. When comparing pre- and post-class

survey responses, statistically significant increases were found in the percentage of respondents agreeing with statements identifying an internal locus of control over economic status. Perhaps as important, the data do not reveal significant increases in percentage of respondents agreeing with statements identifying external factors, chance, or powerful others as determinants of their financial condition.

Sample size is somewhat small, and if the study were redone with larger data sets it would probably show a lower significance level.

On the whole, however, this study indicates the course is successful in achieving a shift in participants' locus of control from an external to an internal attribution. The resulting improvement in their financial condition is at least partially explained by this change in orientation.

OPPORTUNITIES FOR FURTHER RESEARCH

There are other variables which may influence the participants change in their financial management practices instead of, or in addition to, locus of control factors. Further research into these areas is needed. This study, however, clarifies certain suppositions regarding these other variables. One explanation for the changes may simply be the knowledge gained regarding skills-based traditional money management concepts, such as budgeting techniques. While such knowledge acquisition is probably a factor, this study demonstrates that a person's capacity to seek out and use such information is probably enhanced by the course. After all, such information has always been available from a great variety of sources, but apparently not very many of these individuals took advantage of it. This conclusion is also supported by Rotter's findings.

Another explanation may be that the simple fact of being in bankruptcy (as opposed to the class) motivates people to change their financial habits. While this is probably true to some extent as well, the pre- and post-class groups clearly differed from one another, even though both had been in bankruptcy for equivalent time periods. The results from Stokes' previous study combined with results cited herein indicate the effectiveness of the course is an important influence on participants' behavior.

An important factor to note is that the class involved in this study is a very brief one, consisting of only three hours. The opportunity to present the material in a longer time period might produce stronger results, as the chance for in-depth discussion and exploration of the concepts would be enhanced. If a short class is this effective in changing participants' behavior, then a longer class might be even more beneficial.

The related psychological concept of self-efficacy may also be involved here. It is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986). A literature search revealed no studies regarding the relationship between locus of control and self-efficacy in the field of economic behavior. Certain aspects of the class, however, seem to relate to this idea as well, and deserve further exploration.

Yet another influence on the effectiveness of the class is the teaching style of the instructor. In the current study, the materials are designed and the class conducted by the same individual, who is an experienced educator. The presentation therefore incorporates many of the author's personal practices, beliefs, and experiences in the area of money management in addition to her experience in teaching. While the impact of individual facilitators is difficult to assess, the unique characteristics

of this situation may affect the results obtained. Further research could be conducted using the same materials but different instructors.

The individual characteristics of gender, race/ethnicity, income-level, and age may be influential as well. Various locus of control studies have explored correlations within these variables. While the authors plan to further analyze the results using the demographic data collected, no results are currently available.

REFERENCES

Bandura, A. (1986). *Social foundations of thought and actions: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Furnham, A. (1986). Economic locus of control. *Human Relations, 39*(1), 29-49.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological monographs: general and applied, 80*(1), 1-28.

Stokes, P. (1995). Moving from bankruptcy to solvency. *Business Credit,* 97(6), 20-25.

APPENDIX

Furnham's Economic Locus of Control Questionnaire

Responses were based on a 7 point Likert scale, with 1 being Strongly Disagree and 7 being Strongly Agree.

1. Becoming rich has little or nothing to do with chance.
2. Saving and careful investing is a key factor in becoming rich.
3. Whether or not I get to become wealthy depends mostly on my ability.
4. Accountants can rarely do very much for people who are poor.
5. Anyone can learn a few basic economic principles that can go a long way in preventing poverty.
6. To a great extent my life is controlled by accidental happenings.
7. People's poverty results from their own idleness.
8. Social workers relieve or cure only a few of the financial problems their clients have.
9. I feel that my finances are mostly determined by powerful people.
10. There is little one can do to prevent poverty.
11. No matter what anybody does, there will always be poverty.
12. When I make plans I am almost certain to make them work.
13. Whether or not people get rich is often a matter of chance.
14. People who never become poor are just plain lucky.
15. Often there is no chance of protecting my saving from bad luck happenings.
16. The seriousness of poverty is overstated.
17. When it comes to wealth, there is not such thing as "bad luck."
18. When I get what I want, it's usually because I'm lucky.
19. In the long run, people who take very good care of their finances stay wealthy.

APPENDIX

Furnham's Economic Locus of Control Questionnaire

Responses were based on a 7 point Likert scale, with 1 being Strongly Disagree and 7 being Strongly Agree.

20. Relief from poverty requires good hard work more than anything else.
21. Although I might have ability, I will not become better off without appealing to those in positions of power.
22. In the Western world, there is really no such thing as poverty.
23. Becoming rich has nothing to do with luck.
24. How many friends I have depends on how generous I am
25. Most people are helped a great deal when they go to an accountant.
26. There are a lot of financial problems that can be very serious indeed.
27. People like myself have little chance of protecting our personal interests when they are in conflict with those of strong pressure groups.
28. Regarding money, there isn't much you can do for yourself when you are poor.
29. Politicians can do very little to prevent poverty.
30. It's not always wise for me to save because many things turn out to be a matter of good or bad fortune.
31. If I become poor, it's usually my own fault.
32. Financial security is largely a matter of fortune.
33. Getting what I want financially requires pleasing those people above me.
34. Whether or not I get to be well-off depends on whether I'm lucky enough to be in the right place at the right time.
35. I can pretty much determine what will happen to me financially.
36. I am usually able to protect my personal interests
37. When I get what I want, it's usually because I worked hard for it.
38. My life is determined by my own actions.
39. It is chiefly a matter of fate whether I become rich or poor.
40. Only those who inherit or win money can possibly become rich.

CREATING A DUAL IDENTITY IN FINANCIAL MANAGEMENT EDUCATION: INNOVATIVE LEARNING OPPORTUNITIES FOR ALL MAJORS

Nini Yang, Clayton College & State University
Michael H. Deis, Clayton College & State University

ABSTRACT

In today's business world, as well as for personal well-being in the future, it has become increasingly important for almost everyone to (a) have a basic understanding of finance and, (b) develop some specific financial management skills. Although a typical business school's curriculum offers a wide variety of courses, oftentimes students of non-business majors are not aware of available learning opportunities. This paper focuses on three areas of innovation: (1) integrating concepts and issues of finance in non-finance courses, (2) promoting financial management courses in and beyond the School of Business, and (3) using computerized tools to facilitate teaching and learning. Implications from conceptualization of innovative teaching and learning methods and gained first hand experiences are discussed.

INTRODUCTION

Finance is an area of high complexity to many students, including both business and non-business majors, and is often seen as being stressful because of the difficulty involved in mastering the material. Business students tend to find ways to postpone required finance courses in the core area, and few would choose a finance course to satisfy major-related electives if other alternatives were available.

How students perceive finance courses may or may not be accurate, depending on specific areas and the course levels of the concerned students. True-life experiences have indicated, however, that perception often outweighs reality. Fear of finance-related topics tends to discourage learning, reduce enrollment in finance education, and lead to potential weaknesses in financial management skills that are vital to corporate success and quality of lives for people from all ranks. As shown by a recent national survey (Lynch, 1995), about 79% of the respondents had no specific and well-defined financial goals, and many college students are not nearly as disciplined (Lohse, 1995). Major obstacles to financial planning and effective financial management include unwillingness to save, a natural tendency to procrastinate, and a lack of knowledge (Rejda & McNamara, 1998).

The premise of this paper is that a basic understanding of finance is necessary for students of all majors in higher education. The key issue is how to design and market relevant courses. This paper explores innovative teaching and learning opportunities in the area of finance for all majors. Based on recent data and experiments, this paper also provides practical implications from conceptualization and gained first-hand experiences.

This paper is organized in three parts. The first part discusses the general history of initiating and establishing the dual identity of finance-related courses. The second part analyzes some specific implications of course innovations and, more specifically, the use of an Information Technology Project (ITP) to reduce fear and encourage students of all majors to learn finance. The third part examines the impact of integrating finance topics into non-finance courses, such as mathematics courses where *MathSoft StudyWorks* is used instead of calculators.

A SHORT HISTORY OF ESTABLISHING A DUAL IDENTITY OF FINANCE-RELATED COURSES

In order to have a better understanding of the dual identity of finance-related courses, one must understand what is meant by the dual identity of a course and the unique benefits it offers towards proficient finance education. As one example, at Clayton College & State University (CCSU), students are permitted to take a course which is shown as having a dual identity in the college catalog (e.g., FINA 407/MGMT 407, Personal Financial Management). This permits students of all majors the flexibility to choose either FINA or MGMT as the course identity, whichever course title is more helpful towards their respective final degrees and future career opportunities. In addition, to encourage students of all majors to learn finance, Corporate Finance (FINA 301) has been eliminated as a prerequisite for FINA 407/MGMT 407. This has resulted in many students taking the dual identity course who would not ordinarily have done so. There are several reasons why the dual identity of a finance and management course was initially proposed for the curriculum.

On the one hand, demographic changes in the U.S. population are reshaping the markets for many products and services, including higher education (Yang, 1997; 1998). Prior to the 1980's, college students were primarily recent high school graduates who were studying full time to obtain higher degrees. This traditional student population is shrinking dramatically. On average, today's students are older, with over 50% of all students enrolled in American colleges and universities being 25 years of age or older. Many of these students are non-traditional. They tend to be married, working, and have household costs or child care responsibilities (see American Council of Higher Education, 1993; Moore & Diamond, 1995; Rice, Solis, Roger & Dalton, 1996; Yang, 1997; 1998). As a result, students are becoming more cost-sensitive and concerned about getting deeply in debt.

On the other hand, with the exception of Corporate Finance (FINA 301), which is a required core for all business majors, enrollments are historically low in finance courses (e.g., Investments, Personal Finance, etc.). From discussions with students and according to student surveys, which will be discussed below, it has become obvious that (a) business majors need personal advice for financial planning and management, but most do not know where to turn for advice, (b) non-business majors are unaware of existing opportunities for basic training in financial management, and (c) in general, the historical low enrollments in finance are due to students' perceived high complexity of financial concepts and their concerns about the difficulty and stress level involved in mastering the course material.

To meet the academic as well as personal needs of today's diversified students in higher education, it has become imperative that colleges and universities must be innovative in their teaching methods, course designs, and student advisement. In this regard, the call for timely innovative learning opportunities in the area of finance was further ascertained by the student survey feedback.

STUDENT SURVEY AND FEEDBACK

In the fall of 1997, marketing and management majors were given survey questionnaires to express their beliefs related to having a dual identity course. Below are just some of the comments from students requesting such a course.

> "I believe courses offered on household budgeting and information about making investments would be beneficial. The average person does not know very much about the stock market or other investments in order to make wise decisions to save for retirement. Household budgeting would also be a great topic to offer considering the average family has credit card debts of $6,000 - $7,000 and filing for bankruptcy is becoming a quick fix for debt problems."

> "For personal financing topics, I would like to know more about choosing between various investment options such as mutual funds, stocks, CD's and 401K's. Also, how to evaluate various stocks would be an informative topic for almost everyone. I am also interested in learning how to decide how much of my money should go into short-term investing (for easy liquidity for emergencies) and how much should be put into long-term investments (like mutual funds or the stock market). Another interesting topic is how to decide what percentage should go into aggressive investments and into conservative investments. Various investment strategies would also be interesting."

> "I have always wanted to take an investment course. I am involved in the stock market and have learned a lesson the hard way. Knowledge is the key before investing. My suggesting for anyone investing in the stock market is to learn all you can before you invest and remember that the stockbroker makes mistakes too. A personal finance course that stresses investments is a good course to offer at Clayton State every quarter. It is a much needed course since people are seeking long-term investments for their future."

> "I think we need a course on personal finance to include investing. It should cover the different types of IRAs, stocks, bonds, treasury bills, and mutual funds, and should focus on how to determine which investment devices are best for individuals based on their future planning goals."

> "As a purchasing agent for a medium sized firm based here in Georgia, I feel the skills that I have learned at Clayton State are beneficial to me. However, I am able to handle large transactions that occur overseas, but when the company asked me to decide between three different ways to invest my 401K and profit sharing funds, I couldn't clearly make a decision on my own. Investing courses are lacking in the school of business."

"I think it would be very beneficial for me to have a personal finance course. Being a college student, I could use a class that would help me control my debt. Not only would that benefit me now, but in the future also. I also think that we need some help in the basic understanding of the stock market. I had a marketing professor do this, but I do not think it should be learned in marketing. I think it is something I should learn in a finance course."

"I would like to see more courses taught about planning for one's individual future. This includes investing in the stock market, 401 K's, mutual funds, and IRA's. Once an individual understands the related material it will help them in their current job position, as well as in their personal future."

"The finance classes that I feel would really assist me are personal finance, investing, and financial planning. I think financial planning should be a mandatory course. With the increase in credit card debt and the possibility of no social security college students should learn financial planning."

"The college should think about having a course on the stock market. Everyone has some general knowledge of the stock market but most do not understand how it works. We should be able to take part in the market and make smart choices."

"I would benefit greatly from some personal finance, investing, and courses on small businesses. More and more people are not adequately educated when it comes to their personal finances. Before they know it, retirement creeps up and they are not prepared. These courses would be personally rewarding."

" I do not have a clue on how to invest my money and what to invest it in. Also, I do not understand what happens when the stock splits."

In summary, the survey received clear and positive students' feedback, ascertaining the need for a timely training opportunity in personal finance. The survey also indicated a large scale of difference in students' familiarity with the vocabulary of technical terms in personal finance. Now, the challenge has turned to the faculty to innovate course designs and effective teaching methods in order to fit students who have varying degrees of familiarity with finance into taking the personal finance course together. As introduced early, this is made possible by lifting major restrictions to dual identity courses such as Personal Financial Management (FINA 407/MGMT 407).

COURSE INNOVATION

Socioeconomic changes in the U.S. society have been forcing people to take personal responsibility for their financial well-being and manage their own financial needs wisely. The trouble is that many people are not able to make the best choices and, if their choices are poor, their future income will not live up to its potential (Quinn, 1994). Consequently, personal finance is more respectable than in the past and, as such, has become an attractive topic for students around campus. In addition, for marketing and management majors entering workplace, it is estimated that those who have an additional training background in investment and personal finance may stand out in the crowd. It is also speculated that there is a need for students taking courses in economics and human resource management to see the importance of personal finance as it relates to economic changes and new trends in employee benefit options and employee assistance programs.

Thus, Personal Financial Management of a dual identity (FINA 407/MGMT 407) was initiated, developed, and integrated in the CCSU School of Business catalog. The course offers some excellent examples of opportunity costs involved with personal financial strategies (e.g., students are given examples that show them the opportunity costs of investing their money elsewhere instead of purchasing a new car, alternative ways of borrowing and debt management, financial planning of an individual's life cycle, etc.). The course also gives investment advices and cases to show the importance of knowledgeable personal financial planning and management.

As was stated previously, surveys distributed to students indicated a need for finance-related training, particularly in personal financial management, whereby courses should be: (a) designed in a non-threatening manner, (b) promoted both in and beyond the traditional School of Business disciplines, but yet (c) sophisticated to the extent that the learning will be beneficial toward students' marketability upon graduation and better quality of lives in a long run. By listing the course as having a dual identity (e.g., FINA 407/MGMT 407), the course, by design, appears to be less threatening to management and marketing majors. For these majors, it is important that they see the relevance of integrating real life issues into a finance course for their own personal benefit rather than just viewing the course as another degree requirement. By eliminating Corporate Finance (FINA 301) as a prerequisite, the traditional major restrictions are lifted to welcome students from outside the School of Business.

THE INFORMATION TECHNOLOGY PROJECT (ITP) AND ITS IMPACT ON FINANCIAL MANAGEMENT EDUCATION

Advances in technology are changing the traditional classroom and curricula. Access to information technology is at the center of this new paradigm as education institutions develop implementation plans that increase computer usage in teaching and learning, and extend the classroom with the world wide web. In the spring of 1997, as one example, the Board of Regents of the University System of Georgia approved a bold and perhaps controversial information technology project (ITP) for two of its 34 institutions of higher education (Cartwright, 1997), Clayton College & State University and Floyd College. Beginning in the fall of the same year, Clayton College & State University, a major partner of the ITP, took a giant leap by issuing laptop computers to all its

students for their exclusive use while pursuing college degrees. The goal of the ITP is to improve instruction and advance student achievement.

The ITP implementation has revealed substantial impacts on how personal financial management is taught and what additional possibilities might be offered. First, it has made it possible for individual students to take a full advantage of the interactive learning process via virtually unlimited access to e-mail, the Internet, the world wide web, and GALILEO (Georgia's statewide electronic library system). Second, the use of information technology has helped to build up students' interest and excitement about the course topics. Information technology is essential to the course of personal financial management not only as an end result (skills for future research and planning) but also as a means for acquiring the education and training in personal finance. Third, easy access to information networks combines interactive learning and self-paced study both on- and off-campus. It empowers individual students by letting them identity areas of personal interests and weakness, implement the learning process at their own pace, and seek knowledge as relevant to the course. All this has helped to enhance students' interest in the course content, increase their self-confidence in mastering the course material, and improve their active participation in the effective teaching and learning process.

Thus we are able to provide students with an innovative, technology-rich personal financial management course. Relevant to personal finance, a conceptual understanding should be advanced through problem solving, reasoning, and modeling finance applications through the use of technology. This effort is supported by the top down commitment of the whole institution and actualized through faculty cooperation across disciplines.

Faculty members in the School of Business, and specifically professors of finance related courses, have developed innovative teaching methods in both corporate finance and personal financial management whereby searching and analyzing resources via information technology is an integral part of each student's learning experience. It is important to note that all students at the college, regardless of their majors, have access to the web pages of the corporate finance and personal financial management courses. This access makes it possible for professors of other disciplines (e.g., professors of accounting, management or marketing) to introduce finance-related topics in their courses. In addition, the remote access provided to all students enables the students to use a standard telephone outlet to dial into the campus network and thus be able to do self-paced study on-and-off campus. At the same time, if technical problems are encountered, students can seek technical help from the CCSU web page, the CCSU Technology Store, and from taking Notebook 101, a one hour course of introduction to laptop computers.

EXPANDING FINANCIAL MANAGEMENT EDUCATION TO ALL MAJORS

Professors have already begun taking advantage of the information technology project to dramatically enhance the quality of education offered to the students. Students have access to course syllabi, power point presentations and lectures posted in the dual identity courses' web page, easy access to stock market quotations viewed on the financial management web sites, and listed web sites in the personal finance and corporate finance areas. In addition, students, even those not taking finance courses, have access to the calculator section of the personal finance web page. This section includes calculators to be used in such areas as mortgage amortization, car loans, credit loans,

retirement calculations, tuition reimbursement, and investment calculations. Calculators to be used for calculating present value, future value, and break-even points are also available to the students.

Mini courses are provided to assist the students in learning how to use their computers and how to access applicable topics on the web. Self-study programs are also available that provide additional opportunities for students to learn financial management topics, the use of e-mail, bulletin broads, discussion zones, and chat rooms. Personal Investment web sites provide a stimulating environment for students to learn about personal financial management. Thus, prior to taking an elective course in financial management, students of all majors are provided equal access to check on the design, contents and teaching and learning methods of the course of interests.

As an additional stimulus, students in the FINA 407/MGMT 407 course have access to LearnLinc I-Net, a distance learning system to integrate real-time audio with Internet connectivity to create a virtual classroom (LearnLinc, 1997). Corporate Finance has already been incorporated into a LearnLinc setting and the Personal Financial Management course is currently being implemented into such a setting. LearnLinc is unique in that it permits to have live interactive sessions with experts in their field (similar to a chat room) or the students may work with course materials on their own. In the case of personal finance, the LearnLinc Library Browser provides access to courses and resources. For example, students using the LearnLinc system have access to all tools available on the Personal Financial web page at CCSU. These tools include lecture notes, linkage to major financial web sites, a News Stand, a list of available projects in the personal finance areas, a bulletin board, a discussion zone, calculators, and FAQ's. Students in most business courses are already using the calculators. When they do, they are on the Personal Finance web page, and as such, are gaining an insight into the personal finance area.

If the ITP project is successful (as far as the personal finance area is concerned), CCSU should be well on its way towards establishing the college as a leader in using information technology as a means of introducing personal finance concepts. An on-line personal finance course is currently being developed, which will be offered during the 1998-99 academic year. Once available, it will allow students to work at a more leisurely individualized pace than in the classroom. In addition, computer software should help demonstrate the importance of the topic areas and give additional instruction on the topics.

INTRODUCING FINANCE-RELATED TOPICS IN *MATHSOFT STUDYWORKS* APPLICATIONS IN MATHEMATICS COURSES

By tradition, mathematics courses are taught in a way that concepts and formulas are not effectively linked to problem solving applications in the world of business. Since Clayton College & State University has provided notebook computers for each student, it has become possible to use a computer software program titled *MathSoft StudyWorks* for all calculator applications in the college algebra courses. *MathSoft StudyWorks* is a full-screen graphing and calculating tool, a math work processor, a computer algebra system, and a reservoir of facts and formulas (MathSoft Inc., 1996). Specific problems and formulas relevant to personal finance are presently being developed by professors in the School of Business with a goal of integrating those problems and concepts into the *MathSoft StudyWorks* program. In addition, beginning in the fall of 1998, *MathSoft StudyWorks* will also be used in the Business Calculus course at CCSU.

The integration of personal finance related problems and concepts into the *MathSoft StudyWorks* program permits the creation of formulas for problem solving in finance, such as present and future value calculations in a course of mathematics. It has made it possible to familiarize students with finance related topics from an earlier stage in their higher education. Although the *MathSoft StudyWorks* program is primarily designed for mathematical applications, it is a generic tool with no curriculum agenda (MathSoft Inc., 1996). For financial applications, it can be used for data analysis, model building, and report writing.

In our experience, *MathSoft StudyWorks* is important to the dual identity course because it provides the opportunity for students to be introduced to personal financial management at all levels of their collegiate career. One of the main applications of the *MathSoft StudyWorks* is that it is possible to create finance formulas, write texts, and solve problems.

CONCLUSION

The evidence presented in this paper indicates that a knowledge of personal finance is more respectable than in the past, and as such, has become an attractive topic for students around campus. In addition, for marketing and management majors entering the workplace, we argue that an additional training background in finance may give the students an edge in planning their financial future. For students in non-business disciplines, the dual identity of the finance-related courses offers them an excellent opportunity, as well as information technology enhanced flexibility, to learn personal finance and financial management tools. The innovative course design and teaching methods give students the opportunity to see the relevance of integrating real life issues into a course for their own personal benefit rather than just viewing the course as another degree requirement.

Unlike many conventional finance courses, the dual identity personal finance course is taught in a non-threatening manner while maintaining and, to certain extent, enhancing the quality of education. The plan and the implementation of the course acknowledge that all students have a need to understand personal finance. The course proposes and experiments interactive and self-paced learning methods to teach non-finance majors financial planning. Although by tradition many students are apprehensive about their ability to comprehend any course associated with finance, the dual identity course of personal finance (FINA 407/MGMT 407) appears to arouse an interest from the majority of the students enrolled in carefully planning their personal financial future. The lessons learned through the course may have a direct personal impact on each student. Wittingly or unwittingly, students are learning the integral root mechanisms that drive the market and broaden their own ability to understand the full-scale personal finance machinery that many find intimidating.

The premise of the dual identity course is that it is possible to manage fear in order to achieve proficient education in the area of finance. Our experiments, however, are exploratory in nature and their long-term impacts are not yet visible. Future studies and experiments are needed to validate the interactive and self-paced learning methods, which are integral to the concept and implementation plans of dual identity courses in finance.

REFERENCES

American Council of Higher Education (1993). "Part-time students being shortchanged", *U.S. Today Magazines*, Aug., v. 122, no. 2597, pp 14-15.

Cartwright, G.P. (1997). "Three years and eight days." *Community College Page: http:// contact.kent.edu/change/articles/julaug97.html,* August 20.

De Cenzo, D. A. & Robbins, S. P. (1996). *Human Resource Management*, John Wiley & Sons, Inc., p. 388.

LearnLinc (1997). *LearnLinc I-Net Participant's Guide*, pp. 13.

Lohse, D. (1995). "Students can learn a lesson on budgeting", *The Wall Street Journal*, Dow Jones & Company, August 25, pp. C1, C19.

MathSoft Inc. (1996). *MathSoft Study Works!* MathSoft International, Cambridge, MA.

Merill Lynch & Inc. (1995). "Confronting the savings crisis, perceptions and attitudes about retirement and financial planning", *The Seventh Annual Merrill Lynch Retirement and Financial Survey*. Princeton, NJ: p. 22.

Merill Lynch & Inc. (1994). *The Merill Lynch Baby Boom Retirement Index*, July 14, p. 2.

Moore, M.R. & Diamond, M.A. (1995). *The Challenge of Change in Business Education.* Earnest & Young Foundation.

Quinn, J. B. (1994). "Is your 401K OK?" *Newsweek*, Sept. 19, pp. 44-45.

Rejda, G. E. & McNamara, M. J. (1998). *Personal Financial Planning*, Addison-Wesley Educational Publishers Inc. pp. 5-6.

Rice, L.T., Solis, M.M., Roger, J.J. & Dalton, M.L. (1996). "Surgical clerkship performance of traditional and nontraditional students in a problem-based learning environment", *American Journal of Surgery*, 172, 3, pp. 283-285.

Yang, N. (1997). The rising learning age: Benefits and challenges, *Academy of Educational Leadership Proceedings*, Allied Academies International Conference, Oct. 14-17, pp. 4-7.

Yang, N. (1998). The rising learning age in the U.S. higher education: Proposing a theoretical framework for strategic planning, *Journal of Educational Leadership,* forthcoming.

AN INTEGRATED APPROACH TO ALTERNATIVE CAPITAL BUDGETING TECHNIQUES, MUTUALLY EXCLUSIVE PROJECTS, AND CONSISTENCY WITH THE NET PRESENT VALUE RULE

David Cary, California State University, Northridge

ABSTRACT

Alternative capital budgeting techniques are usually presented as a set of somewhat unrelated methods for the acceptance or rejection of a project. Managers seem to prefer the Internal Rate of Return (IRR) method for their decisions while academics support the Net Present Value (NPV) method. It is well noted that the IRR method, which determines an interest rate which makes the NPV of a project equal to zero, is related to the NPV technique. However, other techniques, such as the Modified Internal Rate of Return (MIRR) or Financial Management Rate of Return (FMRoR), the Equivalent Annual Annuity (EAA) and the Profitability Index (PI), which are presented as alternatives to IRR and NPV, are not usually shown to be derived from the NPV method. This paper derives the equations for calculating the MIRR, FMRoR, EAA and PI methods directly from NPV. Deriving the alternative methods as functions NPV not only gives an integration to the capital budgeting procedures, but also shows how this approach can be used with the alternative methods to overcome problems when comparing mutually exclusive projects that require difference size investments (scale problem) or have different lives (unequal life problem).

The contributions of this paper are showing, mathematically, the direct relationships between the alternative capital budgeting techniques as well as deriving solutions for the scale and unequal life problems for the alternative methods when comparing mutually exclusive projects.

INTRODUCTION

The goal of management of a publicly traded firm is generally accepted to be to maximize the value of the firm to the existing shareholders (Brigham and Gapenski, 1994, page 14; Ross, Westerfield and Jaffe, 1996, page 15). When making capital budgeting decisions, the Net Present Value method (NPV) has been shown to be consistent with the goal of value maximizing, except in some cases of capital rationing (Brigham and Gapenski, 1994, pages 512-514). For independent projects, where the acceptance of one project does not affect the acceptance or rejection of another other project, the Modified Internal Rate of Return (MIRR), the Profitability Index (PI), the Equivalent Annual Annuity (EAA), and generally, the Internal Rate of Return (IRR) will give the same decision as the NPV method.

However, when choosing between mutually exclusive projects, where the acceptance of one means the rejection of all other projects, the alternative methods may give decisions that are not consistent with NPV. The potential lack of consistency is caused by one or more of the following factors:

1) differences in the size of the investment in the projects, the *scale problem*,
2) differences in the lives of the projects, and/or
3) differences in the risk classes of the alternative projects.

The problem of different lived projects can be further broken down into 2a) repeatable and 2b) non-repeatable projects. When projects have different lives and are repeatable in the future, then comparing the simple NPV's of the projects may not give the correct decision. It may be necessary to repeat each project to a common ending point (replacement chain approach), truncate the longer project to the length of the shorter project, or use the Equivalent Annual Annuity method.

Even when projects have the same size investments, have the same life, and are in the same risk class, differences in the patterns of cash flows over the life of the projects can cause inconsistencies between NPV and IRR (Fisher 1930).

This paper examines the conditions which can cause the inconsistent results and, by showing the relationship between the various methods and net present value, derives modifications to the alternative capital budgeting techniques to give decision rules which are consistent with NPV.

INCONSISTENCY OF RESULTS

Exhibit #1 has three projects, A, B and C that are assumed to be in the same risk class. Projects A and B have the same life, but different initial outflows. Project A and C have the same initial outflows, but last for different lengths of time. The alternative capital budgeting techniques give different rankings for the three projects (Exhibit 1A):

- Net Present Value ranks project B first, project A second, and project C third.
- The Internal Rate of Return and the MIRR methods give the opposite ranking with C as the best and B as the worst.
- The Profitability Index ranks A as the best and B as the worst.
- Finally the Equivalent Annual Annuity method selects B as best, and ranks A as the worst.

Exhibit #1 (Cost of Capital: 12.00%)			
Year	Project A	Project B	Project C
IO	$(1,000.00)	$(5,000.00)	$(1,000.00)
1	298.32	0	445.26
2	298.32	0	445.26
3	298.32	0	445.26
4	298.32	0	-
5	298.32	9,212.18	-
#1A: Unadjusted Calculations			
PV(FCF)	$1,075.36	$5,227.24	$1,069.43
IO	$(1,000.00)	$(5,000.00)	$(1,000.00)
NPV	$75.36	$227.24	$69.43
IRR	15.00%	13.00%	16.00%
TV	$1,895.15	$9,212.18	$1,502.48
MIRR	13.64%	13.00%	14.53%
PI	1.075	1.045	1.069
EAA	$20.91	$63.04	$28.91

THE MODIFIED INTERNAL RATE OF RETURN

The MIRR was developed to overcome the problem of inconsistency between Internal Rate of Return and NPV. The MIRR is similar to the Financial Management Rate of Return (FMRoR) that is frequently used in real estate analysis (Findlay and Messner, 1973). However, for real estate analysis, the calculation of the FMRoR may use an interest rate different than the cost of capital in the calculation of the Terminal Value.

The traditional method of calculating the MIRR, is to first compound the future cash flows of the project, at the cost of capital (k), to the end of the project (Dudley, 1972; Meyer, 1979; Nicol, 1981). This compounded value is called the terminal value. The second step is to calculate MIRR which is the interest rate which will make the initial outflow of the project grow to the computed terminal value. An alternative method of calculating the Terminal Value, derived by Cary and Dunn (1997), is to compound the present value of the future cash flows, which is equal to the Net Present Value of the project plus the initial outflow, to the end of the project, at the cost of capital.

$$TV = \sum_{t=1}^{n} CF_t * (1 + k)^{n-t}, \text{ and}$$

$$TV = (IO + NPV) * (1 + k)^n$$

$$TV = IO * (1 + MIRR)^n, \text{ or}$$

$$MIRR = \left(\frac{TV}{IO} \right)^{1/n} - 1$$

$$MIRR = \left(\frac{(IO + NPV)(1 + k)^n}{IO} \right)^{1/n} - 1$$

$$MIRR = (1 + k)\left(1 + \frac{NPV}{IO} \right)^{1/n} - 1 \quad (Eq.\ 1)$$

Equation 1 shows the direct relationship between NPV and MIRR. However, as shown in Exhibit #1A, the MIRR for mutually exclusive projects that have different initial outflows, or different lives, may give results that are inconsistent with NPV when the projects require different initial outflows or have different lives. Cary and Dunn [1997] showed that a modification to the traditional method of calculating the MIRR would adjust for projects with different initial outflows. The adjustment is to use the largest initial outflow (IO*) for all of the projects in the calculation of both the Terminal Value and the MIRR. The results of the adjusted MIRR are consistent with NPV. The calculations in Exhibit #2, which adjust for the difference in the initial outflows, show that the adjusted MIRR now ranks project B ahead of project A, consistent with the NPV ranking.

$$Assume\ NPV_A < NPV_B\ and\ IO_A < IO_B$$
$$let\ IO* = IO_B$$
$$TV*_A = (IO* + NPV_A)(1 + k)^n < (IO* + NPV_B)(1 + k)^n = TV*_B$$
$$MIRR*_A = \left(\frac{TV*_A}{IO*}\right)^{1/n} - 1 < \left(\frac{TV*_B}{IO*}\right)^{1/n} - 1 = MIRR*_B$$

Exhibit #2: A and B Adjusted for Differences in Initial Flow		
IO*	$5,000.00	$5,000.00
MIRR*	12.34%	13.00%
PI*	1.015	1.045

The equations derived above, can be modified to show the direct relationship between the modified internal rate of return and the NPV.

$$MIRR = \left[\frac{TV*}{IO*}\right]^{1/n} - 1 = \left[\frac{(IO* + NPV)(1+k)^n}{IO*}\right]^{1/n} - 1$$
$$MIRR = (1+k)\left(1 + \frac{NPV}{IO*}\right)^{1/n} - 1$$

A different adjustment is made for projects that have different lives and are non-repeatable. The adjustment is to use the life of the longest project (n*) as the life for all projects. Exhibit #3 shows the adjusted calculations for projects A and C. Using the life of the longest project for all of the calculations compounds the terminal value of shorter projects, at the cost of capital, to the end of the longest project so that they can be compared on a standard basis.

$$MIRR* = (1+k)\left(1 + \frac{NPV}{IO}\right)^{1/n*} - 1$$

Exhibit 3: A and C Adjusted for Different Lives			
	A		C
n*	5		5
MIRR*	13.64%		13.51%
EAA*	$20.91		$19.26

For projects with different initial investments and different lives, both adjustments can be made as shown in Exhibit #4.

$$MIRR* = (1+k)\left(1+\frac{NPV}{IO*}\right)^{1/n*} - 1$$

Exhibit #4: A, B, and C Adjusted for IO* and n*			
	A	B	C
IO*	$5,000.00	$5,000.00	$5,000.00
n*	5	5	5
MIRR*	12.34%	13.00%	12.31%
EAA*	$20.91	$63.04	$19.26

If projects have different lives and they are repeatable, then the future cash flows of repeating the project must be determined to find a common ending point or to setup an infinite chain. Truncation of the longer project may be done, but the results are subject to the ability to determine the appropriate cash flows caused by the truncation.

The methods of adjusting MIRR for different sized projects or different lives will not adjust for projects in different risk classes.

PROFITABILITY INDEX

The profitability index is used to determine the ratio of the present value of the future cash flows to the initial outflow.

$$PI = \frac{\sum_{t=1}^{n} \frac{CF_t}{(1+k)^t}}{IO}$$

$$PI = \frac{PV(Future\ Cash\ Flows)}{IO} = \frac{IO + NPV}{IO}$$

$$PI = 1 + \frac{NPV}{IO} \quad (Eq.\ 2)$$

Equation 2 shows the direct relationship between NPV and PI. If NPV is positive, PI is greater than one, and if NPV is negative, then the PI is less than one. If the projects have different initial outflows, then the use of the largest initial outflow (IO*) in the calculation of PI, as in the calculation of MIRR, will give an adjusted PI that is consistent with NPV.

$$Assume: NPV_A < NPV_B \ \ and \ IO_A < IO_B$$
$$Let: IO* = IO_B$$

$$NPV_A + IO* < NPV_B + IO*$$

$$PI*_A = \frac{NPV_A + IO*}{IO*} = 1 + \frac{NPV_A}{IO*} < 1 + \frac{NPV_B}{IO*} = \frac{NPV_B + IO*}{IO*} = PI*_B$$

If projects have the same initial outflows and are non-repeatable, then PI and NPV will give the same rankings, whether the projects have the same length of life or not. If the projects are repeatable, then either a replacement chain or truncation must be done to consistent results with NPV.

Since the present value of the future flows in the numerator is normally calculated by using a risk adjusted discount rate, PI will properly rank projects in different risk classes, assuming that the projects have the same initial outflows.

EQUIVALENT ANNUAL ANNUITY

The Equivalent Annual Annuity method of capital budgeting converts the NPV of a project to an annual annuity, using the cost of capital.

$$EAA = \frac{NPV}{PVIFA(k,n)}$$

$$PVIFA(k,n) = \frac{1 - (1 + k)^{-n}}{k}$$

Since the EAA method uses the NPV of the project, there is no need to make any adjustments when the projects have different initial outflows. If the projects have different lives and are non-repeatable, then the life of the longest project should be used in the calculation of the PVIFA to give results that are consistent with NPV.

$$Assume\ NPV_A < NPV_B\ and\ n_A < n_B$$
$$let\ n* = n_B$$
$$EAA*_A = \frac{NPV_A}{PVIFA(k,n*)} < \frac{NPV_B}{PVIFA(k,n*)} = EAA*_B$$

If the projects are repeatable in the future, on similar terms, then using the actual life of each project in the calculation of PVIFA will give results that are consistent with NPV.

If projects have the same lives, but are in different risk classes, the EAA may not give results that are consistent with NPV, unless the EAA's are converted back to NPV's at the appropriate discount rates. If the projects have different lives, risk classes and are non-repeatable, then the conversion back to NPV must be made. If they have different lives and are repeatable in the future, on similar terms, then the NPV of a replacement chain at the appropriate discount rate, needs to be used to have consistent results with NPV.

SUMMARY AND CONCLUSIONS

While the NPV method of capital budgeting is consistent with the goal of management to maximize value, frequently used alternative capital budgeting techniques may give results that are not consistent with the goal. With the modifications summarized below, the alternative techniques can be relied upon to give results that are also consistent with value maximization. They also show how the various methods are alternative ways of using NPV.

1. If the only difference between the projects is the size of the initial outflow, then the NPV and EAA will give consistent results with no modification. For the MIRR and the PI, the largest initial outflow (IO*) should be used in the calculation for each project.

2a. If the projects have different lives and are non-repeatable, then the NPV and PI can be used without modifications. The MIRR and the EAA need to be calculated with the length of the longest project (n*) used in the calculation of the MIRR and the EAA for each project.

2b. If the projects have different lives and are repeatable, under similar conditions in the future, then the EAA for the actual life of each project can be used. To use the NPV, the EAA for each actual life should be calculated and then the NPV should be calculated for a common ending point, or the longer project should be truncated. The MIRR and PI should also be calculated based upon a common ending point or truncation. If the projects can be repeated in the future, but with different terms then at present, then either truncation or a replacement chain with the different terms in the future must be used for all of the methods.

3. If the projects are in different risk classes, then NPV and PI can be used. The MIRR method suffers from the problem of comparing expected returns to required returns, when the required returns are different for the different projects. The EAA also suffers from the problem that a higher EAA may not be sufficient to cover the additional risk. Using the NPV or PI will overcome the problems of the MIRR and the EAA.

4. If the differences are a combination of the factors above, then combine the methods above. For example, if the projects have different initial outflows and different, non-repeatable lives, the NPV method requires no adjustment. To calculate the MIRR's use the largest initial outflow (IO*) and the longest life (n*) in the calculations, as in Exhibit #1D. To calculate the PI, use the largest initial outflow (IO*) and no adjustment is needed for the life. For the EAA, use the longest life (n*), and no adjustment is needed for the different initial outflows.

REFERENCES

Brigham, Eugene F. and Louis C. Gapenski, (1994) "Financial Management, Theory and Practice, seventh edition," Chicago, Illinois: The Dryden Press.

Cary, David D. and Michael Dunn, (1997) "Adjustment of Modified Internal Rate of Return for Scale and Time Span Differences," *Proceedings of the Academy of Accounting and Financial Studies*, October 1997.

Dudley, C.L., Jr. (1972) "A Note on Reinvestment Assumption in choosing between Net Present Value and Internal Rate of Return," *The Journal of Finance,* September 1972, 907-915.

Findlay, M. Chapman and Stephen D. Messner, (1973) "Determination and Usage of FM Rate of Return." Realtron Corporation, Detroit.

Fisher, Irving, (1930) "The Theory of Interest" (The Macmillan Company; reprinted (Kelly) 1955).

Meyer, R.L., (1979) "A Note on Capital Budgeting Techniques and the Reinvestment Rate," *Journal of Finance*, December 1979, 1251-1254.

Nicol, D.J., (1981) "A Note on Capital Budgeting Techniques and the Reinvestment Rate: Comment," *The Journal of Finance*, March 1981, pp. 193-195.

Ross, Stephen A., Randolph W. Westerfield and Jeffrey Jaffe, "Corporate Finance, fourth edition," Chicago, Illinois: Irwin

Sweeney, L.E. & Mantripragada, K.G., (1987) "Ranking Mutually Exclusive Investments: A Modified Internal Rae of Return Approach," *Akron Business and Economic Review*, Spring 1987, 19-25.

DEVELOPING AND INCORPORATING ONLINE, WEB BASED, QUIZZES IN THE INSTRUCTIONAL SETTING

David Cary, California State University, Northridge

ABSTRACT

The explosion of the World Wide Web gives the academic world a new and exciting method of involving students in the learning process. Besides the ability to obtain information online, the web can be used to help the students practice their skills and receive feedback in a non-threatening setting. The methods discussed will easily fit into the traditional campus model as well as distance learning. Experience with online quizzes over the past year with over 400 students found that the students found the quizzes very useful in the learning process.

Three levels for developing online quizzes are presented: 1) Simple quizzes that use the forms feature of html programing and are self contained. 2) More complicated quizzes that use the Unix programs cgi-echo and cgi-email which are freely available and allow for either more feedback to the student and/or the submission of the results of the quiz to the instructor via email. 3) Using the Active Server Page function of Windows NT and VBScripting to create more sophisticated quizzes that can be randomly generated and give feedback to the user.

Basic html programing to create web pages, using forms in web pages, JavaScript and VBScript will be covered. The difference between using client side programing vs server side programing will be discussed. Handouts include hard copy printouts of the web pages, the code behind the web pages, helpful hits for creating the quizzes and a list of useful resources. Participants who have a basic knowledge of creating a web page before the seminar should be able to create at least simple online quizzes at the end of the seminar and have the information to allow them to create more sophisticated quizzes in the future.

A PROPOSAL CONCERNING TAX REFORM

James E. Williamson, San Diego State University

ABSTRACT

The paper presents a proposal that the current pretax gross income of individuals within any broad class of taxpayers reflects adjustments made to counteract the relative effects of the tax laws enacted since 1913, with those individuals in the highest tax brackets having experienced the largest adjustments, on a cumulative basis. These adjustments have been caused by an efficient market that has been able to restore price/demand equilibrium upon the enactment of each of the tax laws; sometimes coincidental with the enactment, sometimes after the enactment and, at other times before the enactment on an anticipatory basis. Because of this market effect, it is further proposed that any attempt by Government to adjust the relative welloffness of any broad class, or classes, of taxpayers, by the enactment of tax reform legislation, will fail. The above proposal, if valid, does not suggest, however, that there is no value in any tax reform. It does appear that, even if different systems of taxation would ultimately lead to the same economic results, some systems of taxation would be more stable than others; some systems would be more administratively efficient than others, etc. This is important because disturbances created by systems of taxation may lead to short-term chaotic behavior in the affected economy. Therefore, Government may want to consider "stability" a major criterion when evaluating any projected new system of taxation that would emerge if it introduced certain reforms into the existing system of taxation. The impact of this proposed theory on Government's tax policies could be tremendous because, if the theory has any validity, we currently may be assigning too much importance to whether proposed reforms to the existing tax system would be either progressive or regressive. Because this is a preliminary theoretical exploration, further research is necessary to test the validity of the theory presented here. Unfortunately, because there have been too many things going on that affect the relative spread of income between the various broad classes of taxpayers, it does appear that it would be difficult to test the proposed theory on an empirical basis. However, if subsequent research does support the theoretical findings, this could provide a valuable contribution to national tax policy because giving less consideration to progressiveness or regressiveness would allow for greater concentration on other features of any proposed reform to the tax system.

INTRODUCTION

It is proposed that the current pretax gross income of individuals within any broad class of taxpayers reflects adjustments made to counteract the relative effects of the tax laws enacted since 1913, with those individuals in the highest tax brackets having experienced the largest adjustments. These adjustments have been caused by a market that has been able to restore price/demand equilibrium upon the enactment of each of the tax laws; sometimes coincidental with the enactment, sometimes after the enactment and, at other times before the enactment on an anticipatory basis. Because of this market effect, it is further proposed that any attempt by Government to adjust the

relative welloffness of any broad class, or classes, of taxpayers, when compared with any other broad class, or classes, of taxpayers, by the enactment of tax reform legislation, will fail.

The above proposal, if valid, does not suggest, however, that there is no value in any tax reform. It does appear that, even if different systems of taxation would ultimately lead to the same economic results, some systems of taxation would be more stable than others; some systems would be more administratively efficient than others, etc. This is important because disturbances caused by a system of taxation may lead to short-term chaotic behavior in the affected economy. Therefore, we may need to consider stability as a major criterion when evaluating the projected new system of taxation that would emerge if we were to introduce certain reforms into the existing system of taxation.

In addition, if the proposed theory has some validity, this may suggest that we are currently assigning too much importance to whether any proposed reform would be either progressive or regressive. Such a finding could be valuable because giving less consideration to progressiveness or regressiveness would allow for greater concentration on other features of any proposed reform to the tax system.

CONCEPTUAL DEVELOPMENT

We know that some taxpayers in the higher tax brackets invest in state and local government bonds because the interest income is not subject to the federal income tax. Historically, however, after adjustment for a risk differential, there may have been little or no real net economic gain to this action because, when compared to the after tax return available from taxable investments, the net results are not that dissimilar, as shown in Figure 1.

Figure 1

	AAA Mcpl Bond	U. S. Treasury Bond
Long-term average yield*	4.0 percent	6.0 percent
Less tax at 50 percent	0.0 percent	3.0 percent
After tax yield	4.0 percent	3.0 percent

*Source: Since the yields of both municipal bonds and federal bonds have varied significantly over time, I have assumed that the above long-term average yields are representative.

In fact, as we can see, while the federal bond has had a higher yield before taxes, once taxes were accounted for, the municipal bond's yield has exceeded that of the federal bond. This is as expected because the municipal bond is riskier than the federal bond. Indeed, because of the risk differential, if the after tax yield of the federal bond were to exceed the yield of the municipal bond

at any particular time, immediately, traders would sell municipal bonds and buy federal bonds restoring the market to a more rational behavior.

However, on the day that I was working on this example I decided to check the market to see what the before tax yields were for that particular day. I then converted the yields to an after tax basis using the highest marginal tax rate in effect on that particular day. The results are presented in Figure 2.

Figure 2

	AAA Mcpl Bond	U. S. Treasury Bond
November 3, 1995*	5.8 percent	6.4 percent
Less tax at 39.6 percent	0.0 percent	2.5 percent
After tax yield	5.8 percent	3.9 percent

*Source: Miller & Schroeder Financial, Inc., specialists in municipal bonds.

Now we seem to have a somewhat different result. While the federal bond's yield is still somewhat higher on a before tax basis, once taxes have been adjusted for, the municipal bond's yield appears to be significantly higher. Although this observation appears to be incongruent with our theory, in reality it falls perfectly in line. We know that on this day the market was fully aware of a political movement led by Representative Richard Armey, R-Texas, to enact a tax reform that would not tax either municipal bond interest income or any other type of interest income (see, for example, Rukeyser 1995). While there was much scepticism that the reform proposal would ever become law, there appeared to be enough support for this idea that the market had to give it some consideration, on an anticipatory basis. Hence the perceived advantage of the existing tax law treatment was significantly discounted by a market that was weighing the probability of occurrence of the proposed tax reform.

Now it is interesting to note that, while many individuals do accept as completely logical the effect of existing and potential tax laws on the spread between the market yield rates of municipal and federal bonds, many of these same individuals do not for one minute consider that their own pretax income and subsequent costs of living might change if tax laws were to change. Therefore, we find people supporting tax reform ideas because they believe that the proposed changes would alter their own individual economic welloffness when measured relative to the economic welloffness of other broad classes of taxpayers.

For example, assume our taxpayer is a single individual who has a salary of $75,000 per year and pays $15,000 in federal income taxes and engages a self-employed gardener for $5,000 a year to care for the upkeep of his home. After the payment of his taxes and the gardener he has $55,000 remaining to spend for other things. Our taxpayer is troubled because he thinks the gardener probably does not report his income or file a tax return and, therefore, appears to escape the tax

system. Indeed, researchers have found that the voluntary compliance level on income of informal suppliers is very low, reflecting that much of this income is not subject to third party reporting and is extremely difficult for the Internal Revenue Service (IRS) to discover (see, for example, Madeo 1995).

Our taxpayer wishes there were a way to force this person to comply in order that his own taxes could be reduced. Our taxpayer believes that he would be better off, if the gardener were forced to pay his fair share of the taxes (let us say $500), because his taxes would be reduced to $11,500. Our taxpayer assumes *ceteris paribus* that all other things would remain the same.

However, given that our taxpayer gets his wish, won't the market immediately begin to restore the price/demand equilibrium that our tax reform has temporarily disturbed? Because our gardener must now pay taxes of $500, he now demands $5,500 from our taxpayer in order to still have $5,000 after tax to feed his family. Furthermore, the gardener is able to demand this increase because our tax reform will have caught up with all of the other gardeners and they are all now in the same new situation. Therefore, the tax reform has resulted in a situation where all the gardeners must increase the amount they charge for their services. However, the tax reform has also made it possible that the gardeners will be successful in their increased demand. Our taxpayer's taxes have been decreased from $12,000 to $11,500, therefore, he can afford to pay the gardener the additional $500.

But, isn't everything exactly where it was before? If we look to whom the incidence of the tax falls on, instead of who literally writes out the check, nothing has changed. In fact, before the tax reform, wasn't our gardener actually contributing $500 worth of his services to society in lieu of taxes? And wasn't our taxpayer who used these services implicitly paying $5,500 for them? In effect, withholding $500 of taxes from the gardener's earnings and submitting this amount to the federal government, exactly like any other employer does. Figure 3 shows the economic position of our taxpayer, the gardener, and the government before tax reform and after tax reform.

Figure 3
The Effect of Tax Reform on Economic Welloffness

Before Tax Reform

	Our Taxpayer	The Gardener	The Government
Income before taxes and payment to gardener	$75,000	$ -0-	$ -0-
Payment to gardener	-5,000	+5,000	-0-
Payment of taxes	-15,000	-0-	+15,000
Spendable income	$55,000	$5,000	$15,000

After Tax Reform

	Our Taxpayer	The Gardener	The Government
Income before taxes and payment to gardener	$75,000	$ -0-	$ -0-
Payment to gardener	-5,500	+5,500	-0-
Payment of taxes	-14,500	-500	+15,000
Spendable income	$55,000	$ 5,000	$15,000

DIFFICULTY WITH EMPIRICAL EVIDENCE

It does not appear feasible to test the proposed theory on an empirical basis, because there have been too many things going on that affect the relative spread of income between the various broad classes of taxpayers. For instance, Cassidy (1995) lists four "culprits" that have caused most people's wages to fall or stagnate after 1973 while the top of the income distribution was receiving pay bonanzas. Those four are: impact of foreign trade, new technology (especially computer), the decline of labor unions, and immigration. Cassidy further states, "Most reasonable economists now agree that a combination of all four is required to explain what has happened, and even then some things remain unknown" (1995, p. 121.).

According to the proposed theory, some of those unknown things are changes we have had in our tax laws, many of them under the label of tax reform intended to benefit our lower and middle classes. This, however, is contrary to Cassidy's assertion that the rise in inequality had nothing to do with taxation (1995, p. 121.):

> Why this rise in inequality occurred is still something of a mystery. The one thing we do know for certain is that it had nothing to do with taxation. This bit of knowledge will disappoint both conservatives who lay the blame for the middle class squeeze on a growing tax burden and liberals who link rising wealth concentration to regressive tax policies. But it is indisputable: the fact is that the rise in inequality happened before the I.R.S. got its hands on anybody's paycheck.

But, we could equally argue that the rise in inequality, on a before tax basis, has been caused to some extent by the market reacting to progressive tax rates. That is, the increased inequality on a before tax basis was necessary to maintain equality on an after tax basis. However, any attempt to support such an argument appears to be stymied by the multitude of other social changes affecting the spread of income between the various classes of taxpayers.

STABILITY OF TAX SYSTEMS

If the proposed theory is correct, then, forgetting for the moment the effect of system disturbances, any tax system will in the long run result in the same tax collected by Government and the same economic welloffness for the various classes of taxpayers. The question then is: are there any reasons to be concerned why any particular tax system should be selected over any other tax system?

In response, while any system, according to the proposed theory, no matter how illogically structured could for most purposes provide the same results, it is possible, however, that when systems are changed or interrupted they can provide different degrees of short run disruption to the entire economic system.

For example, assume that Government decides to levy all of its required taxes on one individual, Bill Gates. This system would work as long as all the other members of the society want Gate’s products enough to increase the amount paid for them so that Gates could afford to pay these enormous taxes. However, what happens when Gates dies? The system would temporarily collapse

and chaos would reign until a new system could be devised and established. As we can see, a system that taxed only one individual, no matter how rich that individual was, would be extremely unstable.

Now, for an expanded example, assume that we decide to levy our income tax not on one individual but, again, we select only one particular group or class of taxpayers. Perhaps we decide to tax only dentists as a group and no one else. I have picked dentists because the group designated for taxation must provide goods or services that the other groups, or classes, of individuals need and want. Then, of course, since the other groups must have the services of the dentists, the income of dentists will have to rise in order to pay the enormous tax levied on them and still have the same income after taxes necessary to encourage them to remain dentists and to attract new potential dentists into the profession. The individuals using the services of the dentists would be able to pay these additional fees, however, because they would not have to directly pay any taxes themselves. Again, while this tax system would work, it would still be very unstable. For instance, if a cure for tooth decay, gum disease, crooked teeth, etc., were discovered the need for dentists could change rather dramatically and the loss of this tax base could temporarily cause a chaotic disruption in the economy.

Therefore, it is likely that taxing only a small part of our society would be very unstable. In terms of stability, it appears that when more of society's members are included in the tax base, the tax system becomes more stable. Indeed, this idea could be advanced as an argument for a system of taxation, such as a national sales tax, where all members of society would be effectively taxed. In any event, because of the differential stability that would result depending upon the tax system selected, it appears that stability should be one of the criteria used when evaluating a good tax system.

PROGRESSIVE AND REGRESSIVE TAX SYSTEMS

One of the implications of our theory, concerning the relative affects of any system of taxation, is that maybe we should not be so concerned about whether any proposed reform to the tax system would be either *literally progressive or regressive*. If the relative welloffness of the various groups, or classes, of taxpayers in the society will not be affected by the tax reform, once the market has adjusted to the new tax system, does this not free us to concentrate on other potential desirable features of a reformed tax system?

For example, one of the criticism of a national sales tax is that it is patently regressive. But, if the market adjusts income distribution between the various groups, or classes, of taxpayers to counter the effects of the sales tax's regressiveness, is it really harmful? If we could dismiss the regressiveness as not being harmful, then we could concentrate on assessing the value of a national sales tax system on the basis of its other features, such as its stability, administrative feasibility and efficiency, etc.

SUMMARY

A theory is advanced that any system of tax reform that attempts to actually benefit one class, or classes, of taxpayers when compared on a relative basis with any other class, or classes, of taxpayers, will fail. Market forces will readjust the before tax incomes of the various players in such a way that they will eventually return to the previous relative economic position. However, we

currently lack empirical support for this theory. So many other things have been affecting the relative spread of income between the various classes of taxpayers that effects from the theory proposed here is for many purposes not readily discernible.

Even though the proposed theory suggests that any system of taxation would lead to approximately the same economic results for all of the members of that society, some systems would likely be more stable than other systems. Therefore, because stability appears to be a valuable feature, the theory suggests that we should include stability as a criterion when selecting a good tax system. In any event, it appears that we may be paying too much attention to whether a potential reform would be regressive or progressive. If, indeed, progressiveness or regressiveness is not really harmful, recognition of this would permit us to concentrate more on other features of a proposed tax reform.

REFERENCES

Cassidy, J. (1995). Who Killed the Middle Class? *The New Yorker* (October 16): 113-124.

Madeo, S., K. Anderson and B. Jackson (1995). Sommerfeld's *Concepts of Taxation*: *1995 Edition*. The Dryden Press: Hartcourt Brace.

Rukeyser, L. (1995). Wall *Street Week*. PBS (October 27).

CAROLINA BANKERS' REACTION TO SFAS: 115

Gregory W. Blackmon, Burkett Burkett & Burkett CPA
Wanda I. DeLeo, Winthrop University
C. Angela Letourneau, Winthrop University

ABSTRACT

A great deal of research has been conducted on SFAS No. 115; however, questions still remain about the neutrality of the statement and whether this statement has led to more relevant financial statement information for external users. The purpose of this paper is to gain an understanding of why SFAS No. 115 was issued how financial institutions currently view the established reporting requirement, and whether the requirements have affected the investment strategies of financial institutions.

A survey relating to SFAS No. 115, was designed to determine how financial institutions currently view SFAS No. 115 and whether the statements has affected the investment strategies of the financial institutions. The overall survey results indicated that the financial institutions surveyed still remain pessimistic and opposed to fair value accounting. The results also appear to indicate that SFAS No. 115 has had an affect on the investment strategies of many of the banks surveyed.

INTRODUCTION

Beginning in 1990, the SEC pressured the FASB to force entities to report debt and equity securities at fair market value. Financial institutions were strongly opposed to fair value accounting and raised several good arguments as to why these securities should not be reported at fair value. After considering the pressures from the SEC, the arguments of the financial institutions, and other related party, the FASB issued SFAS No. 115 in 1993. The pronouncement was created to place requirements on how certain investments in marketable debt and equity securities are reported. Although a great deal of research has been conducted on SFAS No. 115, questions remain about the neutrality of the statement and whether the pronouncement has led to more relevant financial statement information for external users.

The purpose of this paper is to gain an understanding of why SFAS No. 115 was issued how financial institutions currently view the established reporting requirements, and whether the requirements have affected the investment strategies of financial institutions. This paper includes a brief history of the reporting requirements for securities, information on the pressures that led to the creation of SFAS No. 115, the reporting requirements of SFAS No. 115, and an evaluation of the impact of this pronouncement on financial institutions.

HISTORY OF REPORTING SECURITIES

Controversy surrounding how debt and equity investment securities should be reported has been prevalent in the past half century. Many arguments have been raised to support fair value

reporting, as well as historical cost reporting. Authoritative bodies have enacted several pronouncements in an attempt to create more useful financial information for external users.

In 1953, Accounting Research Bulletin No. 43 required entities to carry, at cost, temporary investments in marketable debt securities unless the market value fell permanently below cost. When the debt securities had a permanent decline, the entity was required to report the reduction in the market value of the debt security and to recognize any resulting losses in the income statement for the year in which the market decline occurred.

In 1975, the FASB issued SFAS No. 12, "Accounting for Certain Marketable Securities". The Statement applied to marketable equity securities, including common stocks; nonredeemable preferred stocks, and the rights to acquire such stocks. Entities were required to separate their short and long-term marketable equity securities in each period and value each group of securities separately on the basis of the lower of cost or market value for each balance sheet date. Entities had to report unrealized losses in market value both in a valuation allowance account on the balance sheet and on the income statement for the current year; however, they only reported those gains that did not exceed previous losses. Entities also reported realized losses for equity securities that changed in classification.

SFAS No. 12 partially resolved the problem of certain entities carrying marketable securities at cost, some at lower of cost or market and some that used a combination of these methods for different classes of securities. However, since this pronouncement applies to only marketable equity securities, not all financial instruments fell within the definition prescribed by the standard. As a result, the literature and reporting practices were inconsistent for investments in debt securities among different industries. Also, the requirement to use the lower of cost or market method for debt securities held for sale and noncurrent marketable equity securities was not even-handed because of conservatism.

Although SFAS No. 12 created a more uniform reporting process for marketable equity securities, pressures remained to create additional fair value reporting requirements. The FASB decided in 1986 to re-examine issues that involved financial instruments. These problems consisted of off-balance-sheet financing and their disclosures. The result was the issuance of SFAS No. 105, Disclosure of Information about Financial Instruments with Off-Balance-Sheet Risk and Financial Instruments with Concentrations of Credit Risk. In addition, other disclosure issues were addressed with the issuance of SFAS No. 107, Disclosures about Fair Value of Financial Instruments.

Inconsistency problems still existed with the accounting and reporting practices for debt and equity securities after these two statements were issued. As a result, the FASB issued SFAS No. 115, Accounting for Certain Investments in Debt and Equity Securities. This statement expands the use of fair value accounting and allows some debt securities to be carried at amortized cost. SFAS No. 115 does not apply to investments in equity securities accounted for under the equity method. Its intended use is to establish standards of accounting and reporting for investments in equity securities that have readily determinable fair values and for all investments in debt securities.

CONTROVERSY SURROUNDING SFAS No. 115

Prior to the issuance of SFAS No. 115, there were pressures from varying organizations and industries. The Securities and Exchange Commission (SEC), the banking industry, and the users of

financial information had strong views on how marketable debt and equity securities should be reported. The FASB was charged with the responsibility of creating a standard that would satisfy each of these forces.

The main controversy of SFAS No. 115 dealt with whether fair value accounting was relevant to the users of the financial statements. Supporters of fair value accounting for financial instruments feel fair value is relevant and useful to present and potential investors, creditors and others making investment, credit, and similar decisions. Fair value reporting provides decision relevance to present and potential investors, creditors and other users of published financial information.

On the other side, opponents of fair value question the relevance of measuring investments at fair value. The belief is that historical based measures of financial instruments provide greater decision relevance, particularly historical measures of debt. Historical measures of investments in debt instruments provide expectations regarding future cash flows, which are based on the decision to invest in the financial instruments. These measures provide a basis for evaluating future resource flows, which is not affected by changing market conditions (Clark, 1994).

In 1990, the SEC expressed dismay at new standards the accounting industry had adopted for financial institutions, and the agency urged that the standards be tightened sharply. At this time, the financial institutions accounted for debt securities held for investment by reporting them at cost, while debt securities held for short periods and used as trading assets were marked to market price. The SEC felt that all debt instruments should be marked to market price.

When a meeting was conducted by the FASB to put on its agenda a project to force holders of debt securities for investment or trading purposes to book them at current, rather then historical value, the SEC was present to support its position. "While the SEC didn't say anything at the meeting, we know they view this project with some urgency", stated Timothy Lucas, the FASB's research director. Prior to this meeting, the Securities and Exchange Commission had pushed this issue for several years (Berton, 1991, A2).

The banks strongly opposed fair value reporting for certain debt and equity securities. Many of the banks felt fair value reporting would make their financial results more volatile and confusing. Some bankers also felt that the bond-valuation rule would encourage banks to shed long-term bonds and invest more in short-term securities to reduce volatility. The bankers felt this switch could hurt communities that sell long-term bonds in limited markets and may lessen capital available for loans to small businesses (Berton, 1993, A3).

KPMG Peat Marwick surveyed 35 investment-banking firms as financial statement users and 64 commercial banks as preparers, and then met with another 40 investment firms in focus groups. 95 percent of the institutions surveyed said they would prefer traditional, historical-cost accounting, with fair-value disclosures as supplements. As an alternative, 76 percent stated they would like no fair value information at all and 58 percent said they would like both. Only 26 percent endorsed a wholesale shift to an accounting model based on current models, and 5 percent said fair value statements would provide a better picture of a company's financial health. "Since the study shows that preparers and users are skeptical about the reliability, comparability and timeliness of fair value accounting, the study should give pause to those most intent on instituting market-value accounting in the banking industry", stated John F. Ruffle, vice chairman of J. P. Morgan & Co. Users were particularly concerned that fair value information wouldn't be comparable between financial institutions, since preparers were free to choose their own methods. Users and preparers agreed that

time lags between making a fair value estimate and actually issuing the statements would erode the relevance of the information (Telberg, 1992).

Under SFAS No. 12, financial institutions could engage in "gains trading" or "cherry-picking" with long-term bonds they held. In such cases, the bank would sell at year-end only those bonds that produce financial gains. However, the institution would continue to hold bonds that had fallen sharply in price, while valuing them at initial or historical value.

There were five problems the FASB needed to address with the reporting requirements of debt and equity securities. Among these were: 1) the literature was inconsistent; 2) the LOCOM was not even-handed; 3) fair value information has greater relevance; 4) SFAS No. 12 permitted the recognition of holding gains; and 5) intent-based accounting impairs comparability (Thompson, 1994).

FASB'S SOLUTION

SFAS No. 115 was issued in May 1993 and became effective for fiscal years beginning after December 15, 1993. The FASB's approach to the pronouncement represents a compromise between the differing views on fair value reporting. SFAS No. 115 established standards of financial accounting and reporting for all investments in debt securities and in equity securities that have readily determinable fair values with limited exceptions. The pronouncement requires that investments in securities be classified into one of the following three categories; held-to-maturity, trading, or available-for-sale. For all three categories, realized gains and losses, arising when securities are disposed of, are included in the determination of earnings. Also, dividend and interest income including amortization of premiums and discounts is included in earnings for all three categories. The differences in accounting treatment between the categories of securities arise only with respect to unrealized gains and losses. Each security must be classified into one of the three categories at the time of the acquisition. In addition, at each reporting date the appropriateness of the classification must be reviewed.

Held-to-maturity securities are debt securities that the entity has the "positive intent and ability" to hold to maturity. The FASB decided that such securities are appropriately carried at amortized cost in the entity's financial statements. These investments may be reported as either current or noncurrent assets. Obviously, managerial intent plays a crucial role in classifying a debt security as held-to-maturity.

The biggest motivation for classifying securities with a fixed maturity date in the held-to-maturity category is that management may want to avoid potential problems from fluctuating earnings and/or equity levels. Using this category may be unwise in many situations. SFAS No. 115 emphasizes that transfers from this category should be rare. If the company sells securities from this category, it may expose itself to scrutiny from the Securities and Exchange Commission or other regulatory bodies. In addition, management may be forced to continue to hold debt securities that it would prefer to sell (Cocco, 1997).

Under SFAS No. 115, trading securities are bought and held for the purpose of selling them in the near term. Debt or equity marketable securities that are classified as trading securities are included in the balance sheet at market value. The changes in market value (holding gains and losses) are included in income from continuing operations for the trading securities. Unrealized gains/losses

would be reported in a contra account in the current asset section of the balance sheet. The trading category is the critical one because all unrealized holding gains and losses for securities in this category flow through the income statement

If securities are not classified as either trading securities or held-to-maturity securities, they are classified as available-for-sale securities. This portfolio would include both debt and equity securities not held for sale in the near term but also for which the entity does not have a positive intent and ability to hold to maturity. These securities are reported on the balance sheet at market value.

Unlike trading securities, the holding gains or losses are not included in income. They are included as a separate component of equity (an addition to equity for net holding gains and a reduction from equity for net holding losses) until realization occurs. Available-for-sale securities may be classified as either current or noncurrent assets.

TRANSFERS BETWEEN CATEGORIES

Since there are significant differences on the balance sheet and income statement for the different classifications, the FASB found it necessary to establish specific guidelines for the accounting for transfers among the three categories. As a basic principle, the FASB specified that transfers from one category to another are to be accounted for at fair value at the date of the transfer.

SFAS NO. 115 DISCLOSURE REQUIREMENTS

For securities classified as available-for-sale or held-to-maturity, disclosure is made as of each balance sheet date and for each major security type for:

Aggregate fair value.
Gross unrealized holding gains.
Gross unrealized holding losses.
Amortized cost basis.

In addition, information must be disclosed about contractual maturities as of the date of the most recent financial statement presented. Financial institutions must disclose separately for securities classified as held-to-maturity and available-for-sale securities the fair value and amortized cost based on at least four maturity groupings including:

Within 1 year.
After 1 year through 5 years.
After 5 years through 10 years.
Over 10 years.

Securities not due at a certain date, such as mortgage-backed securities, may be disclosed separately rather than allocated among separate groupings. The basis of allocation must be disclosed.

IMPACT OF SFAS NO. 115 ON FINANCIAL INSTITUTIONS

For well-capitalized banks with good liquidity and strong performance, SFAS No. 115 should have been largely a “non-event.” According to bank reports and analyst observations, “events” seem

to occur when capital, liquidity, or performance presents problems. Some financial institutions have classified all securities as held-to-maturity; others have classified all securities as available-for-sale, while the majority of the financial institutions have classified investment securities as about half held-to-maturity and half available-for-sale (Olson, 1995).

Required classifications in early 1994 should have been based upon a good analysis of liquidity needs, interest-rate risk management, and capital. However, numerous reports reveal a wide range of problems with these initial classifications. Some were done too quickly, some attempted to boost reported capital, some did not consider "what-if" interest-rate possibilities, and some were based upon the traditional notion that held-to-maturity securities didn't really mean no sales. In general, it appeared that many of the classifications were characterized by quickness, ease, and flexibility rather than by comprehensive financial reporting.

In January 1994, most financial institutions were reporting net unrealized gains in the equity section. By December 1994, many financial institutions were reporting net unrealized losses in the equity section. A Bank Administration Institute (BAI) survey in 1993 found many bank-investment-portfolio managers strongly felt that SFAS 115 would prompt many to perfect and use the concept of total return measurement as the technique for evaluating portfolio managers (Olson, 1995).

Federal bank regulators published proposed regulations, which would have included the net unrealized gains and losses from available-for-sale portfolios as part of the determination of Tier 1 capital for Risk-Based Capital calculations. However, later that year, the federal regulators announced that the net unrealized holding gains and losses from the available-for-sale portfolios would not be part of Risk-Based Capital calculations. Now, many executives, accountants, and analysts are questioning the divergence of regulatory accounting principles and generally accepted accounting principles, even though the regulators have emphasized that they still adhere to GAAP for reporting, just not for Risk-Based Capital calculations.

The "effects" on equity from unrealized gains/losses have become significant. Some feel that the large negative impact on bank equity currently versus the large positive impact when rates were lower demonstrates too much volatility. This type of volatility would be destabilizing in the assessment of safety and soundness for banking. Some speculate this was a key influence in convincing bank regulators to avoid the use of net unrealized gains and losses for Risk-Based calculations.

The current rate environment is pushing some financial institutions to re-evaluate their original classifications. Those banks that classified their securities as 100% held-to-maturity are learning what SFAS 115 actually means (the held-to-maturity portfolios cannot be sold or reclassified except under unusual circumstances). When possible, executives are redirecting turnover and growth to available-for-sale securities to provide flexibility for liquidity, interest-rate risk management, and relief from some regulatory criticisms. On the other side, some institutions that classified a large portion of their investment securities as available-for-sale are in the process of reclassifying portions as held-to-maturity to shield equity from the impact of future rate movements (Olson, 1995).

RESEARCH DESIGN

A survey relating to SFAS No. 115, was used in this study. Table 1 provides a list of the eight questions. Respondents were asked about the timing of their adoption of SFAS No. 115. SFAS No. 115 allowed for early adoption. Questions two and three relate to the clarity of the pronouncement, while question four relate to the usefulness of the information provided to external users by SFAS No. 115. Questions five and six relate to the effect of the pronouncement on the mix and maturity dates of the portfolios, while question seven deals with the one-time option to reclassify securities allowed in 1995. Question eight was a demographic question concerning asset size.

Members of the Independent Banks of South Carolina and the North Carolina Bankers Associations were used as research subjects. A random sample of 77 banks was chosen from the 1997 membership lists of the above two organizations. Forty-two usable responses were received for a response rate of 55%. The respondents average asset size was $164 million, with $25 million being the low and $590 million being the high.

TABLE 1

1. Did your financial institution adopt FASB 115 in 1993 or 1994?
2. Do you feel the FASB was clear concerning how to classify securities?
3. Do you feel the reporting requirements were clearly stated by the FASB?
4. Do you feel the adoption of FASB 115 provides more useful financial information?
5. Did you shorten or lengthen your security maturities?
6. Did you change your securities mix?
7. Did you elect the one-time option to reclassify securities?
8. What are your total assets?

SURVEY RESULTS AND DISCUSSION

Question 1, shown in Table 1, related to when the financial institutions adopted SFAS No. 115. The pronouncement allowed adoption in either 1993 or 1994. Out of 39 responses, 11 banks adopted SFAS No. 115 in 1993 and 28 adopted the pronouncement in 1994. Three of the banks responding began operations after 1993. It appears that the general view was that of pessimism. These financial institutions may have been reluctant to early adopt the pronouncement due to the new reporting requirements, current market conditions, or a variety of other reasons.

Question 2, shown in Table 1, related to whether the FASB was clear concerning how to classify securities when SFAS No. 115 was issued. Based upon a 55% response rate, on a scale of 1 (strongly agree) to 5 (strongly disagree), the average response was 2.45. This figure indicated that the banks felt the FASB did a fairly good job identifying how these institutions should classify their securities.

Question 3 related to whether the FASB clearly stated the reporting requirements in the pronouncement. On a scale of 1 (strongly agree) to 5 (strongly disagree), the average response was 2.62. The reactions to this question were very similar to those answered in question 2. As with classifying securities, the FASB did a fairly good job explaining the reporting requirements of SFAS No. 115 when it was issued.

The next question, shown in Table 1, related to whether these financial institutions felt SFAS No. 115 provided more useful information to external users of financial statements. On a scale of 1 (strongly agree) to 5 (strongly disagree), the average response was 3.66. This revealed that banks continue to be opposed to SFAS No. 115 and the reporting requirements it entails. Some general comments made about why these banks felt the pronouncement did not provide more useful information included; the reporting requirements were confusing, fair value information was already being reported in the notes to the financial statements, and time lags would erode the relevance of the information presented.

Question 5 related to whether the bank shortened or lengthened their maturities as a result of SFAS No. 115. This question revealed that 19.5% shortened there maturates, 14.63% lengthened their maturities, and 65.85% did neither. Based on the arguments raised by financial institutions prior to the issuance of SFAS No. 115, this was a surprising distribution. At first glance one would have expected the majority of banks to shorten their maturities to reduce volatility. However, further analysis of comments made by several institutions revealed that they were already carrying fairly short-term investments before the adoption of SFAS No. 115 and or had decided to classify all securities as available-for-sale.

Question 6 related to whether the financial institutions changed their securities mix because of SFAS No. 115. This question revealed that 32% did change their securities mix, while 68% did not. This indicates the pronouncement was not neutral and did cause 32% of these banks to change their investment strategies. This is critical because accounting pronouncements should be neutral in nature.

In 1995, the FASB allowed the one-time option to reclassify securities from the held-to-maturity category to the available-for-sale category without penalty. 53.66% of the financial institutions surveyed elected to use this one-time option to reclassify some or all of their held-to-maturity securities. Some general comments concerning why these entities decided to exercise this option included: 1) there was no downside to reclassifying these securities, 2) the reclassification created more flexibility, and 3) the reclassification provided additional liquidity.

The overall survey results indicated that the financial institutions surveyed still remain pessimistic and opposed to fair value accounting for certain investments. The results also appear to indicate that SFAS No. 115 has had an effect on the investment strategies of many of the banks surveyed.

CONCLUSION

The purpose of this paper is to gain an understanding of why SFAS No. 115 was issued how financial institutions currently view the established reporting requirement and whether the requirements have affected the investment strategies of the financial institutions. Despite several unresolved issues, the disparities among industries, the differences in recognizing unrealized gains and unrealized losses, and the lack of even-handedness of the LOCOM method were eliminated by SFAS No. 115 (Thompson). Thus, the statement provides an improvement in financial reporting in these regards. However, the survey reveals that many financial institutions still view SFAS No. 115 as an unnecessary reporting requirement that provides little useful information to external users. Some

respondents went as far as saying that the information might not only be not useful but actually misleading due to the volatility of market prices and the lag time in providing financial statements.

The survey did support the theory that SFAC No. 115 would have an effect on the length of life and the mix of investment portfolios. Thirty- four percent of the banks indicated they had changed the length of life of their investments and thirty-two percent indicated they had changed the mix of their investments due to SFAC No. 115.

Lastly, fifty-four percent of the respondents revealed that they took advantage of the one-time option to reclassify securities. This would seem to indicate that SFAS No. 115 is having an impact on how they do business if more than half the institutions surveyed felt a need to reclassify securities after such a short interval.

The current study was limited to North and South Carolina banks. Additional research is needed to determine if the results of this study can be applied to US banks in general. Also further research is needed to determine the actual impact of SFAS No. 115 on investment decision making, as well as the usefulness of the fair market value information that is being provided

REFERENCES

Berton, Lee. (1991). Rule-makers confront accounting issues of how institutions value debt securities. *The Wall Street Journal,* 27 June , A2.

Berton, Lee. (1993). FASB votes to make banks and insurers value certain bonds at current prices. *The Wall Street Journal,* 14 April, A3.

Clark, Myrtle W., and June F. Li. (1994). SFAS no. 115: new accounting rules for investments in debt and equity securities. *The Ohio CPA Journal,* February, 29-33.

Cocco, Anthony F., and Jerry W. Lin. (1997). SFAS 115: taking a closer look. *The National Public Accountant,* June, 25-27.

Financial Accounting Standards Board (FASB). (1993). *Accounting for Certain Investments in Debt and Equity Securities.* Statement of Financial Accounting Standards No. 115. Norwalk, CT: FASB.

Olson, Ronald L (1995). SFAS no. 115—marking to market: a year in review. *Bank Management,* March/April, 16-17.

Telberg, Rick.. (1992). Banks fire new blast in fair value wars. *Accounting Today,* 21 September, 2.

Thompson, James H. (1994). SFAS 115: a victory for fair value accounting. *The National Public Accountant,* October, 21-26.

THE USE AND EFFECTIVENESS OF ANALYTICAL PROCEDURES: A SURVEY

Troy A. Hyatt, University of Northern Iowa
Rebecca L. Steffen, McGladrey & Pullen, LLP

ABSTRACT

The purpose of this study is to update and extend previous research regarding the current use and perceptions of eight specific analytical procedures (APs) by surveying practicing auditors at both Big Six firms and smaller CPA firms. Results suggest that auditors continue to use relatively simple APs (e.g., comparison to previous year's balance) instead of more sophisticated APs (e.g., time series or regression analysis). Participating auditors provided possible reasons for this finding; examining those reasons in more detail may be a productive avenue for future research. Also, the results indicate that the level of use of APs has increased over the last five years, suggesting that APs are playing an ever more important role on financial statement audits. Finally, the results indicate that Big Six firm auditors tend to use APs to a greater extent than do auditors at smaller CPA firms.

INTRODUCTION

Analytical procedures (APs) play an important role in financial statement auditing. In fact, auditing standards require that APs be used during the planning and final review stages of all audits and suggest that they may be an effective and efficient approach to obtaining evidence in the substantive testing stage (AICPA, 1997, AU 329). APs are defined as "evaluations of financial information made by a study of plausible relationships among both financial and non-financial data. Analytical procedures range from simple comparisons to the use of complex models involving many relationships and elements of data" (AICPA, 1997, AU 329.02).

Many research studies have investigated the use of APs. The methodologies employed range from surveys of practicing auditors (see Ameen & Strawser, 1994; Biggs & Wild, 1984), to reviews of actual auditor working papers (see Tabor & Willis, 1985), to case studies in which auditors were asked to utilize APs (see Holder, 1983), to interviews with auditors from the Big Six firms (see Hirst & Koonce, 1996; although their interviews focused on how APs are performed in practice, some of their questions did address the use of APs).

Ameen and Strawser (1994) surveyed practicing auditors to identify the use of six specific APs during audits and then arrived at the following conclusions. First, they found that auditors tended to use relatively simple APs, such as comparison to prior year's balance or judgmental trend analysis, rather than their more sophisticated counterparts, such as time-series analysis and regression analysis, when performing audits. Second, they also found that APs are used extensively (based on the reported proportions of total audit time spent using APs) in all three stages of an audit: planning, substantive testing, and final review. Respondents to Ameen and Strawser's (1994) survey identified

two major reasons, in addition to auditing standard requirements, for the heavy reliance on APs: (1) increased fee pressure felt by public accounting firms and (2) increased use of microcomputers in audits. Ameen and Strawser's (1994) survey results, the most recently published, are based on data collected in 1991. Several years have passed since that time and the auditing environment has continued to evolve. For example, increased competition and exposure to liability litigation continue to exert pressure on auditors to make their audits as efficient and effective as possible. Also, the use of microcomputers on audits has continued to increase. Therefore, the extent to which APs are utilized also would be expected to increase.

The purpose of this research is to update previous research and identify the current level of use of eight specific APs and to extend previous research in several ways. First, participating auditors were asked to identify the level of use of specific APs during each of the three stages of an audit as identified in the auditing standards: planning, substantive testing, and final review (AICPA, 1997, AU 329). Previous research (Ameen & Strawser, 1994) did not separate the audit into stages when surveying the level of use of APs. It seems reasonable to suppose that the various APs may not be used at the same level in all three audit stages. Second, the types of APs provided to the respondents were revised and expanded from six to eight. Third, certain questions were included in an attempt to gather information as to why auditors choose to use the particular types of APs that they do and choose not to use others. For example, why auditors choose to not use a particular type of AP even though they may consider that AP to be effective. Finally, this study investigated what factors have influenced the use of APs over the past five years.

The results of this research should be of interest to standard setters, researchers, practitioners, and educators. For standard setters and researchers, this study provides an update to previous research and a more in-depth analysis of the use of APs in the various stages of an audit. This information may provide some insights as to whether additional guidance is needed on the general use of APs or on the use of specific APs. For practitioners, it provides a benchmark for both Big Six and smaller firms against which firms can compare their usage of APs. For educators, this research may be used to complement textbook discussions of APs by illustrating to what extent and when different types of APs are used during the course of an audit.

METHODOLOGY

The survey instrument used by Ameen and Strawser (1994) was obtained from the authors and used as a starting point; many modifications were required to achieve the goals of this project. Consistent with previous research, respondents were asked to select one industry to use as a reference point while completing the survey. The purpose of this request was to focus the attention of the respondents in order to help them from having to make generalizations which may not hold across industries. Respondents were also asked to indicate the average size, in terms of total annual revenues and total assets, of their clients in the selected industry. The remainder of the survey was organized into four areas: Use of Analytical Procedures, Effectiveness of Analytical Procedures, Changes in the Use of Analytical Procedures, and Demographic Information.

In the first section, respondents were asked to indicate, using a seven-point scale ranging from (1) never used to (7) always used, how frequently they use each type of analytical procedure during each of the three stages of an audit: planning, substantive testing, and final review. The types of APs

include (1) comparison of the current year account balance to the prior year's balance, (2) ratio analysis involving the current year account balance and its relationship with other account balances, (3) judgmental trend analysis, (4) comparison of financial ratios based upon the client's current year account balances with industry averages for those same financial ratios, (5) comparison of the current year account balance to the client's budgeted account balance, (6) comparison of the current year account balance to the expected balance generated by using relevant non-financial data (e.g., using square feet of selling space to estimate total sales), (7) formal statistical time-series analysis to estimate the current year account balance based on the account's balance from a number of previous years, and (8) formal statistical regression analysis to estimate the current year account balance based on its relationship with other account balances. Respondents were also given space to describe a type of analytical procedure used by their firm which was not already listed (they were given this option throughout the survey).

In the second section, the respondents were asked to indicate, using a seven-point scale ranging from (1) not effective to (7) very effective, how effective they felt each of the types of APs were during the substantive testing stage of an audit. The substantive testing stage was chosen because it is the only stage of an audit during which the auditing standards do not require the use of APs. As a result, more auditor judgement is required to determine the extent and type of APs to use during this stage. After answering that question for each of the APs listed, the respondents were asked to review their responses. For those types of APs which the respondents indicated as being very effective (by assigning a score of 6 or 7), but which they had previously indicated they generally do not use (by assigning a score of 1 or 2) during the substantive testing stage of an audit, the respondents were asked to identify the reasons why they do not choose to use that type of AP even though they feel it is effective.

The third section of the survey investigated changes in the use of APs. All respondents were asked to indicate the proportion of time spent during each stage of an audit using APs. From this point on, those respondents without at least five years of auditing experience were instructed to skip the remainder of this section and continue with the demographic information. Those respondents having at least five years of auditing experience were then asked to indicate what proportion of time was spent during an audit conducted five years ago using APs. Next, the respondents were asked to indicate, using a seven-point scale ranging from (-3) large decrease to (+3) large increase, whether the use of each type of analytical procedure has increased or decreased during the substantive testing stage of an audit during the last five years. Again, the substantive testing stage was chosen because it is the only stage of an audit during which the auditing standards do not require the use of APs and therefore more judgment is required. Finally, for only those types of APs whose use the respondents indicated as significantly increasing or decreasing during the last five years (by assigning a score of +/- 2 or 3), the respondents were asked to indicate what effect each of five factors has had on the change in the use of the specified APs. The factors provided included (1) an overall change in your firm's audit approach, (2) increased use of microcomputers makes use of this procedure easier, (3) increased fee pressure resulting in the need for cost-effective procedures, such as analytical procedures, and (4) increased training and/or guidance provided for the use of this procedure. The respondents were also invited to describe a factor not given but that had affected their use of one or more of the APs over the past five years.

The fourth section of the survey gathered demographic information on each respondent, including audit experience, type of firm in which they were currently employed, current position within the firm, professional certifications earned, and the number of people currently employed in the audit division of their office. (The remainder of the paper summarizes the key findings of the study; for a more complete discussion, including tables, contact the first author.)

PARTICIPANTS

In order to efficiently distribute and collect surveys, one representative from eight offices of the Big Six firms and 17 offices of smaller firms located in Iowa and Minnesota was asked to serve as a contact person within their respective office. An agreed-upon number of surveys was then mailed to each contact person who distributed them among the audit professionals in their office with at least two to three years of auditing experience. The contact person collected the completed surveys and returned them. In this manner, surveys were distributed to 92 auditors working for smaller firms and to 96 auditors working for Big Six firms.

Seventy (76% response rate) and 72 (75% response rate) completed surveys were returned by auditors working for smaller firms and Big Six firms, respectively. More than half of the total number of respondents were either manager/senior managers or senior/supervisors. The response of auditors at these levels within the firms is important since they are typically directly involved in the planning, substantive testing, and final review stages of most audits. In addition, they are also responsible for the supervision of staff and assistants.

RESULTS

Consistent with the fact that auditing standards require the use of APs during the planning stage of all audits, the reported level of use of APs during this stage is high. The most commonly used type of AP, comparing the current year's balance to the previous year's balance, had a mean of 6.232 and 6.403, on a scale of 1 to 7, for smaller firms and Big Six firms, respectively. Results also indicate that auditors use simpler types of APs much more than sophisticated methods, such as time-series analysis and regression analysis. The highest means for the sophisticated APs are 1.232 and 1.833 for smaller firms and Big Six firms, respectively. This finding is consistent with previous research (Ameen & Strawser, 1994; Hirst & Koonce, 1996). In addition, although the two groups tend to favor the same specific types of APs, the level of use is generally significantly higher for Big Six firms. As mentioned previously, throughout the survey respondents were provided with space in which to describe a type of AP used by their firm which was not already listed. Of the few responses provided (5 responses out of 142 participants), no type of AP appeared with any frequency—in fact, most of the "other" APs consisted of a combination of one or more of the APs already listed in the survey. Therefore, those responses have been omitted from the results.

Although auditors are not required to use APs during the substantive testing stage of an audit, the results show the level of use of specific APs in this stage to be quite high. Similar to the planning stage, use of the previous year's balance is the most frequently utilized type of AP for both smaller and Big Six firms. Likewise, auditors use the simpler types of APs over the sophisticated APs in this stage as well. Specifically, the highest means for the sophisticated APs, 1.386 and 2.458 for smaller

and Big Six firms, respectively, are considerably below the highest means for simpler APs, which are 5.514 and 6.194 for smaller and Big Six firms, respectively. Finally, the use by the Big Six firms is significantly higher for each and every type of AP listed, suggesting that Big Six firms rely on APs more than smaller firms during the substantive testing stage of an audit.

Responses of auditors employed in smaller firms were compared regarding their use and perceived effectiveness of specific APs in the substantive testing stage. Perhaps not surprisingly, the scores for perceived effectiveness closely follow those for the level of use of the respective APs. It is surprising to note, however, how low the responses were regarding the perceived effectiveness of the sophisticated APs. The means for perceived effectiveness for time-series analysis and regression analysis were 2.561 and 2.712, respectively. The low perceived effectiveness is in conflict with what we know about sophisticated APs from prior research (Kinney, 1978; Knechel, 1986; Wilson & Colbert, 1989), which showed these types of APs to be more effective during audits than their simpler counterparts. However incorrect the perceptions of auditors may be, this finding provides some insight as to why auditors use the simpler APs much more so than the more sophisticated APs (other possible reasons are explored below).

The same comparison between level of use and perceived effectiveness was made for auditors at Big Six firms. The same relationships exist for Big Six firm respondents as they did for smaller firm respondents in that the level of use tends to reflect the perceived effectiveness of the types of APs. Also, the simpler APs are perceived to be more effective than the more sophisticated APs. However, the means of the perceived effectiveness for time-series analysis and regression analysis, which are 3.406 and 3.435, respectively, are approximately one full point greater for Big Six firms than smaller firms.

After the respondents completed the questions regarding the perceived effectiveness of the specific APs, they were asked to review their responses. For those APs that they had indicated as being very effective yet had previously indicated they did not use that AP during the substantive testing stage of audits, the respondents were asked to provide a short explanation of why they generally choose not to use that type of AP. Four types of APs were most commonly noted: comparison to industry ratios, comparison to client's budget, time-series analysis, and regression analysis. In regards to using comparison to industry ratios, respondents communicated frustration with the lack of availability of such ratios and the potential dangers of generalizing industry ratios to specific companies within an industry if those companies have any unique characteristics. Referring to the use of comparison to client's budget, respondents indicated that their clients do not prepare formal budgets and thus they are precluded from using that type of AP. Finally, in regards to time-series analysis and regression analysis, respondents commonly provided one of two responses: (1) lack of software or expertise to use the statistical analysis or (2) cost-effectiveness of other types of APs. This finding gives additional insight into why auditors choose to use simpler APs over sophisticated APs. From these responses, it appears that although the use of microcomputers during audits has increased over time, the use of computer-dependent types of APs (i.e., the sophisticated types) has not increased as anticipated. In addition, it appears that those auditors who recognize the effectiveness of more sophisticated APs also recognize the large amount of time required to use those APs. They are comfortable with the level of assurance provided by the simpler APs and do not believe the benefits of using sophisticated APs outweigh the additional costs. Investigating the validity of this belief may be a fruitful avenue for future research.

The next analysis involves the responses of smaller and Big Six firm participants regarding the level of use of specific APs during the final review stage of an audit. The use of APs during the final review stage is required by auditing standards. The trend is now quite clear. Similar to the previous two stages examined, the use of simpler APs is preferred over the more sophisticated APs, with the use of the previous year's balance again being found as the most frequently used type of AP. Between the two groups of auditors, only time-series analysis and regression analysis were found to have significantly different means, with Big Six auditors using these APs to a greater extent than smaller firm auditors.

The next series of questions related to the current use of APs in the various stages of an audit. The average proportion of total audit time spent using APs in each stage for smaller firms and Big Six firms was calculated. For smaller firms, the use of APs during the planning and final review stages were 40.8% and 41.3%, respectively, while the use during the substantive testing stage was 27.3%. For Big Six firms, the use of APs during the planning, substantive testing, and final review stages were 39.6%, 41.7%, and 48.6%, respectively. During the substantive testing stage—the only stage in which the use of APs is not required by auditing standards—the means for smaller and Big Six firms are significantly different, with the Big Six respondents reporting a proportion of use more than one-and-a-half times greater than the use by smaller firms.

Next, for the small firm auditors, we compared the responses regarding the current level of use of APs to the use from five years ago during each stage of the audit. While the use of APs by smaller firms during both the substantive testing and final review stages moderately increased over the past five years, by 28% and 18%, respectively, the use of APs during the planning stage has increased dramatically—nearly doubling.

A similar comparison was made between current use of APs and use five years ago during each stage of an audit for the Big Six firm auditors. For this group, while the planning and final review stages saw moderate increases, by 32% and 13%, respectively, the most significant change in use of APs occurred during the substantive testing stage—increasing by over 66%.

Next, the results of questioning respondents regarding the changes in the use of specific types of APs during the substantive testing stage were summarized. Overall, the use of each type of AP was indicated as increasing. The AP with the greatest increase in use for smaller firms was the use of ratio analysis involving the account with an average score of 0.917 on a scale from -3 to +3. For Big Six firms, statistically speaking, several APs tied for the greatest increase in use: ratio analysis involving the account (1.089), judgmental trend analysis (0.956), comparison to industry ratios (1.422), comparison to client's budget (1.022), and the use of relevant non-financial data (0.955). Comparing between the groups, the increases in use indicated by Big Six firm respondents are generally greater than those for the smaller firms. This is consistent with the tremendous increase in use of APs during the substantive testing stage for Big Six auditors as discussed earlier. The use of the more sophisticated APs, time-series analysis and regression analysis, only increased by small amounts (from 0.042 to 0.267). This finding was not expected due to the continued increase in the use of microcomputers during audits over the past five years. However, this finding is consistent with the auditors' earlier responses regarding their lack of use of the sophisticated APs during any of the three stages of an audit.

For those specific types of APs which the respondents noted as significantly increasing or decreasing over the past five years during the substantive testing stage, the respondents were asked

to rate several factors as to their effect on the changes in the use of that AP. The respondents were also given a space in which to provide a change factor not listed. No factor or set of factors stood out as having a more significant effect on the change in the use of APs during the substantive testing stage. The respondents indicated that all of the factors listed had a fairly large effect on the change of the use of the APs. The factors provided on the survey were as follows: (1) an overall change in your firm's audit approach; (2) increased use of microcomputers makes use of this procedure easier; (3) increased fee pressure resulting in the need for cost-effective procedures, such as analytical procedures; and (4) increased training and/or guidance provided for the use of this procedure. The participating auditors did not mention any additional factors not listed.

DISCUSSION AND CONCLUSIONS

Several major trends regarding the use of APs during the various stages of the audit can be identified from the results of this survey. As expected, the level of use of APs has continued to increase over the past five years. The most dramatic increases appear to be during the substantive testing stage for the Big Six firms and the planning stage for smaller firms. No single AP can account for this change; rather, auditors seem to be increasing their usage of all APs, in particular the simpler APs. Auditors are continuing to rely on the use of simpler APs rather than more sophisticated types of APs, such as time-series analysis and regression analysis, despite the increased use of microcomputers during audits. The survey results appear to suggest that a reason for this tendency includes a low perception of the effectiveness of sophisticated APs. There is also a feeling that the potential benefits of using sophisticated APs do not outweigh the additional costs, such as the cost of appropriate hardware and software, and the extra time needed to identify, gather, and input the necessary data.

The results of this study should be of interest to standard setters, practitioners, educators, and researchers. For standard setters, it supplies the current level of use of APs, both in the aggregate for the three stages of an audit and in detail for each type of AP during each of the stages of an audit. This information may be able to help standard setters to evaluate whether additional guidance is needed on the general use of APs or on the use of specific types of APs.

For practitioners, it provides information regarding the use of APs in the auditing industry and compares the usage between Big Six firms and smaller firms. It may be used as a benchmark to compare a firm's usage of APs to the rest of the industry. It may also serve as feedback through which firms may evaluate whether APs are being used in accordance with firm policy and objectives.

This study provides a tool for educators which they may use to supplement textbook material when discussing the use of APs. It supplies information regarding the current use of APs in each of the three stages of an audit and which types of APs are preferred by auditors. It also highlights issues concerning the use of APs for which more attention may need to be devoted in the classroom. For example, educators may wish to address the issue of low perceived effectiveness of sophisticated APs.

For researchers, this study provides current information regarding the use of APs and some insights into why auditors prefer the use of certain types of APs over others. Primarily, it suggests some reasons why auditors continue to prefer the use of simpler APs over the more sophisticated types of APs, such as time-series analysis and regression analysis. Investigating the validity of these reasons may be an appropriate avenue for future research.

REFERENCES

Ameen, E.C., and J.R. Strawser (1994). Investigating the use of analytical procedures: An update and extension. *Auditing: A Journal of Practice & Theory* (Fall): 69-76.

American Institute of Certified Public Accountants (1997). *Codification of Statements on Auditing Standards*. New York: AICPA.

Biggs, S.F., and J.J. Wild (1984). A note on the practice of analytical review. *Auditing: A Journal of Practice & Theory* (Spring): 68-79.

Hirst, D.E., and L. Koonce (1996). Audit analytical procedures: A field investigation. *Contemporary Accounting Research* (Fall): 457-486.

Holder, W.H. (1983). Analytical review procedures in planning the audit: An application study. *Auditing: A Journal of Practice & Theory* (Spring): 100-108.

Kinney, W.R. (1978). ARIMA and regression in analytical review: An empirical test. *The Accounting Review* (January): 48-60.

Knechel, W.R. (1986). A simulation study of the relative effectiveness of alternative analytical review procedures. *Decision Sciences* (Summer): 376-394.

Tabor, R., and J. Willis (1985). Empirical evidence on the changing role of analytical review procedures. *Auditing: A Journal of Practice & Theory* (Spring): 93-109.

Wilson, A.C., and J. Colbert (1989). An analysis of simple and rigorous decision models as analytical procedures. *Accounting Horizons* (December): 79-83.

VALUATION OF UNLISTED COMPANIES: A SYNTHESIS AND SOME PROBLEMATIC ISSUES

Rudy A. Jacob, Pace University

ABSTRACT

Commercial litigation controversies frequently involve claims for damages where the value of a business must be determined. For example, a dissident shareholder may sue for his or her share of a business because of the wrongful acts of other shareholders. A corporation or partnership dissolution may require the valuation of a business in order to equitably distribute the assets among the involved parties. Not infrequently, divorce cases may require the valuation of a business where the major asset of the litigants may be a business. This paper discusses the valuation approaches that are generally used to value non-publicly traded businesses in litigation disputes. Specifically, we show the similarities and differences in the approaches and the level of uncertainty that may be involved in estimating some of the parameters in the various models. We argue that certain methods may have a comparative advantage over others given the industry, the availability of data, and the situation.

INTRODUCTION

Commercial litigation controversies frequently involve claims for damages where the value of a business must be determined. For example, a dissident shareholder may sue for his or her share of a business because of the wrongful acts of other shareholders. A corporation or partnership dissolution may require the valuation of a business in order to equitably distribute the assets among the involved parties. Not infrequently, divorce cases may require the valuation of a business where the major asset of the litigants may be a business. The Internal Revenue Service (IRS) may question the value placed on a stock in a charitable contribution transaction. While these examples are not meant to be exhaustive, they do clearly show several litigation contexts that demand a business valuation.

In general, this valuation is necessary because no clearly established, independent value of a business may exist that is satisfactory to all parties involved. This frequently occurs for closely held businesses where the stock of the company was never traded in an open market, or no arm's length negotiated transaction ever took place. Moreover, even when an arm's length transaction may exist, these transactions may have occurred at a time that is too far distant from the relevant valuation date to be useful to the trier of facts in any litigation dispute. Although this paper focuses on the market value of unlisted companies, it should be noted that some questions may arise as to whether the traded price of even the stock of a publicly traded company indicates its fair market value. For example, stocks that are traded thinly or infrequently may be selling at a discounted price because of asymmetric and insufficient information in the market place.

The purpose of this paper is to discuss the valuation approaches that are generally used in litigation disputes. In a survey of economists, respondents not only disagree on which approach to

use but also on the specifics in implementing the approaches (Hubbard & Waldron, 1988). Specifically, we show the similarities and differences in the approaches and the level of uncertainty that may be involved in estimating some of the parameters in the various models. We argue that certain methods may have a comparative advantage over others given the industry, the availability of data, and the situation.

DEMONSTRATING BUSINESS DAMAGES

Actual or compensatory damages are those damages suffered by a plaintiff as a consequence of the defendant's wrongful conduct. These damages can include incremental or out-of-pocket costs or lost business value or lost profits.

For the plaintiff to recover damages at least three primary requirements must be satisfied (Weil, et al.,1995). First, the plaintiff must show that the wrongful act of the defendant was the "proximate cause" of the sustained damages. Proximate cause does not mean the only cause but must at least be the major cause. Secondly, the plaintiff must prove damages with reasonable certainty by providing sufficient evidence to demonstrate that the claimed loss does exist. The loss must be specifically identified and documented. Thirdly, to recover, the plaintiff must show that the lost business value was a foreseeable consequence of a breach of the contract or commission of a tort

Once the damages have been proven, the forensic economist can quantify these damages by using a variety of methods. Since damage estimates by their very nature reflect some degree of uncertainty, the method used to determine lost business value does not necessarily have to be exact. However, the estimate of loss should not be unreasonable and should not be based on wanton speculation and conjecture. Indeed, the damage claim must be reasonable, supported by the facts of the case, and be based upon methods that are generally grounded in sound economic and financial theory. When these criteria are met, the speculation involved in valuing a company is greatly minimized.

MEASURING LOST BUSINESS VALUE

Few financial economists would argue over the general proposition that the value of a firm is the present value of the stream of future expected earnings that will be generated by the firm. As a matter of fact, the value of anything can be defined in this light if one is willing to substitute benefits for earnings. Accepted valuation approaches, which try to measure the above stream, generally include the following:

Discounted future earnings and discounted cash flows (DCF).

41. Market multiple.
42. Asset valuation.
43. Comparable sales.
44. Prior transactions

DISCOUNTED FUTURE EARNINGS AND CASH FLOW APPROACHES. The DCF approach is based on the premise that the value of a business is the present value of the future economic income

available to the owners of a business, discounted at a risk-adjusted discount rate. This approach is a step-by -step procedure of calculating the present value of the future stream of earnings of the firm as a going concern. It is clear that the concept of earnings used in this type of model, which emanates from the finance literature, is more related to cash flow than to accounting earnings. In the theoretical development of this model, earnings are generally defined as the cash flows after the replacement of depreciated assets. Thus, accounting net income is not the correct variable for this model. Only in a very stylized world characterized with a number of cogent assumptions will accounting net income meet the aforementioned definition of cash flow.

Free cash flow has been suggested by some as the appropriate variable to use in this model. It is defined as the cash available to debt- and equity holders after investment Free cash flow, which explicitly adjusts for replacement of depreciable assets and new investment, is theoretically available to shareholders to be distributed as dividends. Thus, discounting interim free cash flows plus the company's terminal value would provide a useful measure of the firm's value.

Forecasting future free cash flow is by no means a simple task. It is unlikely that any type of extrapolative models or index models would do a good job in forecasting free cash flows. (These are "mechanical models" in that forecasts are made mechanically using the statistical properties of these models without any further judgment on the part of the forecaster.) And even if the expert builds a sophisticated econometric model using balance sheet and income statement data, this would necessitate forecasting right hand side variables which, undoubtedly, would invite further controversy.

As alluded to earlier, future cash flow streams must be discounted back to the present at some discount rate that reflects the risk complexion of these flows. No simple formula exists for determining this discount rate. However, less speculation is involved if this rate could be rooted in market generated information. For example, if one can identify a similar, publicly listed firm in the same industry, one can use the Capital Asset Pricing Model (CAPM) to estimate the cost of equity capital and, if necessary, the weighted average cost of capital (WACC) of the firm. (The weighted average cost of capital is a weighted average of the required rates of return of all providers of capital. It is based on the relative proportion of debt and equity in the company's capital structure.)

Although the expert may feel a little comfortable in developing an estimate of the discount rate that is rooted in market data, he/she must still temper this estimate with good judgment. For example, is management too optimistic in its sales' forecasts? Is there a significant probability that the future cash flow streams will not be achieved given the extant organizational problems? Is the company in question more highly levered than similar companies in the industry? Positive answers to these questions would suggest higher operating and financial risk, thus requiring an increase in the discount rate. To check on the reasonableness of some of the assumptions that were made in estimating the parameters used in calculating the present value of the free cash flow streams, the expert may perform sensitivity analysis by varying some of these assumptions. This type of "if-then" analysis not only provides a reality check but would suggest the variables for which the expert may want to develop a more accurate forecast.

Although few economists would question the theoretical underpinnings of the DCF model, its application in practice requires numerous assumptions resulting in the expert swimming in murky waters. Of course, the less speculative this model's parameters' estimates are, the greater the likelihood that the trier of fact will accept the expert's valuation.

MARKET MULTIPLE. A second valuation approach relies on market multiples for comparable firms. This approach assumes that a firm's value is determined by the risk/reward characteristics of comparable firms in the same industry. The expert can calculate the value of the unlisted company as the product of the market-generated price/earnings or price/cash-flow ratio of publicly traded companies in the same industry (for example, the average P/E ratio of firms in the industry) and the most recent earnings of the firm. Since earnings and cash flow are specifically defined by the Securities and Exchange Commission (SEC), less speculation is involved in defining these variables. Moreover, a separate forecast does not have to be made for the discount rate. However, it is not a non-trivial task in determining the amount of earnings or cash flow to use in this approach. For example, if the earnings of the company fluctuate significantly from period to period, simply using the most recent earnings may distort considerably the true earnings potential of the company.

Based on the above discussion, it is quite clear that if this valuation is to be valid, the expert must exercise care in choosing publicly listed companies that are comparable to the non-publicly traded company in such areas as financial and operating leverage, size, liquidity, diversity of operations, market share, operating strategies, growth prospects, and so on. Using industry data may mitigate some of these problems since the risk/reward ratio of firms are influenced by market forces that are common to all firms in the industry. This indeed is the basic tenet underlying the CAPM.

ASSET VALUATION. This approach relies on the valuations of individual assets and liabilities. This method is extremely difficult to apply because of the lack of publicly available information for the assets of the company. The valuation of intangible assets, such as patents, trademarks, special suppliers' arrangements, etc., also presents some special problems. Furthermore, the expert would have to make a decision whether to value the company as a going concern or one where the assets will be liquidated. The value-in-use of an asset generally differs from the value-in-exchange.

This approach is generally most useful for companies with significant investments in real estate where fair market valuations are publicly available, and the earnings potential of the companies is manifested more in the balance sheet than in the income statement. The asset valuation approach is totally useless in valuing companies where the major assets is human capital, which is not even listed on the balance sheet. Moreover, since this approach is only valid when it reflects a valuation that is greater than the present value of the firm's stream of earnings as a going concern, the value of the firm as an on-going enterprise must be calculated.

COMPARABLE SALES. Recent comparable sales transactions of similar firms may provide invaluable information to the expert in valuing a specific company. The recent sale of a similar business is indicative of the price one is willing to pay today for an expected future stream of earnings. The transaction must reflect fair market value and, if applicable, appropriate adjustments must be made for any discounts or premiums in the sale.

In any event, the same level of scrutiny, as discussed in the previous methods, must be applied in evaluating the risk and return characteristics of the subject company and the comparable company. For example, one may want to calculate the P/E multiple of the comparable company and then determine whether the earnings and risk complexion of the comparable company bear any semblance to that of the subject company being valued. This analysis may result in adjusting the price up or down to compensate for any differential risk that may be present. The more comparables and the

greater the similarity in terms of size, location, nature of the business, earnings history, etc., the more valid the valuation.

PRIOR TRANSACTION. If the expert is lucky enough, a recent transaction in the subject company's stock may have been executed. However, the expert must ascertain whether the sale was between unrelated parties and was negotiated in good faith. In essence, an arm's-length transaction where no undue pressure is placed on the buyer or seller, and all relevant financial information is made available to the buyer, is indicative of sound valuation.

CONCLUSION

In a conceptual framework, each of the approaches can be viewed as a way to value a firm's economic income streams . Since it is unlikely that these different approaches will yield the same value, the expert must reconcile these values. Normally, a single value is presented to the court although it is not unusual to have a range of values.

Some economists may favor an approach that is rooted in market-generated information, since in the eyes of the court this valuation of the subject company seems less speculative. However, given the context and situation, the expert may know a priori that a certain method is more acceptable over other methods to both the profession and the courts. As suggested earlier service companies, whose main asset is human capital, and thus not listed on the balance sheet, should be valued more on their earnings generating process rather than on the fair market value of their assets and liabilities. On the other hand, asset holding companies such as real estate firms are typically valued using an asset-based approach.

It is clear that valuing companies is not a science; it's an art where considerable judgment must be exercised and both quantitative and qualitative variables must be assessed. Sound economic reasoning with expert judgment can immensely minimized the speculation that may plague this type of analysis.

REFERENCES

Hubbard, C.M. and D.G. Waldron (1988). "The Valuation of a Closely Held Firm: Differences in Expert Opinion," *Journal of Forensic Economics*, December 1988, pp.47-54.

Weil, R., M. Wagner & P. Frank (1995). "Litigation Service Handbook," Wiley, 2nd edition.

THE ROTH IRA, DEDUCTIBLE IRA, TAX SHELTERED ANNUITY OR 401(K): WHICH IS THE BETTER INVESTMENT

Rodger R. Trigg, Columbus State University
Rodger G. Holland, Columbus State University
Fabian K. Nabangi, Morehouse College
Emmanuel O. Onifade, Morehouse College

ABSTRACT

The Roth IRA is a new type of IRA that was established by the Taxpayer Relief Act of 1997. It is available for use by taxpayers for years beginning after December 31, 1997. The deductible IRA, the tax sheltered annuity and the 401(k) plan have been available for use by investors for many years. How do these different investment vehicles compare with one another? This paper attempts to answer this question.

INTRODUCTION

The Taxpayer Relief Act of 1997, honoring Senator Roth of Delaware who was responsible for the idea behind it, established the Roth IRA. This IRA is a new type of IRA that can be used instead of the deductible IRA or the nondeductible IRA or it can be used in conjunction with them. Investors now have three types of IRAs to choose from. If a person works for a charitable organization or a public school, he is eligible to invest in a tax sheltered annuity, called a 403(b) plan. Also, if an individuals employer has a 401(k) plan, the individual can make tax deferred contributions to it. How do these different investment vehicles compare? The answer to this question is discussed in the rest of this paper.

THE ROTH IRA

The Roth IRA is available for the first time starting January 1, 1998. An individual is allowed to contribute a maximum of $2,000, $4,000 if the taxpayer is married and their spouse also works, or the taxpayer's compensation, whichever is less, each year to a Roth IRA. The $2,000 amount also has to be reduced by any amount that was contributed to any deductible IRAs. The contributions to the Roth IRA are not deductible by the taxpayer when they are made, but if the contributions are left in the IRA for five years or more, distributions that are made after the taxpayer reaches 59 1/2 years of age are normally tax free. This means that all of the earnings that have accumulated in the Roth IRA escape taxation. Unlike a deductible IRA, distributions from a Roth IRA do not have to be made by the time that the taxpayer reaches 70 1/2. This means that a person could leave the money in a Roth IRA for longer periods of time than in a deductible IRA. One problem with the Roth IRA is

that the contributions are phased out for high income taxpayers. For married taxpayers, the phase out begins when modified AGI is above $150,000 and is completely phased out when modified AGI reaches $160,000. For other taxpayers, the phase out is between $95,000-$110,000 of modified AGI. However, this level of income is higher than the phase out for contributions to a deductible IRA when the taxpayer is covered by a qualified pension plan by his employer. The 1997 Act has increased the phase out for the deductible IRA to $80,000-$100,000 of modified AGI for married taxpayers, by 2007 and to $50,000-$60,000 of modified AGI for single taxpayers, by 2005. This means that more people will be able to invest in a Roth IRA than in a deductible IRA where the person's employer has a qualified plan, at least for several years.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

For 1998, taxpayers with AGI of less than $100,000 can roll over there deductible IRAs to a Roth IRA. If they elect to do this, they will have to include one fourth of the amount in income over the next four years and pay the regular income tax on it. Then when they withdraw the accumulated amount later, if the required conditions are met, the entire amount will be nontaxable.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

These conditions make the Roth IRA a good investment when the contributions can be left to accumulate for a long time. This will be discussed later.

DEDUCTIBLE IRAs

The deductible IRA has been around for many years. A maximum of $2,000, $4,000 if married and both spouses work, can be contributed to a deductible IRA if the earned income of each spouse is at least $2,000. If a person is not covered by a qualified pension plan, a contribution can be made to a deductible IRA no matter how high the AGI is. If a person is covered by a qualified pension plan, the deduction is phased out as mentioned above. A change made by the 1997 Act allows a married person to contribute to a deductible IRA even if their spouse is covered by a qualified pension plan and there is not phase out as under the prior law.

Distributions have to be started by April 1 following the year in which an individual reaches 70 1/2. However, the penalty for excess withdrawals was eliminated by the 1997 Act. These withdrawals are taxable in full to the taxpayer when made.

401(K) PLANS

Employers are allowed to set up qualified pension plans for their employees as long as they meet specific requirements as specified by the income tax law. The 401(k) plan is a "cash or deferred" arrangement. Employees are allowed to make deductible contributions or take the cash instead. Basically, any employer is eligible to establish a 401(k) plan for their employees.

The maximum amount that an employee can contribute to a 401(k) plan is limited. The limit for 1997 was $9,500. This amount is considerably higher than the $2,000 that can be contributed to a Roth or deductible IRA. However, an employee could contribute $2,000 to an IRA and still contribute to the 401(k) plan.

TAX SHELTERED ANNUITIES

Tax sheltered annuities or 403(b) plans, can be used by employees of charitable organizations and public schools. The public schools that can establish these type of annuities are elementary, middle, high or colleges and universities. The amount that an employee can contribute to this type of plan is limited and the law provides a formula to determine how much can be contributed. For 1997 the amount was $9,500, the same as the 401(k) amount but in some cases, an employee can contribute a "catch-up" amount because they did not contribute the maximum amount in the past. The maximum that can be contributed in any one year is still much higher than the amount that can be contributed to either a Roth or deductible IRA. When contributions are made, they are tax deductible just like the contributions to a deductible IRA. Considering the above discussion of the four different investments, which one is better? The rest of this paper discusses this question.

SIMPLE COMPARISON

Since the 401(k), the tax sheltered annuity and the deductible IRA are all deductible in determining taxable income, they should all have the same total accumulations if the same amount is contributed each year. Because of this, the investment results of these three investment alternatives should be the same. So, in the analysis, we really compared the four investment alternatives using the maximum investment that is allowed by the IRAs, $2,000. There is nothing to prevent someone from putting the maximum into an IRA an then contributing whatever they can afford into the 401(k) or the 403(b). Also, not all employees can contribute to a 401(k) because many employers do not have them and only a select group is able to invest in a 403(b) arrangement.

Taking the simplest case first, we assumed that an individual had $2,000 to invest before tax. This means that the person could invest $2,000 into a deductible IRA or $2,000 times one minus the tax rate into a Roth IRA. Assuming that the person is in a maximum 28% tax rate for federal tax purposes, the maximum that would be available to invest in the Roth IRA would be (2,000 x (1 - .28)) or $1,440. If each of these investments earned the same return the results at retirement would be the same if the tax rate that the person was in at retirement was the same as the tax rate when the funds were invested. If the tax rate was lower at retirement than it was when the funds were invested, then the deductible IRA would be the better investment by the percentage difference between the retirement tax rate and the investment tax rate times the tax rate when the funds were invested and it does not matter how long the funds were invested. Example: Assume that $2,000 was invested each year in a deductible IRA and $1,440 was invested in a Roth IRA for a period of five years. The Roth IRA would accumulate to $8,447.91 and the deductible IRA would accumulate to $11,733.20. The deductible IRA would be taxable but the Roth IRA would not be. If we assume that the tax rate was 28% when the funds were contributed and the rate was 15% when they were withdrawn, the deductible IRA would net the investor after tax ($11,733.20 x (1 - .15)) or $9,973.22 which is $1,525.31 more than the Roth IRA. These same type of differences will exist no matter how long the funds accumulate as long as the tax rate is less at the time the funds are distributed. So that would make the deductible IRA better than the Roth IRA whenever the tax rate is less when the funds are withdrawn than it was when they were contributed.

MORE COMPLEX CASE

Assuming that a person wanted to contribute the maximum $2,000 to either a Roth IRA or a deductible IRA what would the results be? In order for a person to contribute $2,000 to a Roth IRA, assuming a 28% tax rate, the person would have to have $2,777.78 before tax to have the $2,000 after tax. They would only have to have $2,000 for the deductible IRA since it is tax deductible. By contributing the full $2,000, the accumulation would be the same for both investments. If we assume that the investment earned 8% and was left to accumulate for ten years before it was withdrawn, the accumulated amount would be $28,973.12 for either. However, if we also make the assumption that since $2,777.78 was available to invest, the $777.78 minus tax of $217.78, $560.00, is invested by the person that chooses the deductible IRA then the accumulation of this additional investment would have to be added to the $28,973.12, after tax, is $28,159.23, a difference in favor of the Roth IRA of $813.89. But, if we assume that the tax rate when distributed is only 15% then the difference is $3,389.63 in favor of the deductible IRA. If we assume an investment period of thirty years and the same tax rates when the funds are invested and when they are distributed, the Roth IRA if better by $20,992.27. However, if the tax rate goes down, the deductible IRA could be better depending on the actual rate reduction.

CONCLUSIONS

Taking into consideration the above analysis, which IRA is best? It depends on several factors. If the time period that the funds are accumulating is long and the tax rates are the same when the funds are contributed as they are when the funds are withdrawn, then the Roth IRA is a better choice that the deductible IRA. If the tax rate is lower when the funds are withdrawn than when they were contributed then the deductible IRA would be the better choice if the tax reduction was large enough. There is no single right answer.

REFERENCE

Taxpayer Relief Act of 1997: Law and Explanation. (1997). *Standard federal tax reports (vol 84, Issue No 42)*. Chicago: CCH.

A SELECTION OF PERSONAL INCOME TAX CHANGES FOR 1998

Rodger R. Trigg, Columbus State University
Rodger G. Holland, Columbus State University
Fabian K. Nabangi, Morehouse College
Emmanuel O. Onifade, Morehouse College

ABSTRACT

The Taxpayer Relief Act of 1997 is the largest tax bill that Congress has passed in the 1990s. It contains many tax cuts along with many tax increases. This paper discusses several of the provisions that effect individual taxpayers. Some of the most important provisions that are discussed are the sale of a personal residence, the child tax credits and the capital gains tax rates reduction.

INTRODUCTION

On July 31, 1997 Congress passed the Taxpayer Relief Act of 1997 and the president signed it into law on August 5, 1997. This piece of legislation contained thirty-six retroactive provisions, one hundred fourteen changes that took effect when the president signed the bill, sixty-nine changes that took effect on January 1, 1998 and five changes that are effective after 1998. It added two hundred eighty-five new code sections and amended eight hundred twenty-four other code sections. It is the first major tax reduction that has been passed in sixteen years. It provides for $151.6 billion in selective tax cuts and it provides for $56.4 billion in tax increases. Also, as has been the effect of most tax bills that have been passed in recent years, it adds new complexities for most individual taxpayers. Investors, homeowners and families (below a certain income level) benefit the most.(Taxpayer Relief Act of 1997: Special Report, 1997)

The rest of this paper explains some of the major provisions of the act and discusses how these changes will effect the income of the taxpayers.

CAPITAL GAINS AND LOSSES

The tax rate on Capital gains has been reduced from 28% to 20% for taxpayers who are in a tax bracket above 20% and to 10% for individuals who are in the 15% tax bracket. These new rules are not as simple as a plain reduction of the rate from 28% to 20% or from 28% to 10%. The law establishes a different holding period for determining when a capital gain is long-term and thus subject to the lower rates. It also establishes a "mid-term gain" holding period. If an asset is sold that is in this "mid-term gain" holding period, any gain on its sale will be taxed at the old 28% rate.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

If an asset has been held for over twelve months but not over eighteen months, it is in the "mid-term gain" holding period. Any gain from the sale of these assets will be taxed at the old 28% maximum rate. If an asset has been held for over eighteen months, any gain from its sale will be subject to the new lower 20% or 10% rates. If an asset has been held for twelve months or less, any gain from its sale will be considered short-term gain, the same as the prior law, and will be taxed at ordinary income rates, possibly as high as 39.6%.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

Another change that will go into effect for sales of certain capital assets after December 31, 2000 will further reduce the capital gain rate. If an asset has been held for more than five years, the rate that will have to be paid on a gain from its sale will be taxed at either 18% or 8% depending upon what tax bracket the taxpayer is in. If the taxpayer is in a tax bracket above 15%, the gain will be taxed at 18% and if the person is in the 15% tax bracket, the gain will be taxed at 8%. There are special rules that have to be followed in determining when the holding period begins for assets that are eligible for these lower rates. If a person is in a 15% tax bracket, assets acquired before December 31, 2000 will qualify for the lower rates. However, if a person is in a tax bracket above 15% the asset has to have been acquired after December 31, 2000 to qualify.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

SALE OF PRINCIPAL RESIDENCE

Before the 1997 law change, if you sold your principal residence and within two years before or after the sale you purchased a replacement residence you could defer any gain that you had on the sale if you paid enough for the new residence. This non-recognition was mandatory if you met the conditions. Also, there was a "once in a life time" exclusion of up to $125,000 of gain on the sale of a principal residence provided that you had lived in and owned the residence for three of the last five years. The three years of ownership and use did not have to be consecutive. Also, you had to be at least fifty-five years of age by the date of the sale. The 1997 act eliminated these provisions and replaced them with a $250,000 exclusion per person. If a joint return is filed, the exclusion can be $500,000. A taxpayer can elect not to exclude any of the gain.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

The really good thing about this change is that the $250,000 exclusion can be used every two years. As long as a person has owned and occupied the residence as a principal residence for two out of the five years before the sale, the exclusion applies. If the ownership or residence requirements are not met, the exclusion is prorated if the sale or exchange is the result of a change in place of employment, health or for some other unforeseen reason. The ownership and use of any prior residence, on which gain was deferred, is added to the current residence to determine if the two year requirement has been met on the date of sale. If the selling price of a house is less than $250,000 or $500,000, if married, the real estate reporting requirements are waived.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

The new requirements became effective for sales and exchanges that are made after May 6, 1997. Taxpayers may elect to use the prior law on sales and exchanges that are made before August 5, 1997.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

TAX CREDITS

The act allows a tax credit for each qualifying child in a family that is under the age of seventeen. A "qualifying child" is a son, daughter, stepson, stepdaughter, or foster child for which a taxpayer can claim a dependency exemption. The credit is $400 for each qualifying child for 1998 but for 1999 and subsequent years it is increased to $500 per child. The credit is phased out at the rate of $50 for each $1,000 that the taxpayer's modified AGI exceeds the applicable phase-out threshold. The phase-out threshold amounts are $110,000 for married taxpayers filing jointly, $75,000 for nonmarried individuals, and $55,000 for married taxpayers filing separately. Except in the case of taxpayers with three or more children, the credit is nonrefundable.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

Two new credits are available starting in 1998 that will help to offset the costs of higher education. The HOPE credit provides for a nonrefundable credit equal to 100 percent of the first $1,000 of tuition and related expenses and 50 percent of the next $1,000 of such expenses. This is a total first year credit of $1,500 and an overall limit of $3,000. In order for an individual to qualify for the credit, he must be enrolled for at least one-half of the normal full-time course load for one or more semesters during the year. If a person has been convicted of a Federal or state felony offense related to a controlled substance, he does not qualify for the credit. The credit applies to education expenses that are paid after December 31, 1997.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

The other credit is the Lifetime Learning credit which provides a nonrefundable credit equal to 20% of $5,000($10,000 beginning in 2003) of tuition and related expenses paid during the year. If the HOPE credit has been used for any expenses, they are not to be used for the Lifetime Learning credit. The Lifetime Learning credit is available for expenses that are paid after June 30, 1998.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

The HOPE and the Lifetime Learning credits are phased out for individuals with modified AGI between $40,000-$50,000 and for married taxpayers with modified AGI between $80,000-$100,000. These amounts are to be adjusted for inflation beginning in 2002. The credits are available for expenses paid to attend post-secondary educational institutions by the taxpayer, the spouse of the taxpayer, and individuals qualifying as dependents of the taxpayer. Married individuals must file jointly to qualify for the credits. If more than one person is attending school, both credits could be utilized.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

INDIVIDUAL RETIREMENT ACCOUNTS

The act made several changes to IRA's. It created a new type of IRA, called the Roth IRA which is nondeductible when the contributions are made but when distributions are made from it, they are nontaxable if certain requirements are met. It also modified the phase-out threshold for taxpayers that are covered by qualified pension plans at their job. It increases this phase-out from $25,000-$35,000 of AGI for single taxpayers to $50,000-$60,000 of AGI by the year 2005. For married taxpayers filing jointly, the phase-out increases from $40,000-$50,000 of AGI to $80,000-$100,000 of AGI by the year 2007.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

Starting in 1998, a taxpayer can make an annual nondeductible contribution of up to $500 per designated beneficiary, who is under the age of eighteen, to an education IRA. If distributions are used to pay for secondary education expenses for a designated beneficiary under the age of thirty, they are tax free to the beneficiary. If the IRA is not distributed and used for educational expenses by the time that the beneficiary reaches age thirty, they have to be distributed and the earnings are taxed at the regular income tax rates plus they are subject to a 10% penalty tax. However, if the amounts that have accumulated for a specific beneficiary are not used by that beneficiary by the year that he reaches age thirty, they can be rolled over to the account of another qualifying beneficiary without any tax consequences. The annual contribution limit is phased-out for individuals with modified AGI between $95,000-$110,000 and for joint return filers with modified AGI between $150,000-$160,000.

Another provision that was passed that effects IRAs is that withdrawals can be made from an IRA to pay for higher education expenses with them not being subject to the 10% penalty tax. This provision applies to withdrawals that are made to pay the higher education expenses of the taxpayer, the spouse of the taxpayer, a child of the taxpayer, or a grandchild of the taxpayer.

MISCELLANEOUS PROVISIONS

There are many other provisions that effect individuals, some of them will be discussed here. After 1998, the $10,000 annual exclusion that is available for gift tax purposes will be indexed for inflation. The exclusion for up to $600,00 for gift or estate tax is being increased to $1,000,000 by the year 2006.

The exclusion for up to $5,250 for employer-provided undergraduate educational assistance has been extended. For courses that begin before June 1, 2000, the employee can receive reimbursement for up to $5,250 and will not be taxed on it. The exclusion from income does not apply for tuition reimbursement for graduate level courses.

Under the prior law, a person who was a bona fide resident of a foreign country for a period that included a complete calendar year or a person who had resided in a foreign country for a period of 335 days out of a 365 day period could elect to exclude up to $70,000 of earned income from the foreign country. This $70,000, starting in 1998, will be increased by $2,000 per year until 2002 when it reaches $80,000.

Starting in 1998, a taxpayer be will able to deduct for AGI up to $1,000 of qualified education loan interest. The deduction is increased in increments of $500 each year until 2001 when the deduction will be $2,500. The deduction will be phased-out for taxpayers with modified AGI between $40,000-$55,000 and for joint filers with modified AGI between $60,000-$75,000. The phase-out ranges will be indexed for inflation beginning in 2003. The qualified education expenses that were paid with the loan money have to be reduced by education related exclusions. These exclusions include scholarships, educational savings bonds, educational IRAs and educational assistance programs. If a taxpayer is married, he must file a joint return to obtain the deduction.

The carryback and carryforward periods for a net operating loss have been changed. The carryback period is two years, formerly three years, and the carryforward period is now twenty years, formerly fifteen years. The three year carryback has been retained for losses that are attributable to

casualty or thefts and for farming businesses and small businesses, ones that have average annual gross receipts of $5 million of less.

If a person is self-employed, he can deduct from gross income a portion of the health insurance premiums that he pays for himself and his family. The deduction is being increased to 100% of the premium over a ten year period.

The charitable contribution mileage rate, which for 1997 is 12 cents, is being increased to 14 cents for years after December 31, 1997.

For tax years beginning after December 31, 1997, the amount of tax that has to be due before an individual has to pay estimated tax is being increased from $500 to $1,000. In relation to this, any underpayment of tax that is a result of tax changes caused by the 1997 tax act will not be subject to the underpayment of tax penalty. This applies to periods before 1998, and for payments due before January 16, 1998.

Another provision that will effect investors is the rollover of gain from the sale or exchange of small business stock. This is a new provision that will allow the gain from the sale or exchange of qualified small business stock to be rolled over to other small business stock that the taxpayer buys. The holding period of the qualifying stock will include the holding period of the stock that was sold and on which the gain was rolled over.

Income averaging was repealed many years ago for ordinary income. However, the act has included a provision that will allow farmers to use income averaging, over a three year period, to compute tax on income attributable to a farming business.(Taxpayer Relief Act of 1997: Law and Explanation, 1997)

CONCLUSIONS

The Taxpayer Relief Act of 1997 is a very complex piece of tax legislation. The items that have been discussed in this paper apply only to individual taxpayers. The act has many other provisions that apply to pension plans and corporations. There is not enough time or space to discuss all of the provisions in this paper. We tried to discuss the provisions that we considered to be the most important ones that effected individual taxpayers. Before anyone uses the information that is discussed in this paper, he/she should research the area very thoroughly before any type of decision relating to the item is made.

REFERENCES

Taxpayer Relief Act of 1997: Law and Explanation. (1997). *Standard federal tax reports (vol 84, Issue No 42)*. Chicago: CCH.

Taxpayer Relief Act of 1997: Special Report. (1997). *Standard federal tax report*. Chicago: CCH.

PERFORMANCE MEASURES IN THE OPERATIONS OF THE PULP WOOD INDUSTRY

Wanda I. DeLeo, Winthrop University
Pamela D. Hucks, Canal Industries, Inc.
C. Angela Letourneau, Winthrop University

ABSTRACT

The Changing Hardwood Into Paper Company (CHIPCO) generates a 100 page package of financial information and provides it to a number of stakeholders, including production managers. The problem is that the information presented, or the format of the information is of limited value to production personnel. Production managers would be better served by a much more limited amount of information that relates more directly to their responsibilities. The purpose of this report is to determine what information is needed at the production manager's level by analyzing the results of a questionnaire sent to those managers.

INTRODUCTION

Cooper (1997) determined that one criticism of accounting information, and justifiably so, is that the wrong information is often received too late. This criticism applies to CHIPCO where financial information passed to managers is voluminous, but lacks the needed information in an easily understood form. Typically management accounting information has monthly or longer period perspective and is used to evaluate past performance. Traditional performance measurements focus on financial areas, such as net income and sales. The non-financial measures, such as defects in manufacturing, man hours and recovery rate for raw materials are difficult to extract, if they are there at all.. Managers need the information they get now, the financial information, to assess past performance. What they are lacking is the non-financial information necessary to make current production as cost efficient as possible.

Financial and non-financial information both need to be re-examined to determine if the date is presented in the most usable format. According to Reeb and Cameron (1996), the financial presentations should answer ten specific questions. Table 1 displays the ten questions. To discover what financial information is needed to address the questions above, he must find out who makes decisions and when, what information the decision is based on, the location of that information, why it is needed, and how it is used.

Determining what to measure for which stakeholder is as critical as the measurement itself. Shareholders and production managers require different data. Key stakeholders are not limited to shareholders but also customers, suppliers and employees. Some stakeholders would benefit from the firm's assessment of how it is perceived by non-stakeholders (Brown, 1997). Selected measures should reflect the company's business strategies. When evaluated together they become a gauge of

how well the company's goals are being met (Morrissey and Hudson, 1997). Information for some stakeholders may have a cost perspective, while other information has a managerial perspective.

TABLE 1
Ten Questions Financial Presentation Should Answer

1. Where is the company going?
2. Is it optimizing its potential profits?
3. Is its cash position adequate to support the current business trend?
4. What are the most pressing problems?
5. What opportunities might the company be able to take advantage of?
6. What are the areas for improvement with a high return?
7. Are there any areas that expose the company to excessive risk.
8. Is there adequate information to assess individual performance and support a corresponding reward system?
9. Is the information system providing an acceptable level of detail and timeliness to all levels of management?
10. Does the company over-manage cost and under-manage sales or vice versa?

Source: Reeb and Cameron, 1996.

To be an effective manager of costs requires in-depth knowledge of the company's strategy, production, and operating systems. One key to cost effectiveness is to provide managers with more timely information in a form the is easily understood. The timely aspect may be addressed by providing only that information managers need to direct current production, but to provide it weekly. Allow the managers to then use that information as they see fit without undue oversight, and without requiring extensive reports to justify their actions. Upper management must, of course, pay attention to results. .For a division, about five pages of 81/2 x 11 paper should provide sufficient usable information for a production manager. Only if there seems top be some discrepancy should the manager request additional data. Given that all of the reports should be computer generated, it should involve little administrative time to provide the additional information to selected managers. The general focus of the concept is to provide specific and minimal information o each stakeholder. Such a system adds to efficiency in two ways. The managers only have a few sheets of information to refer to, and the administrative personnel spend less time providing unused information.

Again, the key is to identify information that is truly useful and eliminate the rest. Focusing on the information that affects the day to day business will alert the manager when something questionable is happening. Attempt to provide the manager with information that shows cause and effect between operations and profit making, and eliminate everything else. Iverson (1997) also suggests a monthly report that would be more detailed but similar to the weekly reports. It would be all data and no text. Each division=s costs are compared to their budget, their sales revenue, their monthly contributions to earnings, and their monthly return on assets employed. The weekly and monthly reports re-inforce each other. The limited information handled by each manager makes what information they do have simpler to understand.

At the start of the process, upper management must think through the complete sales/ production process and determine the best decision making model that would serve the operation. Then make a commitment to implement the model at all levels (Iverson 1997).

PERFORMANCE MEASURES

Ratios help summarize a business's strengths and weaknesses. Ten or 12 of the relevant ratios would give the manager sufficient information to identify questions or draw conclusions from the analysis. There are five categories of financial ratios: Liquidity Ratios, Asset Management Ratios, Debt Ratios, Profitability Ratios, Market Ratios. "Degree ratios"-- provide insight into the magnitude of a business situation. (debt, liquidity and working capital can be grouped into this category). "Predictive ratios" -- provide feedback to areas where negative change may just be starting. Ex: Historical average for inventory turn over is four turns a year, but may have recently slowed to 3.7. This indicates that inventory is growing, cost of goods sold is rising or sales are dropping; any one of which demands management attention. By itself, the ratio will not reveal what is occurring, but it will raise a red flag that something is happening which may require action.

CHIPCO needs predictive ratios since the reporting is currently provided to the managers of the chip mill. Degree ratios are monitored at the corporate level. Managers or users of the information are only responsible for the actual cost of manufacturing and the associated administrative cost of operations.

Ratios are not the only tool used to analyze data. Key operating statistics or critical success factors should be considered. Each operation has different requirements; the chip mills may require hours worked, overtime, rework and scrap, while bark/by-products division gleans more from shipments, cash collected, and sales invoices processed. After completing the analysis, the format in which the data is presented to managers must be determined. Converting the numbers to graphs makes the information easier to digest. Managers can tell at a glance which operations need attention and which are progressing satisfactorily.

Traditional performance measurements focus on financial areas, such as net income and sales. The non-financial measures, such as defects in manufacturing, man hours and recovery rate for raw materials are often calculated separately. When managers consider both sets of information and understand their interrelationship a better picture of the firm emerges.. Together this information tells managers how the business is progressing.

Managers would use a process measure which provides feedback on how a process is working. For example, the measure would track production output, defects in the product, customer complaints, machine downtime or missed shipments. At our mills an example would be the recovery rate, how much prodips we produce for each tons of raw materials (logs) placed into production. Managers rely on such measures for the insight they need to be more predictive and to anticipate problems the measures uncover. A result measurement based on financial reports looks at the consequence, but only at the end of a process. By then, its too late to make decisions that might have altered the outcome.

CHIPCO'S CURRENT FINANCIAL SYSTEM

CHIPCO needs to evaluate the current methods used to gather, assimilate and report this information. Reporting data for the sake of reporting is not effective or efficient. Too much data can be just as bad as too little data. Both leave management without the information needed to make timely decisions. To prevent the continued misuse of employees' time and talents, it is necessary to determine what to measure, how to measure it, and which reporting method or methods of these measures is best suited to assist management in the operation of the business.

Inverson (1997) indicated in total, about five pages of data to monitor operations is all that is digestible and necessary. Compare this with CHIPCO'S financial report, 90 pages plus, prepared each month. Only when the numbers look out of line is additional information requested. We need to provided the information needed to manage effectively and work just as hard to keep reports to a minimum as we work to get the information necessary.

MANAGER'S NEEDS

Figuring out the best methods for helping managers is the current objective of the accounting department within CHIPCO. Our accounting managers must become proactive. Performing ratio analyzes, reviewing key operating statistics, and studying critical success factors must be performed as a prerequisite to the preparation and dissemination of information. Our accounting staff should be looking beyond just counting and tracking and reporting. The focus should be on targeting information to specific users.

For CHIPCO, I would recommended that we take a look at the operations at the mill level first. Managers should study their operations and determine what key indicators are relevant for their division. Those items that drive their cost and revenues, such as tons produced, machine hours, or man hours need to be identified. Once we have determined the information that needs to be reported, managers would prepare reports that are easily digested, and within which outliers will be immediately apparent.

Graphs would present a large portion of our monthly financial reports, in what I feel to be a much simpler and informative medium. I submitted sample graphs to our managers for review. While this may not be the information we will eventually be submitting, it does present an indication of how pictures are worth more than words or, in this case, numbers.

Variance analysis, breaking the variance into its price and quantity components, can be easily provided as needed. Raw material volume variance per ton indicates the difference between standard for raw material and actual raw materials used.

The cost of goods sold and cost of goods sold per ton graphs tell you at a glance which mill=s manufacturing cost are higher. One report not currently being tracked in our package is tons produced per man hour . Tons produced per man hour shows how efficiently labor is utilized at each mill, will allow the operations of all mills to be easily compared.

Currently each time a new mill goes into operation another set of report is added to our financial package. Approximately 25 pages of additional data is produced to sift through. By reporting information on graphs, the operation is simply added to the current reports. Ten pages of data will allow the operations of all steel mills to be easily compared.

Presently our reporting compares actual, budget and prior year. However, variances from the standard budget should have been calculated. I propose reports to indicate the price variances in sales

per ton and raw materials. Sales price variance shows differences in budgeted sales price and actual price received. (Vanderbilt)

The illustration below gives management a picture of what can be produced. It is now up to us to determine what we need to measure. We need to focus on our strategic intent -- "By 2010 to become a world leader in forest products and services", and on doing those things necessary to accomplish our objective.

Table 1
Specific Reports Used

	Vice President	Manager Mill 1	Manager Mill 2	Financial Analysis 1	Financial Analysis 2	
Consolidated Balance Sheet	X			X	X	
Individual Balance Sheet	X	X				
Consolidated Income Statement	X			X	X	
Individual Income Statement	X	X				
Log/Chip Purchase Report				X		
Ship Sales Report				X	X	
Variance Report	X	X				
Unit Cost Report	X			X		
Statistical Report		X	X		X	X

CONCLUSION

For over sixty years the business at Changing Hardwood Into Paper (CHIPCO) has changed little, New technology has been introduced to accommodate the massive growth during this period, but little has changed in the process itself. Only recently has management begun to re-think the business process. While the old methods have served the company well in the past, the future requires that more effort be placed in value added activities. As the company re-thinks its business process, the accountant's role within the company must also change. They need to become data analysts rather than just scorekeepers. Accountants must target only relevant data to various stakeholders, especially production managers.

Determining the best methods to help managers is the current object of the accounting department within CHIPCO. The accounting managers must become proactive. Performing ratio analyzes, reviewing key operating statistics, and studying critical success factors must be performed as a prerequisite to the preparation and dissemination of information. The accounting staff should be looking beyond just counting and tracking and reporting. The focus should be on the bigger picture.

REFERENCES

Bell, C. (1996). Portable wisdom: a new key to employee loyalty. *American Management Association*. 20-24.

Brown, T. . (1997). The essence of strategy. *American Management Association*. 8-13.

Chimerine, L. (1997). The new economic realities in business. *Management Review*. 12-17.

Commerce & Industry. (1995) Want higher profits? Try managing job performance. *Journal of Accountancy*. 13.

Cooper, R. (1997). Squeeze play. *Journal of Accountancy*. 46-48

Dennie, A. (1997). Forging a union. *Journal of Accountancy*. 81-83

Fisher, J. (1994) The new finance: new technology is challenging the accounting profession to redefine itself. *Journal of Accountancy*. 73.

Harari, O. (1997). Ten reasons TQM doesn't work. *American Management Association*. 38-44.

Iverson, K. (1997). Plain talk. *Incorporated*. 81-83

Morrissey, E. and G. Hudson. (1997). A smarter way to run a business. *Journal of Accountancy*. 48-49

Reeb, W. and M. Cameron. (1996). Getting beyond the counting. *Journal of Accountancy* 69-72.

SOUTHEAST ASIA'S EXCHANGE RATE OPTIONS

David E. Letourneau, Winthrop University
William D. Hays, Jr., Meritor Automative Inc.

ABSTRACT

The 1997 financial crisis in Southeast Asia has rekindled debate over whether the currencies of developing countries should be pegged to a more developed trading partner's currency or should be allowed to float. Pegged currency proponents argue that without sophisticated financial markets, developing countries must peg their currencies to maintain economic growth. The currency float supporters argue that pegged rates may keep currency rates may keep currency rates artificially high, and result in excessively high capital inflows to the developing economy. Using Thailand as an example, the recent financial crisis is examined and shown to be an issue or macroeconomic policy and government discipline, not exchange rate policy. The acts suggest that "clean" currency boards would have the highest probability of redressing Southeast Asia's currency exchange rate dilemma.

INTRODUCTION

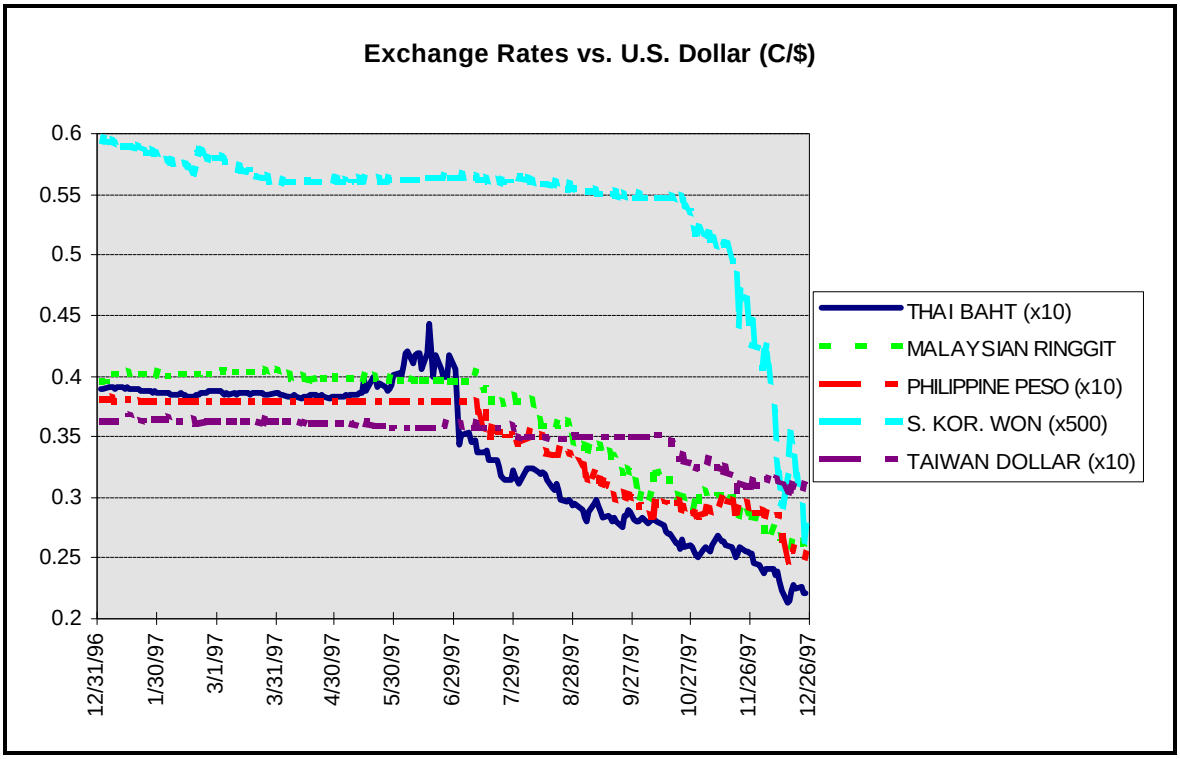
The financial crisis that began in 1997 in Southeast Asia has rekindled debate over whether the currencies of developing countries should be pegged to a more developed trading partner's currency or should be allowed to float. The regional crisis was sparked by the rapid depreciation of the Thai baht in June, when that currency was taken off the peg. Figures 1 shows the exchange rates of several Asian countries from January to December 1997. The 5 currencies all become weaker against the U.S. dollar. The Thai Baht and the Malaysian Ringgit (in gray) fall precipitously. See Figure 1 for the exchange rate comparison. The Thai financial crisis rapidly spread to other developing Asian countries. Many financial experts are calling for developing countries, such as Thailand, to return to a pegged currency policy. But, returning to the peg without considering other economic forces may not be sufficient to preclude similar future crises. In order to examine the exchange rate question, one must first understand the interaction of exchange rates with macroeconomic policy.

THE INTERACTIONS OF MACROECONOMIC FORCES

Samuleson defines the four goals of macroeconomic policy to be growing GNP, high employment, stable prices determined by supply and demand, and robust international trade (Samuelson 1992). Whether pegging alone can achieve stable exchange rates while achieving the macroeconomic goals is the root of the exchange rate dilemma. Without controls on fiscal and monetary policy, pegged exchange rates tend to create trade deficits, as economic growth is funded with monetary growth. As monetary growth fuels inflation, the pegged currency becomes overvalued

and the overvalued currency results in a trade deficit. While short term GNP increases at a fast pace, long term GNP growth may be sacrificed.

FIGURE 1



A number of suggestions have been offered over the years to preclude exchange rate crises. In 1977 Allen and Kenen's tried to show that when exchange rates float freely, GNP is unaffected by foreign demand for goods. Thus, with freely floating exchange rates, a developing economy could not, theoretically, become overheated due to external demand for goods. However, Allen and Kenen (1979) drew this conclusion only when there are no domestic economic manipulations occurring; clearly an rare condition.

Tower and Willett (1976) develop a framework for identifying "optimum currency areas", such as the European Economic Union is an example of a currency area. They point out, however, that a major cost of joining a currency area is the loss of freedom to implement national macroeconomic policy to achieve internal balance. Tower and Willett also argue that since small, open, specialized economies are more dependent on foreign trade, they are more vulnerable to external disturbances, making floating rates less desirable.

Sebastian Edwards (1989), in his book, *Real Exchange Rates, Devaluation, and Adjustment*, states that to sustain macroeconomic equilibrium, monetary and fiscal policies must be consistent with the exchange rate policy, monetary and fiscal policies be *consistent* with the chosen nominal exchange rate regime. This consistency will restrict the policy choices of government such that if the consistency is violated, severe disequilibrium is probable.

Edwards provides an example of a government running high fiscal deficits which are partially or wholly financed by money creation. This often occurs when the government controls the central

bank and needs to prop up the economy in the short-run to meet its own objectives, such as reelection. The resulting inflation will influence the government to prop up the currency with foreign reserves. Since the currency cannot be supported indefinitely, the macroeconomic policy must either change or the central bank will eventually run out of foreign reserves and a balance of payments crisis will occur. In this case, both fiscal and monetary policies combined to create a potential crisis, fiscal deficits funded by money creation.

BALANCE OF PAYMENTS

Table 1 shows the major components of the Balance of Payments Statement. Most transactions consist of an exchange of goods, services, or financial assets, and are shown in the balance of payments as a debit (negative) if they result in a net outflow of capital (currency), or credit (positive) if they result in a net inflow of capital.

TABLE 1
Standard Components of a Balance of Payments Statement

I. Current Account	II. Capital Account
A. Goods and Services	A. Capital excluding reserves
Merchandise	Direct investment
Shipment	Portfolio investment
Other transportation	Other long-term capital
Travel	Short-term capital
Investment income	
Other	
B. Transfers	B. Reserves
Private	Monetary
Official	Special Drawing Rights (SDR)
	Reserve position in IMF
	Foreign exchange assets
	Other, including use of IMF credit

Source: Rukstad, 1991 p. 484

Individual accounts are usually net positive or negative. Whether a surplus in any particular balance is good or bad depends on the country's level of development and its goals and strategy. For instance, the Balance of Trade for a developing country that is building an infrastructure is likely to be net negative as the country imports capital goods and material. Likewise, the same country will likely show a surplus in Capital as it finances development from foreign sources. Conversely, a highly developed country may use a large trade surplus to finance investment in foreign economies, resulting in a capital investment account deficit (Rukstad 1991). Theoretically, freely floating exchange rates alter a nation's foreign exchange rate thereby bringing sources and uses into balance, eliminating the need for reserves. In practice, however, floating rate regimes are rarely pure. Governments often intervene in foreign exchange markets to influence their country's currency values. And, since several

countries tie their currency values to that of a trading partner, both fixed and floating rate nations countries need reserves.

THE EXCHANGE RATE DEBATE

There is no consensus as to the "best" system of managing exchange rates. Miron Mushkat, regional economist for Lehman Brothers, argues for pegged rates saying they worked efficiently for years and that most governments in Southeast Asia do not have the tools or expertise to manage floating currencies. Gary S. Becker argues for "rigidly" pegged rates stating that most developing countries do not have the monetary discipline to maintain foreign-reserve backing for their money supply and tend to print money as a means of satisfying domestic demand. With currency exchange rates pegged to the dollar, developing economies can maintain a strong stable currency even with relatively high inflation rates. Mr. Becker argues that rigidly fixed exchange rates have immense advantage for the great many developing nations that can't trust their governments to act responsibly in fiscal and monetary matters"(Becker 1997). Given that Becker ignores the effect of increasing the money supply arbitrarily, he clearly focuses on satisfying short-term goals, rather that on long-term stability.

The Thai government's mishandling of its economy is a good example of government action focused on short-term results at the expense of long-term stability. High short-term interest rates, used to peg the currency, attracted foreign capital which fueled rapid economic growth as long as there was confidence in the currency peg. The heavy inflows of capital also helped balance the current account deficits. In early 1997, Thailand was spending an increasing amount of its foreign exchange reserves to maintain the peg. In May 1997, Thailand "spent more than $4 billion of its foreign-exchange reserves to buy baht. Although official reserves still stood at $33.3 billion at the end of May, billions more had been committed in forward contracts to purchase more baht in the next few months" (Dunn 1996). Thailand was very vulnerable, and the pressure on the baht finally caused a collapse in its value.

The current crisis in Southeast Asia provides an opportunity to make badly needed reforms. Alkman Granitsas suggested free floating currencies, and a central bank free to adjust monetary policy (9). He also suggested depoliticizing central banks There is no general agreement on his first two points. Just a few days later, on September 30, 1997, *The Wall Street Journal* cited the "golden era of world economic growth under the Bretton Woods [fixed] monetary arrangements and under the gold standard prior to World War I." The WSJ assigned the failure of fixed rates to "governments [that] refuse to adjust their internal policies" (WSJ, 19 July 1996).

Kurt Schuler (1997), economic consultant at Johns Hopkins University, promotes currency boards which have no discretion to change the money supply as a means of eliminating the risk of currency fluctuations, due to speculative attacks. Furthermore, he points out that *true* or *clean* currency boards are not subject to political manipulation.

Richard Judy (1997), director of the Center for Central European and Eurasian Studies at the Hudson Institute, also supports the use of currency boards for reasons similar to Schulers, but ads that the limits on a currency board's power to issue money mean that the board cannot finance the government's budgetary deficits by printing more money, and it cannot regulate the nation's money supply by engaging in open-market operations or discounting domestic bank-held paper. The

government's ability to run budget deficits would be limited to what it can finance from lenders. Likewise, the quantity of domestic money in circulation has an upper limit defined by the reserve holdings of the anchor currency. These limits, then, constrain both deficit spending and monetary expansion. In addition, currency boards make a nation's currency and exchange rate regimes more transparent, rule-bound, and predictable. A major limitation of currency boards is that if capital inflows are large, and if significant portions of them come in the form of short-term loans or speculative portfolio investments the potential for destabilizing capital flight can arise. This was the case in Thailand. Also, the currency board's fixed exchange rate is unlikely to be credible if the rate was initially set at an overvalued level.

ANALYSIS

Exchange rate policy should not be discussed in isolation from total macroeconomic policy. As capital flows into the financial markets from domestic and foreign sources, it is put to work by lending (or investment) to the domestic government, domestic firms, and foreign concerns (government or commercial). The Finance Ministry (central bank) controls the domestic money supply. However, if the money supply grows faster than the productive output of the economy, inflation results. Pegging a foreign currency exchange rate to the dollar when inflation in the foreign country is higher than inflation in the U.S. will cause the currency to be overvalued. An overvalued currency will tend to reduce exports and increase imports, creating a trade deficit (Haque, et. all 1997).

Developing countries will often run current account deficits due to heavy imports of capital goods to build infrastructure. This is typically considered positive in the long-run. But, if the current account deficit is due to the import of consumer goods, the result is considered more negative.

Thailand's current situation is slightly different. It received much more capital inflow that it could invest soundly. The balance, much of it directed to unwise uses by the government only served to fuel inflation. Again, as in many instances, government actions exacerbate a problem rather than solve it. Reserves were being depleted due to a balance of payments deficit caused by a great spending spree by the public. Added to this, high monetary growth was fueling inflation, placing increasing pressure on the currency peg, thus requiring more use of reserves to maintain the peg. The use of reserves and short-term debt to maintain the peg, coupled with monetary growth to pay for the debt, appears to have created an inflationary spiral that made the currency peg unsustainable. It would seem that whether the Thai currency was pegged, or not, is less important than the other economic policies of the Thai government. Thailand's economic crisis was not created so much by the currency peg as by the policies of profligate, unproductive, investment and excessive money supply growth.

CONCLUSION

Although the situation is each of the Southeast Asian countries affected by the recent currency crisis, Thailand's policies serve well to represent the central problems in the region. While Thailand's change from a pegged exchange rate to a floating one, marked the world recognition of the country's (and the region's) financial crisis, this policy change was not the underlying cause. Indeed it could be

cause to suggest that one exchange rate is no better than another. Any solution to the problem of exchange rates must contain better controls on the financial institutions and impose stricter discipline on government spending and monetary policy.

Four exchange rate policy options have been proposed: 1) exchange rate area, 2) pegged currency, 3) floating currency, and 4) a currency board.

An exchange rate area in South-East Asia, such as the European Economic Union, requires countries to give up some of their sovereignty. Given the unstable and diverse natures of the Southeast Asian governments this option does not appear feasible.

The key problem with the pegged rate method is that it leaves monetary policy in the hands of the government. The government can use monetary policy, in the short run, to hyper-expand the economy without the recessionary pressures caused by depreciating currency. This is essentially what happened in Thailand.

Allowing the currency to float will let market forces correct for money supply inflation and depreciate the currency. This depreciation will help reduce the current account deficit, improving the balance of payments and cut the drain on foreign currency reserves. It will also cause a slowdown in the economy by making foreign goods more expensive. This approach could correct the imbalances in an economy such as Thailand's. The float must be a true or clean float—no government intervention.

On the negative side, it leaves the country's currency vulnerable to currency speculators due to the relatively small volume of baht in the global markets.. This would tend to raise uncertainty about the currency and may hurt foreign direct investment. It would also likely cause domestic turmoil as people are impacted in their pocketbooks and compromise the political stability of the government. Therefore, even with a "floating" currency, some government manipulation would probably be necessary to keep the exchange rate relatively stable. History tells us that government intervention tens to be the problem, not the solution.

The fourth approach, use of a currency board, appears to be the best solution for developing country's currency policy. An independent, and clean, currency board system, similar to that used so successfully by Hong Kong, would likely be the best approach for a developing country like Thailand to achieve a sustainable level of long term economic growth. The independent currency board, free from government manipulation, would de-politicize the monetary function, keep the currency from becoming overvalued, but still provide the stability offered by a fixed exchange rate. By maintaining a stable, predictable exchange rate, foreign investment can still be attracted without as much risk of exchange rate disequilibrium causing large current account deficits. Without the ability to print money to cover debt, interest rates would rise sooner, reducing growth to more sustainable levels.

SUMMARY

The 1997 financial crisis in Southeast Asia has rekindled debate over whether the currencies of developing countries should be pegged to a more developed trading partner's currency, or should be allowed to float. Pegged currency proponents argue that without sophisticated financial markets, developing countries must peg their currencies to maintain economic growth. The currency float supporters argue that pegged rates may keep currency rates artificially high, and result in excessively

high capital inflows to the developing economy. They argue that avoiding excessive consumption or over-investment, when currencies are pegged, requires financial sophistication that many developing countries lack.

It is possible to conclude from Schuler's research that the key feature of countries with long-lasting exchange rates is not the lack of a central bank and the existence of a currency board, but that the board is independent from political manipulation. If central banks were likewise independent from political manipulation, their effectiveness would likely be greatly enhanced, since they would be less prone to increase the money supply to prop up the economy, in support of political objectives.

The exchange rate debate was explored, using Thailand as an example. We showed that the financial crisis in Thailand was not an issue of exchange rate policy, but an issue of macroeconomic policy and government discipline. Regardless of the exchange rate policy, long-term monetary growth must not outpace productivity growth.

As long as political instability exists, short-term political demands may overshadow long-term economic needs and, stable prudent economic policy may be sacrificed. This is what happened in Thailand and other countries in the region.

Establishing a clean currency board, to isolate control of the money supply from political exigencies, may be the best solution to improve Southeast Asia's currency exchange problem. However, without specifically excluding any government role in manipulating currency exchange rates any method of exchange rate control is subject
to failure.

REFERENCES

Allen, P. and P. Kenen. (1979). *The Balance of Payments, Exchange Rates, And Economic Policy. Center of Planning and Economic Research,* 1977. Athens. Reprints in *International Finance* No.19. Princeton University.

Becker, G. (1997). Fragile economies and floating currencies don't mix. *Business Week*, 8 .

Dunn, C. (1996). Let the exchange rates slide. *The Wall Street Journal Interactive Edition*, 19 July, 1996 Online. Internet. 13 September, 1997. Available http: //interactive.wsj.com.

Edwards, S. (1989). *Real Exchange Rates, Devaluation, and Adjustment*. Cambridge: MIT Press.

Haque, N., D. Mathieson, and S. Sharma. (1997). Causes of capital inflows and policy responses to them. *Finance and Development,* March, 1997 Online. Internet. 23 September, 1997 Available http://www.worldbank.org/fandd/english/0397/articles/080397/htm .

Judy, R. (1997). Currency bards: an idea whose time has come? *Online. Internet.* Available http://www.cipe.org/e15/GUEST.HTML

Rukstad, M. (1991). *Macroeconomic Decision Making In The World Economy*. New York: Dryden, 1991.

Samuelson, P. and W. Nordhaus. (1992). *Economics.* 14th Edition. New York: McGraw-Hill.

Schuler, K. (1997). The problem with pegged exchange rates. *Online. Internet.* Available http://www.erols.com/kurrency/pegged.html.

Tower, E. and T. Willett. (1976). The theory of optimum currency areas and exchange-rate flexibility. *Special Papers In International Economics* 11. Princeton University .

Waldman, P. and P. Sherer. (1997). After colossal spending spree, Thais brace for leaner years. *The Wall Street Journal Interactive Edition. Online. Internet*. 9 October, 1997 Available http:// interactive.wsj.com.

USING A COMPUTER-BASED, INSTRUCTOR-DEVELOPED AUDIT CASE TO IMPROVE LEARNING IN THE AUDITING COURSE: AN EXAMPLE AND STUDENT REACTIONS

Jane E. Baird, Mankato State University
Leslee Higgins, University of Wisconsin, Green Bay

ABSTRACT

Providing an active-learning environment, improving students' analytical skills, and introducing "real-world" types of experiences into the Accounting classroom are important objectives in higher education today. The use of cases is one means of achieving these objectives. While published practice cases are available for Auditing courses, they are often too extensive and complex for use in the first Auditing course. This paper presents a rationale for using a computer-based, instructor-developed audit case in the first Auditing course. In addition, a description of how one such case was developed is presented, along with student reactions to the use of the case at two different universities. Student responses indicate that the students perceived a learning benefit from completing the case and enjoyed doing the case assignments.

[Note: The case described in this paper is available, at no charge, from the first author.]

INTRODUCTION

Accounting educators are continually being challenged to meet three pedagogical objectives: (1) to actively involve students in the education process, (2) to develop students' analytical and judgment skills, and (3) to introduce more "real-world" types of activities into the classroom. This challenge is demonstrated in the Accounting Education Change Commission's (AECC) position statement which states that "Students must be active participants in the learning process, not passive recipients of information. They should identify and solve unstructured problems that require the use of multiple information sources. Learning by doing should be emphasized (AECC, 1990, 309)." Several prior studies propose the use of cases in teaching as a means to satisfy these pedagogical objectives (e.g. Campbell, 1985; Campbell & Lewis, 1991; Libby, 1991; Knechel, 1992; Stewart & Dougherty, 1993; McMillan, 1994), but there are few studies documenting results of case usage. Accordingly, Stout and Rebele (1996) state that the research agenda for accounting education should include additional studies documenting both affective and cognitive changes in students when cases are used in a variety of accounting courses. This paper presents an argument for using a customized instructor-developed practice case in the first Auditing course and documents student reactions to the use of such a case at two Midwestern state universities.

BACKGROUND

The use of cases actively involves students in the learning process by bridging the gap between the theoretical concepts discussed in the text and actual practical experience. Cases also provide students practice in solving unstructured problems. Libby (1991) and Stewart and Dougherty (1993) cite various benefits of the case approach. These benefits include:

- increased student motivation
- increased student interest in the course topics
- development of students' confidence in their capabilities
- development of oral and written communication skills
- improvement of problem-solving and judgment skills
- increased understanding of course material and of the real world, and
- development of the ability to deal with ambiguity.

Given these arguments, there is surprisingly little published evidence regarding learning benefits achieved from the use of cases. The extant studies report that the use of cases improved learning in some circumstances in Tax courses (Anderson et al., 1990 and Anderson et al., 1989), in a Cost Accounting course (Stewart & Dougherty, 1993), in introductory Management Accounting (Pointer & Ljungdahl, 1973), and in a graduate business course (Bocker, 1987). Additionally, there are two published studies documenting positive results from using case-type activities to teach Auditing. Mohrweis (1993) reported increased learning of audit planning and risk-assessment processes as a result of using multi-media case-type activities in an Auditing course. Innes and Mitchell (1981) found that the use of cases helps improve audit judgment in new accounting firm hires by providing a surrogate for practical experiences. In this way, the development of audit judgment can be accomplished, to some degree, by using cases in teaching Auditing. Although limited, these studies do suggest that the use of cases can result in improved learning.

Any pedagogical reform should consider the most effective and efficient approaches to meeting desired learning objectives. Thus, these factors should be considered both in the decision to use cases and in the selection of case materials. Shorter case activities, such as instructor-developed computer-based cases, can provide an efficient and effective means to teach the specific course objectives for a beginning Auditing course. Using cases in a beginning Auditing course can improve the effectiveness of the course by introducing students to a realistic representation of the audit process, developing the students' judgment processes in the evaluation of risk and resolution of audit issues, and requiring the students to integrate Auditing and Financial Accounting knowledge.

Practice cases, as opposed to situational cases, provide students with hands-on experience with audit tasks. However, many of the published practice cases can be quite comprehensive; this is an advantage in an advanced Auditing course, but can be overwhelming in a beginning Auditing course. In contrast, the instructor-developed case can be tailored to include assignments emphasizing audit procedures covered by the instructor within the time constraints desired. In this way, such cases represent a more efficient way for students to learn the desired material.

Instructor-developed computer-based cases, in particular, have additional advantages. These cases can be prepared at almost no cost to students, thus avoiding the cost of purchasing a published case. An instructor-developed case can represent industries that are typical of clients in the immediate geographical area of the university, which can serve to heighten student interest in the case.

Computer-based cases offer additional advantages over manual cases. For the students, computer-based cases offer an additional opportunity to improve their computer skills. For the instructor, an advantage is that the case can easily be modified from term to term to reduce problems with the sharing of information among students without having to use a completely different case. This paper provides an example of the development of one such case as an illustration for instructors who want to develop similar cases.

CASE DEVELOPMENT: AN EXAMPLE

The practice case was based on a hypothetical company in the small household electrical appliance manufacturing industry. A brief background of the company was constructed for the case by one of the instructors, and included the types of general information auditors would obtain, such as types of products, customer base, sales volume, ownership, and audit history. The company's financial statements for the current year (unaudited) and prior year (audited) were created by using industry averages for the appropriate industry code. Initial dollar values for sales and total assets were chosen to approximate a medium-sized company within that industry. Initial individual financial statement line-item amounts were calculated to approximate industry average percentages of sales and total assets, while some specific line items were manipulated to create unusual balances for purposes of the audit case.

An audit planning memorandum was written describing the company's control environment and overall risks. This memorandum also indicated the planned audit strategy and the initial established materiality levels. A detailed internal control procedures memorandum was written for the revenue transaction cycle, using the AICPA Audit and Accounting Manual's control checklist as a guide. The planning documentation and financial information was reviewed by audit managers from one of the big six firms to ensure that the information was realistic and internally consistent.

The specific assignments were designed to provide a limited exposure to audit planning procedures and hands-on practice with substantive procedures discussed in the course. Tests of controls could also be incorporated but were not included in the initial case assignments. Instead, the students were provided with a brief summary of the results of control tests in the revenue transaction cycle. All financial information and workpapers were contained in a Microsoft Excel Workbook file, and all documents were in Microsoft Word for Windows. Each student was provided with a disk containing all the necessary files, including an instructions file. Seven assignments were required and are briefly described below:

(1) Analytical Procedures. Students were first asked to review the client background information, the planning documentation, and the financial data. They were instructed to calculate selected ratios on the trial balance worksheet and prepare common-sized financial statements by copying prior year formulas on the trial balance worksheet. The students were to use this information to identify any unusual items they felt might require additional audit attention.

(2) Risk Assessment. Students were provided with a risk analysis spreadsheet as part of the Excel Workbook file. In order to limit the time required to complete this assignment, four accounts were selected: Sales Revenue, Accounts Receivable, Allowance for Doubtful Accounts, and Warranty Expense. These accounts were chosen to represent both routine transactions and accounting estimates. The four accounts, their balances, and the financial statement assertions (as

defined in the auditing standards) for each of the accounts were listed on the spreadsheet. The students were instructed to use the information provided in the case, as well as their results from the first assignment, to assess inherent risk and control risk for each financial statement assertion. The audit risk model formula (Audit Risk = Inherent Risk x Control Risk x Detection Risk) was entered into the spreadsheet by the students to calculate detection risk for each assertion. The students answered questions regarding which assertions would require the most effort and which would require the least effort, based on their detection risk results. The students were told there were no "right" answers to the risk assessments, but that their explanations should be consistent with their risk assessments.

(3) Accounts Receivable. A spreadsheet presenting a detailed listing of Accounts Receivable balances was included in the Excel Workbook file. In addition, a Word file containing Accounts Receivable confirmation replies was included in the case materials. These confirmation replies were created to match a sample of the customers, with some clean replies (customer agreed with client), some exceptions, and some nonreplies. Students were required to complete the analysis of the receivables and identify potential adjustments.

(4) Sales Cutoff. A sales cutoff worksheet was included in the case materials. The items included several sales properly recorded, as well as some which were recorded in the wrong period. Students were asked to review the listing and identify necessary adjustments.

(5) Search for Unrecorded Liabilities. One of the workbook spreadsheets contained a list of cash disbursements after the client's year end. The case also included a Word file containing vendor invoices supporting the disbursements. These invoices were created using the Microsoft Word invoice templates. Some of the invoices were purposely created to relate to the year under audit, while some were the next year's transactions. The students were provided with a list of the disbursements which were already recorded as liabilities at the client's year end. They were then required to verify the items in the spreadsheet list against the invoices, determine which year the invoice should have been recorded in, and propose any necessary adjustments.

(6) Warranty Liability. This account was included to give students some exposure to issues surrounding the audit of an estimate. A worksheet containing the calculation of warranty liability for the current year end was included in the workbook. Students were asked to determine if any adjustment to the account was needed, comment on the reasonableness of the method used to calculate the estimate, and comment on additional work which should have been performed on the warranty account.

(7) Cash Account. The case included a bank reconciliation spreadsheet, a Word file containing a standard bank confirmation reply, and information as to checks and deposits listed on the cutoff bank statement. Students were asked to complete the audit of this cash account by performing such procedures as verifying the balance per bank against the confirmation reply, and to propose any necessary adjustments.

The case was used in the beginning required Auditing course at two state universities; one on a quarter system, the other on a semester schedule. The instructors at both schools used the same course objectives, so the case was appropriate for use at both institutions without modification. The assignments were completed by the students outside of class after the related material was covered in the course. Students received grades for the assignments based on the completeness and correctness of their work.

At the end of the term, the students were asked to complete an anonymous evaluation of the case project. The evaluation included Likert-scale ratings of the usefulness of the case overall and of each assignment separately, in terms of helping the student learn the Auditing material. The possible responses ranged from one (not at all helpful) to 10 (extremely helpful). In addition, the students were asked to indicate how much they enjoyed doing the case activities, using a 10-point Likert scale ranging from one (not at all) to 10 (very much). Additionally, students were asked to indicate the total amount of time they spent on the case activities and to provide written comments as to what they liked most and least about the case.

STUDENT REACTIONS

The case was completed and evaluated by 45 accounting seniors at two different state universities (19 students at one university, 26 at the other). The responses overall indicate that the students believed the case exercises helped them learn about Auditing. Mean responses for all students are presented in Table 1. The mean rating for the overall usefulness of the case was 7.38 (on a 10-point scale), indicating a moderately high level of perceived overall usefulness. The results for the individual assignments were similar, with the mean responses ranging from 6.79 to 8.00. The students reported only slightly lower ratings in terms of how much they enjoyed doing the exercises (mean = 6.66). As the minimum and maximum ratings indicate, not all students were equally satisfied with the assignments, but they all indicated that the case helped them learn.

Table 1
Student Survey Results: All Students (n = 45)

Assignment Rated	Mean Rating	Standard Deviation	Minimum Rating	Maximum Rating
Analytical Procedures	7.47	1.39	5.0	10.0
Risk Assessment	6.81	2.14	1.0	10.0
Accounts Receivable	7.82	1.28	5.0	10.0
Sales Cutoff	8.00	1.49	3.0	10.0
Unrecorded Liabilities	7.64	1.60	3.0	10.0
Warranty Expense	6.79	1.67	3.0	10.0
Bank Reconciliation	7.33	1.76	3.0	10.0
Overall Usefulness	7.38	1.45	3.0	10.0
Overall Enjoyment	6.66	2.13	1.0	10.0
Total Time Spent (Hours)	11.79	5.95	4.0	40.0

One interesting note is that the students appear less happy with the more judgmental assignments such as risk assessment and warranty expense. Written comments on the evaluations indicated that the students were uncomfortable with the uncertainty involved, particularly in regard to risk assessments. This could be considered an argument for including *more* of these types of assignments to better prepare students for the substantial uncertainty and judgment involved in the Auditing profession. In addition, this reaction is not uncommon when case situations are used in

classes. For example, Campbell and Lewis (1991) note that while cases offer a welcome break in classroom routine for students, the students often are intolerant of ambiguity in cases and do not like the fact that there can be multiple solutions to each case-presented problem.

On average, the students spent approximately 12 hours completing all the assignments. The maximum time of 40 hours was reported by one student, who was the only one to report time in excess of 25 hours. The minimum time reported was four hours.

The mean student responses reported at each university are presented in Table 2. The ratings are somewhat comparable, although students at University One rated the assignments slightly higher than their counterparts at University Two. This suggests that the success of such cases may be affected by contextual factors such as the length of the term, the text used, other instructional methods used, the instructor, or the learning styles of the students in any given class.

Table 2
Student Survey Results

Assignment Rated	Mean Rating	Standard Deviation	Minimum Rating	Maximum Rating
University One Students (n = 19)				
Analytical Procedures	7.84	1.46	5.0	10.0
Risk Assessment	8.16	1.57	4.0	10.0
Accounts Receivable	8.68	0.95	7.0	10.0
Sales Cutoff	8.84	0.96	7.0	10.0
Unrecorded Liabilities	8.58	1.30	5.0	10.0
Warranty Expense	7.11	1.73	4.0	10.0
Bank Reconciliation	7.84	1.71	3.0	10.0
Overall Usefulness	7.95	1.27	6.0	10.0
Overall Enjoyment	7.94	1.39	5.0	10.0
Total Time Spent (Hours)	9.55	3.35	4.0	17.5
University Two Students (n = 26)				
Analytical Procedures	7.19	1.30	5.0	9.0
Risk Assessment	5.83	1.96	1.0	9.0
Accounts Receivable	7.19	1.13	5.0	9.0
Sales Cutoff	7.38	1.53	3.0	10.0
Unrecorded Liabilities	6.96	1.46	3.0	9.0
Warranty Expense	6.56	1.61	3.0	10.0
Bank Reconciliation	6.96	1.73	3.0	10.0
Overall Usefulness	6.96	1.46	3.0	9.0
Overall Enjoyment	5.77	2.12	1.0	9.0
Total Time Spent (Hours)	13.42	6.91	5.0	40.0

The overall usefulness rating assigned by the student is perhaps the most pertinent factor in determining the value of these types of cases. The frequency distribution of the overall usefulness rating is presented in Table 3. The distribution of ratings shows that the majority of students at both universities rated the case in the seven and eight point range. None of the students rated the case's usefulness lower than a three and only two students rated the case lower than a five. These results indicate that the assignments helped every student to some extent, and were highly useful for the majority of the students.

Table 3
Frequency Distribution: Overall Usefulness Ratings

	University One			University Two		
Rating Value	Frequency	Percent	Cumulative Percent	Frequency	Percent	Cumulative Percent
1	0	0.0	0.0	0	0.0	0.0
2	0	0.0	0.0	0	0.0	0.0
3	0	0.0	0.0	1	3.8	3.8
4	0	0.0	0.0	1	3.8	7.7
5	0	0.0	0.0	3	11.5	19.2
6	2	10.5	10.5	1	3.8	23.1
7	6	31.6	41.1	8	30.8	53.8
8	5	26.3	68.4	11	42.3	96.2
9	3	15.8	84.2	1	3.8	100.0
10	3	15.8	100.0	0	0.0	100.0

The written comments provided by the students were quite interesting. Many of the students commented that they liked that the case enabled them to apply the theory and concepts presented in the text in a hands-on, real-life scenario. Several students commented that they liked the reasonable length of the case materials. At the same time, many of the students felt they would have liked to have more information provided, and some students indicated they would even have liked to have more assignments. Examples of the student comments summarize the benefits of practice cases and are as follows:

> "It really helped put the book material in focus. It also forced me to do a better job of keeping up in reading the textbook. I appreciated Auditing more."
>
> "It gave me a chance to apply knowledge from class to an actual case. This also helped give a better understanding of the material."
>
> "All the information was on one disk and you didn't need pages of information."
>
> "Looking at actual invoices and confirmations made it seem realistic."
>
> "It did give me an overall understanding of how the audit process works."

CONCLUSIONS AND RECOMMENDATIONS

There is little argument among academicians today as to the value of using hands-on learning techniques such as practice cases. The intent of this paper is not to advocate the use of any particular practice case, but rather to present the argument for using an instructor-developed practice case tailored to the particular course taught. This approach provides an efficient and effective means to meeting the specific learning objectives for a course. While such an approach requires instructor time to develop the case materials and create the specific assignments, the potential rewards in terms of increased student learning can make such efforts worthwhile. The example provided in this paper illustrates that students do perceive substantial benefits from these types of assignments. The willingness of companies to share information for case materials, and the willingness of academicians to share their materials with their peers, can reduce the overall time involved in preparing and adapting such cases for any particular course. Additionally, an individual case can be used repeatedly with minor modifications from term to term.

While there are published practice cases available, many instructors might find them impracticable due to cost constraints for the students or time constraints prohibiting the assignment of lengthy cases. The availability of shorter published practice cases would provide instructors with more alternatives. Developing a customized case for a specific course or set of students is another alternative which allows instructors to tailor the length, complexity, and nature of the assignments to best fit the needs of the students and meet the learning objectives of the courses.

Other factors to consider when developing a practice case include:

(1) combining an audit case with library work, such as searching for industry averages and/or finding current articles related to events in the company's industry;

(2) assigning a portion or all of the case activities to be done in small groups rather than individually;

(3) completing the case assignments as in-class activities rather than homework assignments; and

(4) utilizing other types of software, such as commercially-available working paper software.

This study examined only students' attitudes about the benefits of case exercises and did not attempt to examine or report actual cognitive learning achieved by the students. Research assessing the learning achieved from the use of cases through use of a pretest-posttest combination, or use of a comparison group not completing the case assignments, would provide meaningful information for Accounting educators. In addition, studies reporting on the comparative efficiency and effectiveness of various types of cases, and of cases as opposed to other teaching methodologies, would provide further insight on the benefits of cases in the Accounting classroom.

REFERENCES

Accounting Education Change Commission (AECC). (1990). Objectives of education for accountants: Position statement no. one. *Issues in Accounting Education,* (Fall), 307-312.

Anderson, U., G. Marchant, and J. Robinson. (1989). Instructional strategies and the development of tax expertise. *Journal of the American Taxation Association,* (Spring), 7-23.

Anderson, U., G. Marchant, J. Robinson, and M. Schadewald. (1990). Selection of instructional strategies in the presence of related prior knowledge. *Issues in Accounting Education,* (Spring), 41-58.

Bocker, F. (1987). Is case teaching more effective than lecture teaching in business administration? An exploratory analysis. *Interfaces,* (September-October), 64-71.

Campbell, J.E. and W.F. Lewis. (1991). Using cases in accounting classes. *Issues in Accounting Education,* (Fall), 276-283.

Campbell, T.L. (1985). Teaching internal auditing with cases. *The Internal Auditor,* (December), 40-42.

Innes, J. and F. Mitchell. (1981). Auditing case studies: Just how useful are they? *Accountancy,* (April), 127-128.

Knechel, R.W. (1992). Using the case method in accounting instruction. *Issues in Accounting Education,* (Fall), 205-217.

Libby, P.A. (1991). Barriers to using cases in accounting education. *Issues in Accounting Education,* (Fall), 193-213.

McMillan, J.J. (1994). Identifying and closing gaps in the judgment and behavior of auditing students and staff auditors. *Issues in Accounting Education,* (Fall), 282-300.

Mohrweis, L.C. (1993). Teaching audit planning and risk assessment: An empirical test of the Dermaceutics Instructional Resources. *Issues in Accounting Education,* (Fall), 391-403.

Pointer, L.G. and P.W. Ljungdahl. (1973). The merit of using the case method in teaching the specialized accounting course. *The Accounting Review,* (July), 614-618.

Stewart, J.P. and T.W. Dougherty. (1993). Using case studies in teaching accounting: a quasi-experimental study. *Accounting Education,* (2), 1-10.

Stout, D.E. and J. E. Rebele. (1996). Establishing a research agenda for accounting education. *Accounting Education: A Journal of Theory, Practice and Research,* 1(1), 1-18.

AN ATTRIBUTION EXERCISE OF PERFORMANCE EVALUATION

Michael P. Bradley, Augusta State University

ABSTRACT

This paper discusses the results of an experiential exercise in performance evaluation. It has been used effectively in undergraduate and graduate accounting courses. In this exercise, students are given a typical package of information available to a middle level manager in evaluating first level managers that report to them. The experiment takes about 75 minutes to complete. The students are given their individual results along with the results of the total population of students. The students are able to see that different people use different information in making decisions. This is a result of varying analytical and social skills and backgrounds. They are given an opportunity to debate the value of their use of information related to others.

CHANGES IN ACCOUNTING EDUCATION

The predominate theme of the criticisms of current accounting education is that accounting graduates are parochial in their view of accounting and its relation to business and society. Specifically, graduates are lacking in personal skills of communication, creative and logical thinking, and interpersonal relations. The technical skills deficiencies are primarily related to understanding the dynamics and psychology of organizational management structures and systems, including the impact of accounting information in the formulation of goals, strategies, and policies (Bedford & Shenkir, 1987).

The solutions offered to correct these deficiencies in accounting education have included changes in the structure, scope, and content of accounting programs. The operational changes in the scope and content primarily involve a redirection away from the strictly financial accounting to the broader concepts of management, organizational behavior, and the strategic decision making uses of accounting information. The implementation of these changes will require structural changes and instructional innovations (AECC,1990,1991,1992)(AAA,1989)(IMA, 1994)

The instructional innovations will require a proactive role by students rather than the current reactive role. This paper describes an experiential exercise in performance evaluation that has been used in undergraduate management and cost accounting classes as well as a graduate management accounting class.

PERFORMANCE EVALUATION AND ORGANIZATION CHANGES

Performance evaluation plays a critical role in management decisions. Resource allocations of material, labor, and capital are made based upon evaluations of past performance and expectations for future performance. Accounting reports are used as one input into the performance evaluation decisions of operating managers. Kaplan (1983) issued a challenge for management accountants to

become directly involved in the evaluation of manufacturing performance by developing new performance measures.

Reengineering has been defined as "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed"(Hammer & Champy, 1993). Reengineering involves the replacing of existing performance evaluation systems not just the improvement of existing systems. It also involves the change from a task focus to a process focus that measures performance on a total organization basis that includes many nontraditional and less quantifiable measures.

Management accounting students will be expected to develop new evaluation systems that are congruent with the new management techniques and organizations. As they change these systems, they should be aware of the problems that must be addressed in order to maintain fairness and accuracy in the new evaluation systems. This evaluation exercise gives the students practical experience in performance evaluation and promotes an interactive discussion of the evaluation process and accounting and other measures in that process.

PERFORMANCE MEASUREMENT

Various literature reviews of performance measurement all indicate that judgmental measurements of performance (ratings by supervisors) are the most widely used method of evaluation (Landy & Farr, 1980) . The judgment rating is a result of the weighing of information by raters based upon their theories of performance causes and controllability of outcomes. The performance evaluation exercise lets students play the role of managers(raters)evaluating the performance of subordinate managers (ratees). Previous research models have suggested that such a process would be structured around the attributional processes of the rater (Landy & Farr, 1983; Meglino, Cafferty, DeNisi, & Youngblood, 1981). Attribution theory was used as the theoretical foundation for the operationalization of the management accounting systems (MAS) input in the exercise instrument.

Attribution theory describes the role of cognitive and perceptual factors in the determination of causality of an event by an individual. Most of the research applying attribution theory to organizations has used the Kelley (1967, 1972) model of the cognitive process to determine causality. Kelley assumes that individuals process information in a rational, conscious manner to relate variations in outcomes to variations in cues. The three cues are time, context, and persons. The validity of the attribution is verified based on the variation of three cues or types of information. Consistency information varies the cue of time and refers to the degree to which a person behaves in a consistent way in a similar context or situation. Distinctive information varies the cue of context and refers to the degree to which the person behaves in the same manner in different contexts or situations. Consensus information varies the cue of persons and refers to whether or not the behavior is similar to that of other persons in the same situation.

EXERCISE INSTRUMENT

Operationalizing a performance evaluation decision within the attribution framework of Kelley requires the presentation of eight different outcomes as each of the three information types has two levels (high and low). The eight treatments of this 2x2x2 design of the information variable are represented as eight different managers to be evaluated. The treatments are referred to as Managers A-B-C-D-E-F-G-H. The treatments (managers) are counterbalanced so that each manager was presented in each of five organizational functions. Managers A-C-E-G were combined into one group for presentation in order to satisfy the consensus variable of Kelley (1967). This rotation results in five versions of the evaluation instrument. The five organizational functions are: human resources, production, materials, sales, and management information systems.

The evaluation exercise consists of the students evaluating managers in a hypothetical manufacturing company. The students are given a package containing five envelopes. Each envelope contains an organization chart of one of the five functions; a statement of the responsibilities of the managers in the function; their participation in the development of the standards, budgets, and other measures of performance; a memo from the personnel file of each manager relating the performance in a previous assignment; and a performance report listing the current quarter's outcome and the outcome for the prior year.

The memo represents distinctive information (context), the prior year results represented consistency information (time), and each package reports the current quarter outcome for three other managers with the same responsibilities which represents the consensus information (people).

The students are asked to evaluate four managers (treatments) in each of five functions. Each envelope contains an evaluation form for the four managers in that particular function. The managers are evaluated on a seven point scale with 1 indicated as a low rating and 7 as a high rating. The eight managers (treatments) of interest in the 2x2x2 design all are given unfavorable current quarter outcomes. In order to properly operationalize the consensus cue, 12 managers with favorable outcomes are presented to represent the low consensus level.

The predictions of attribution theory can be used to arrange the eight managers in descending order of internality of attributions and expected rating (lowest to highest):F, B, E, H, G, D, A, and C. Manager F with an unfavorable outcome, high consistency, low consensus, and low distinctive information cues should receive the most internal attribution from a rater (Kelley, 1967). The opposite cues will predict the most external attribution for Manager C. Managers B, E, and H have an internal attribution because two of the three information sources indicate an internal cause. However, Kelley's theory cannot predict the precise order of these three managers because the weighing of the information is assumed to be equal. Managers G, D, and A have an external attribution as two of the three information sources indicate an external cause. Similarly, the order of these managers could be interchangeable.

EVALUATION EXERCISE RESULTS

Typically, the results closely follow the predicted rankings based on attribution theory. Manager F is the lowest. Distinctive information(memo) is emphasized and consensus

information(comparative accounting results in the current quarter) de-emphasized, resulting in the shift of Managers B and G, and Managers C and D.

The students, especially the non-accountants, first reaction to these overall rankings of the eight managers with unfavorable current accounting performance is that the strong use of distinctive information and low consideration of consensus information shows that accounting measures or not as important as the other factors. But they then have a problem trying to explain why all 12 of the other managers with a favorable accounting outcome are rated higher than the highest of the 8 managers with unfavorable accounting performance.

When the performance evaluations that are being discussed are the ones that the students themselves made while role playing five different managers it is easy to generate an active discussion in which each student has a personal interest in the outcome. Besides discussing the causes for the average ratings of the class, each student has their own individual rating results given to them so that they can see if they gave more emphasis to the consensus, consistency, or distinctive information.

CONCLUSIONS

The involvement of students in the actual evaluation of performance where the results can be predicted based upon the importance given to various cues has resulted in classes with spirited discussion and a realization of the complexity of the performance evaluation process. It has broaden the view of accounting students by showing them that even they emphasize factors other than numbers and therefore they need to understand more than accounting numbers. It has also provided additional insight into the interaction of financial and non-financial measures in the evaluation process for MBA students.

REFERENCES

Accounting Education Change Commission (AECC)(1990).Objectives of Education for Accountants: Position Statement Number One. *Issues in Accounting Education* (Fall), 307-312.

_____(1991).AECC Urges Decoupling of Academic Studies and Professional Accounting Examination Preparation: Issues Statement Number Two. *Issues in Accounting Education* (Fall), 313-314.

_____(1992).The First Course in Accounting: Position Statement Number Two. *Issues in Accounting Education* (Fall), 249-251.

American Accounting Association(AAA)(1989). Reorienting Accounting Education: Reports on the Environment, Professoriate, and Curriculum of Accounting. In J.J. Schultz, Jr., ed. *Accounting Education Series, Vol.10.* American Accounting Association.

Bedford, N.M. and W.G. Shenkir (1987). Reorienting Accounting Education. *Journal of Accountancy* (August), 84-91.

Hammer and Champy (1993). *Reengineering the Corporation.* HarperBusiness.

Institute of Management Accountants (IMA)(1994). *What Corporate America Wants in Entry-Level Accountants.* Institute of Management Accountants.

Kaplan, R.S. (1983). Measuring Manufacturing Performance: A New Challenge for Managerial Accounting Research. *The Accounting Review* (October), 686-705.

Kelley, H.(1967). Attribution Theory in Social Psychology. In D. Levine, ed. *Nebraska Symposium on Motivation.* University of Nebraska Press, 192-240.

Kelley, H.(1972). Attribution in Social Interaction. In E.E. Jones, D. E. Kanouse, H.H. Kelley, R. E. Nisbett, S. Valins, and B. Weiner. *Attribution: Perceiving the Causes of Behavior.* General Learning Press, 1-26.

Landy, F.J. and J. Farr (1980). Performance Rating. *Psychological Bulletin* (January), 72-107.

Landy, F. J. and J. Farr (1983). *The Measurement of Work Performance.* Academic Press.

Meglino, B., T. Cafferty, A. DeNisi, and S. Youngblood (1981). *A Cognitive View of the Performance Appraisal Process*. American Psychological Association.

RESPONSIBILITY ACCOUNTING AND ORGANIZATIONAL MEASUREMENT

Michael P. Bradley, Augusta State University

ABSTRACT

This paper discusses an analysis of overhead rate variances that links the rates of each function to the total organization. The technique develops reports that show the interdependence of each function on the overhead of the total organization. The managers of each function are evaluated on both their "local" overhead rate and the effect they have on the "global" or total organization's overhead rate. This paper uses a typical organization structure adapted from an actual company to illustrate the interdependent reporting system. The complete system requires more analysis than an automated variance system in order to determine the source or cause of the variance and to develop possible solutions rather than merely report facts or numbers. Because of this in-depth analysis, these summary reports are more narrative.

RESPONSIBILITY ACCOUNTING

Responsibility accounting is a technique that accumulates costs by organizational area and summarizes those costs at each higher level in the organization. The accounting reports follow the organization chart in moving from the lowest to the highest level in the organization. Most manufacturing companies use predetermined overhead rates to not only apply overhead to production but as a control mechanism for overhead expenditures. When the actual rate is compared to the budgeted rate it also becomes an evaluation tool. This is true today even with all the discussion of activity based costing and "newer" cost and evaluation methods.

The budgeted overhead rate of each organizational function is based on a projection of the expenses incurred within the function compared to the allocation base within the function. The traditional presentation of responsibility accounting in textbooks does not discuss the use of overhead rates as a critical control and evaluation measurement but concentrates only on the size of the absolute dollar variance as the critical item. This concentration on the financial effect of over or under applied overhead ignores the evaluation aspect of the overhead rate variance and more importantly emphasizes each function's overhead as independent from the total organization's overhead rate.

INTERDEPENDENT RESPONSIBILITY ACCOUNTING

Interdependent responsibility accounting combines traditional overhead rate calculations and the cross functional aspects of activity based accounting to trace the performance of each function to its effect on organization performance. Charts and graphs are used to visually present the relationship of the performance of each organizational function to the organization as a whole.

Interdependent responsibility accounting requires activity analysis within each function in the organization. Activity analysis is used to relate the incurrence of cost within a particular function to the actual activity that caused the cost, even if that activity was outside the function itself. This process creates activity rates that are used to cross charge other functions for each activity in a function in a manner similar to charging for services.

This cross charging forces the providing function to develop accurate costs for each activity. The receiving function develops a motivation to reduce it use of these activities. Both actions will cause a joint effort to lower costs. The motivational aspects of controlling cost in interdependent responsibility accounting rather than determining product cost is a significant difference between activity analysis and activity based costing.

THE MANAGEMENT ACCOUNTANTS' ROLE IN RESPONSIBILITY ACCOUNTING

The accountants for the various functions prepare reports that attempt to analyze the performance of the function to give proper emphasis to the factors causing a variance from the budget and weigh each function in relation to the other function to determine the impact of each on the total organization performance. This type of report tries to present to management the areas of strength and weakness in the function so that the cause of the variance can be isolated.

The summaries of the function accountants will not follow a uniform format. The format for each function is one that is developed by the individual managers and accountants. The format usually will be established by guidelines from the function manager on the type of information desired and the ability and imagination of the accountant to develop different means of presenting the pertinent information in such a way that the function manager and the lower level managers can use the information in better controlling the areas under their responsibility. The summaries differ from the traditional overhead variance analysis as they require more analysis in order to determine the source or cause of the variance and to develop possible solutions rather than merely report facts or numbers. Because of this in-depth analysis, these summary reports are more narrative. The reports attempt to summarize the activities of the function, break down the contributions of the various activities, and determine causes for variances in the overhead rate. Charts and graphs are used to visually present the performance of the function and its activities to show the relationship of the performance of each organizational level to the organization as a whole.

The difficulties facing the management accountant in presenting the summary report are three-fold:

1. The volume of variables that are presented on a traditional overhead repot for a month's activities. How are these reduced to a two or three page report that will give a manager sufficient information for evaluation and operating decisions?

2. Time. To be of any value the results of the past month should be reported soon enough to be acted upon by management to affect a change in direction, if needed, before the next month's production carries the function far beyond the boundary of effective control.

3. Traditional, flexible budgets are impractical in many situations. The relevant ranges of variable rates and fixed costs are not available or easy to determine. Even the behavioral patterns of costs are not stable due to fluctuating bases and circumstances in many industries. In many contracts, the overhead rate is paramount regardless of the fluctuations in the volume base of applied salaries. The overhead rate becomes a negotiated rate with the customer and not just a mechanism for prorating costs to production. The overhead rate becomes the control and evaluation mechanism under these conditions. But the actual rates of the lower levels of the organization are not as important as their impact on the overhead rate at the function level because the rate is typically negotiated only at the function level.

These conditions give added emphasis to the concept of measuring the contributions of lower organizational levels to the variance from budget of the highest level's overhead rate. Merely allowing the budgeted overhead rate to fluctuate on the fluctuations of one common base (applied salaries), as is done in flexible budgeting, is unrealistic and oversimplified for the conditions.

MOTIVATION THROUGH CONTINUOUS IMPROVEMENT

The reports that are generated concentrate on the linkage of each function in the organization. Each function is a link in the chain of operations in the organization. The performance of each function is judged on its "local' performance, the controlled activities within its traditional organization boundary, and on its "global" performance, its effect on the total organizations' performance.

The activity analysis will first determine the local performance as a comparison to a traditional budget target. Then after the cross charges are determined, an analysis will determine the cost of each local activity compared to trends and targets for improvement. This analysis is not all financial but uses many non-financial measures that are compared to internal and external targets.

The effect on the total organization is determined by developing global measures that trace the effect of each function's performance on the total organization. These measures use a value chain type of analysis that weighs the effect of changes in performance in each function to its effect on the total organization. The activity analysis produces a cross functional matrix of the interaction of the activities of each function. This matrix traces the cost of each activity to the function initiating the request for the activity not the function performing the activity.

The tracing of the interactions of the activities produce reports that link the performance of the individual functions to the performance of the total organization. Each function is rewarded based on their local performance compared to budget and on their global performance compared to a trend of continuous improvement of the total organization and to the improvement over time of their local measurements.

CONCLUSIONS

The objective of this analysis of overhead rates using interdependent responsibility accounting is to relate the performance of each organizational level to the effect that performance has on the overall performance of a particular organizational group. The managers of these functions will realize that their performance cannot be isolated from the total organization. Additionally, it will facilitate the investigation of performances that have an adverse effect on the total organization even though that performance may appear to be satisfactory under a traditional responsibility accounting system.

CONSULTING PROJECTS: A VALUABLE TOOL IN THE ACCOUNTING INFORMATION SYSTEMS CURRICULUM

Arthur H. Gilbert, Jr., University Of Missouri-Kansas City

ABSTRACT

It is widely accepted that it is impossible to replicate the issues faced in the "real world" in the classroom. One way to present these issues in a more realistic manner is to incorporate consulting projects involving local businesses into the education process. This paper describes the consulting course which is required of all students enrolled in the accounting information systems (AIS) focus in the Master of Science in Accounting degree program in the Henry W. Bloch School of Business & Public Administration at the University of Missouri-Kansas City.

COURSE FORMAT

The consulting course is the capstone course in the AIS focus (track) with students enrolling in it near the end of their program of study. In this course, the students are organized into consulting teams and are expected to integrate the material from all of their previous course work in solving an information systems problem for their client companies. During the first two weeks of the course, the instructor lectures on the consulting process, including ethical considerations. During this time, students are also introduced to representatives of the client companies. Students are required to negotiate an engagement contract with the client, subject to the instructor's approval, plan the engagement, analyze the problem, and present recommended solutions. The solutions are presented in a comprehensive written report and in an oral presentation.

ISSUES ENCOUNTERED

The issues encountered by both students and instructors in this course are markedly different from those faced in the traditional lecture-based course. From the instructor's perspective, a significant portion of the activity associated with the course must be performed prior to the semester in which the course is offered. Finding acceptable clients is always difficult. An acceptable client must have a systems problem that is worthy of graduate credit, but not be so overwhelming that a group of students cannot analyze it and provide recommendations for its solution during the course of a semester. In addition, the client must agree to make the necessary personnel and information available to the student team.

Another issue faced by the instructor is deciding when to intervene in a difficult situation and when to allow the student consulting teams to solve their own problems. While failure and adversity can be a learning experience, the instructor must be constantly aware that the students are serving as quasi-representatives of the university, and their actions can adversely affect the reputation of the

university in the local community. To prevent "surprises," the instructor monitors the progress of each team through bi-weekly meetings with each consulting team. In addition, each consulting team is required to submit a comprehensive written progress report on a weekly basis which has been signed by a member of the client's management team. This prevents procrastination on the part of the students, allows problems to be identified early, and keeps the client aware of the team's activities.

From the students' viewpoint, this course puts a greater burden on them than does a traditional lecture-based course. The students are placed into a rather unstructured environment often analyzing a vaguely-defined problem of a firm with which they are not familiar. They must rely on their own self-motivation and the peer pressure from the other members of their team in accomplishing the required tasks. In addition, students must function as a member of a team composed of individuals who may be strangers to them. Some students, particularly those who are younger and have not had significant work experience, find this to be very stressful. However, most students indicate that they consider the course to be a valuable educational experience.

GRADING

Grading is accomplished through a two-part process. A team grade, comprising eighty percent of the final grade, is based on the oral and written presentations, with input from representatives of the client company. All members of the student consulting team receive the same score for this grade component. In addition, each student grades the performance of each of the other members of the team. The weighted average of these two components determines each student's final grade.

BENEFITS GAINED

Many parties benefit from this course. Students benefit by being introduced to real world situations as part of their formal education. The client businesses obtain relatively sophisticated professional assistance that many of them could not afford in the marketplace. Finally, the university benefits from the favorable publicity generated in the local community.

RELATING SEEMINGLY UNRELATED ANALOGIES TO ACCOUNTING CONCEPTS

Rodger G. Holland, Columbus State University

ABSTRACT

It is not usual for students to get so involved in trying to figure out how to perform a particular accounting procedure that they miss the big picture of what the procedure is designed to accomplish. In many cases a direct approach to finding the bigger picture often proves ineffective because the student is so consumed by the details that they simply cannot "back off" to see the forest because they are tied to a tree. When this happens, using an analogy not related to business often proves quite effective. Furthermore, use of such analogies often makes learning the subject more interesting and fun, which translates into longer term retention by the students. The purpose of this paper is to provide novice instructors with some seemingly unrelated analogies, stories, and jokes that help students understand accounting concepts in very different ways.

GENERALIZING THE INCOME MANAGEMENT HYPOTHESIS TO INCOME SMOOTHING EXPECTATIONS

Rodger G. Holland, Columbus State University
Gary E. Kundey, Columbus State University

ABSTRACT

The accounting profession has long been concerned with income smoothing, dating back to Hepworth (1953). The research has been quite extensive and has provided the basis for both empirical and theoretical research. A branch, income management, has developed which does not require the same assumptions as income smoothing, yet has thus far required highly firm specific expectations. This work develops expectations similar to those found in the income management literature but uses expectation models found in the income smoothing literature. In this sense, it is a generalization of the income management hypothesis. Alternatively, it could be viewed as a relaxation of the assumptions associated with the income smoothing hypothesis. Further refinements separate income manipulation form income management and propose a way for examining this manipulation. The empirical results suggest that the concepts and implications of the income management hypothesis can be extended to the expectations derived form the income smoothing models. More specifically, the symmetry of effort required for income smoothing is not found but rather the propositions under income management are supported.

A SIMPLE CHAOS MODEL: LESSONS FOR FINANCIAL MARKETS

Robert H. Stretcher, Hampton University
Dieter Sigmar, Massachusetts Institute of Technology
Mark L. Adams, Massachusetts Institute of Technology

ABSTRACT

This paper utilizes the model of a damped, driven pendulum as the simplest paradigm of a dynamic system capable of exhibiting chaotic behavior. The character of larger and more complex models (such as nonlinear general economic and financial market models) has been the subject of much research activity, but the more complete the models become, the less transparent is their resulting behavior. The pendulum model shows how chaos can result, and yields an intuitive understanding of how such a system could be managed.

INTRODUCTION

Chaos can result from a variety of causes, all endogenous to the deterministic laws that govern the pendulum's movement. The pendulum illustrates that complication in the modeling equations is not necessary to create conditions that can be described as chaotic. Mathematical sources of chaotic behavior include variation in the amplitude or frequency of the external driving force and differences in initial conditions. A variety of exogenous shock-like driving mechanisms are compared to possible financial market counterparts to highlight the way in which outcomes can produce chaotic behavior. This paper presents an exposition of the pendulum model and attempts to explain how variations in its parameters can produce chaotic results not dissimilar to the behavior of much more complex market models. Suggestions are offered about how recognition of nonlinear dynamics features contained in existing financial market characteristics may improve decisions on the public policy level.

BACKGROUND

Market and economy observers can intuitively picture the onset of a chaotic process, characterized not by random walk and normally distributed returns but by integrated markets and directional movements feeding on seemingly small inherent triggers, sometimes producing extreme changes. A strand of thought has developed in support of chaos theory, a kind of heretical following that rejects the traditional paradigms of finance. A number of research efforts have surfaced since renewed interest in chaos theory surfaced in the 1980's.

Atchison and White(1996) assessed portfolio characteristics of known chaotic securities and found that portfolios lose their chaotic character as additional securities are added. Hsieh (1991) found several methodologies for use in detecting chaotic behavior, and found some evidence of "low complexity chaotic behavior" in stock returns, but in other tests rejected its presence (p.1857).

Okunev and Wilson (1997) used a nonlinear model to support the view that real estate and stock markets are somewhat integrated and thus coupled, supporting the notion that asset substitution between markets may come into play when opportunities arise for shifting a portfolio either towards higher return or relative safety. Abhyankar, Copeland, and Wong (1997) tested four stock market indexes for nonlinear dependence and for the existence of chaos. Although nonlinear dependence was present, they found no evidence of chaos using the neural-net and nearest-neighbor algorithms.

Still other studies indicate obvious endogenous elements that create market price behavior that, given the variety of financial investment vehicles available, is rational on the part of market participants yet can produce instability. For example, Brookfield (1997) shows that in an environment where derivatives play a significant role, instability is normal, widespread, and endogenous. Other writers certainly do not accept an abstract model as an effective way to understand financial markets, but highlight reasons why chaotic results may occur. Spotton (1997) asserts that the failure of orthodox market models to provide an adequate explanation for financial instability stems largely from their abstracting away the institutional context in which instability occurs. McClintock (1997) illustrated the development of the institutional structure that allows for internationalization of financial derivatives and its effect on international (and endogenous) international financial instability. Minsky (1981, 1982, 1985, 1986), Davidson (1991), and Palley (1993) all support the notion that the underlying rational behavior of economic agents endogenously produces financial instability.

The literature appears to acknowledge the presence of nonlinear chaotic outcomes. Explanations for why this behavior exists appear to favor the institutional, contractual and rational (internal) character of financial markets. The current evidence as to the consistency of chaotic results or to the identification of the underlying causes of this behavior has not produced a unanimous following. Perhaps what is called for is the recognition that chaos is a possible outcome and that policy makers should adjust their assessment of market conditions to reflect this knowledge. The following section presents the simplest of nonlinear chaotic systems (having only three coupled equations) in order to highlight characteristic behavior. Such a low dimensional model system leads to understandable and transparent chaotic behavior under some circumstances while higher dimensional systems such as econometric models with terms of coupled equations yield inscrutable complexity and little chance of predictable control.

DYNAMICS OF A DAMPED, SINUSOIDALLY DRIVEN PENDULUM

Nonlinear dynamic behavior can be modeled in a simple way in the form of a damped, sinusiodally driven pendulum. Depending on its control parameters, this model exhibits seemingly irregular and unpredictable movement over time. A non-chaotic system contrasts with a chaotic system in that small differences in initial conditions will grow linearly, thus allowing the end state of the system to be predictable. The chaotic system exhibits exponentially growing differences, creating a complex and increasingly unpredictable state for future time periods. In the event that a system becomes chaotic, it will exhibit behavior that appears to resemble a random movement. In a non-chaotic system, such random movement is a result of exogenous stochastic influences. In a nonlinear system, however, the unpredictable irregularity is endogenous to the system, characteristic of its deterministic equations (Baker, Gollub 1990, pp.1-2). The motion for the pendulum follows the second order equation:

$$\begin{aligned} d\omega/dt &= -(1/q)\omega - \sin q + g\cos f \ , \\ dq/dt &= \omega \ , \\ df/dt &= \omega_D \ . \end{aligned} \qquad (2)$$

where: f = the phase of the drive term
g = the forcing amplitude

The first term represents acceleration, the second term represents damping or friction that reduces momentum of the pendulum, the third term represents the effect of gravity on the pendulum, and the term on the right represents an external driving force which is assigned an arbitrary amplitude *A* and frequency ω_D , two constants that can be chosen freely and can even be made to vary with time, for certain models of interest. Without the drive term on the right side the pendulum oscillates at its natural frequency.

Equation 1 can also be represented by three first-order equations written in normalized form as:

$$ml^2\, d^2\theta/dt^2 + \gamma\, d\theta/dt + W l \sin\theta = A\cos(\omega_D t) \qquad (1)$$

where: m = mass of the pendulum
W = the weight of the pendulum
l = the length of the pendulum
ω_D = the external drive frequency

Together with the initial angle θ_o and angular velocity ω_o , the values of the parameters g,_ω_D, and q determine whether the pendulum will result in regular or chaotic motion. "The transitions between nonchaotic and chaotic states, due to changes in the parameters, occur in several ways and depend delicately upon the values of the parameters"..."For some values the pendulum locks onto the driving force, oscillating in a periodic motion whose frequency is the driving frequency, possibly with some harmonics or subharmonics. But for other choices of the parameters the pendulum motion is chaotic. One may view the chaos as resulting from a subtle interplay between the tendency of the pendulum to oscillate at its 'natural' frequency and the action of the forcing term"(Baker, Gollub 1996, p.5).

MINUTE DIFFERENCES IN INITIAL CONDITION

One of the first (and by now celebrated) discoveries of naturally chaotic systems is credited to E. N. Lorenz (1991) who showed that certain aspects of our global weather system can be modeled by three coupled equations related to equations (2). Consequently, the original suggestion that minute differences in initial conditions could affect large scale fluctuation became known by the term 'butterfly effect'. The exaggerated analogy to chaos was that the flapping of a butterfly's wings in one part of the world could be chaotically magnified into a typhoon in another part of the world

(Atchison, White 1996, p.21-22.). The technical explanation is that small differences in initial condition may be indistinguishable in early time periods but because of nonlinearities, totally divergent outcomes will occur as a sufficient amount of time passes; see figure 1: phase trajectories).

The application to financial markets is that events that are seemingly insignificant perturbations at the time of their occurrence may result in future conditions that are totally unpredictable, especially concerning the (stable) equilibrium prediction methodologies that are the hallmark of established financial theory. As an example, one could consider an event where media attention and the attention of the financial markets are focused on the comments of the chairman of the Federal Reserve, at a briefing after the Open Market Committee meeting. If the Chairman understands that slightly different ways of wording the announcement may result in unpredictable 'chaotic' consequences, he should choose his words very carefully. One position may drive the market to an outcome resembling normal (in stable equilibrium terms) noise in financial market movements, but a slightly more or less favorable comment may result in a completely divergent outcome.

It is conceivable that sufficient factors (such as institutional effects and derivative contractual instrument) exist to justify the concern for such divergence. Free market proponents have long held that markets, if left to their own accord, will eventually find their way back to an efficient, full resource employment equilibrium. The chaotic model, however, suggests that a system following a seemingly natural set of rules (contracts and institutional effects) can, at times, result in unforeseeable chaos. Thus, while established theory would support the idea that authoritative bodies such as the Federal Reserve should succeed monitoring markets and reacting with counter measures when divergence from economic goals occurs, the chaotic model implies that the controlling agency is quite possibly faced, at each time of intervention, with incipient chaos.

THE AMPLITUDE OF THE DRIVING FORCE

An interesting phenomenon occurs in the driven, damped pendulum model when the driving force amplitude is increased in successive stages. In conditions of sufficiently small amplitudes, the behavior of the nonlinear system exhibits regular and somewhat predictable movement. In figure 2, the driving force amplitude is increased in steps of .10 in order to illustrate how chaotic behavior develops. At a force of 0.4, a normal looking oscillation appears in the time series plot of angular velocity, the phase-space plot is steadily circling the origin, and the Poincare' section plot is a single point.. At F=0.5, the plot still looks relatively calm, with only small distortions in the otherwise smooth oscillation, with few points in the Poincare' section (a first indication of the onset of chaos). At F=0.6, however, phase points in the Poincare' section are scattered in a chaotic design; the points are very unpredictable and the position of the phase point at one time yields no useful information to predict the next period's position. This is fully developed chaos. If one were to exert a small perturbation on this system, the effect would be an even further degree of unpredictability. The chaotic effect is even more severe at F=0.7, with a very complex plot in the Poincare' section.

An interesting effect occurs, however, at F=0.8. Obviously, when a very strong driving force is applied, the result is a forceful oscillatory motion at the driving force frequency, taking hold of the system and yielding a smooth phase-space plot, i.e. a return to a single point plot in the Poincare' section. The explanation is that a strong driving force has applied a forced stability upon the system. One could imagine a real-world financial market analogy to this, perhaps a situation with financial

conditions so chaotic that world leaders institute a single worldwide currency or other forceful standard. However, the pendulum model returns to chaos when the driving force amplitude is increased even further at F=0.9 and F=1.0! Perhaps additional chaos would surface in the single currency world where a single monetary policy becomes untenable for economically weaker but now coupled countries unable to adjust to such a global forcing function on a quasi-instantaneous time scale.

SHOCK-LIKE FEATURES IN THE DRIVING FORCE

In the pendulum model, a variety of sudden changes or 'shocks' may be applied to the driving force. Among the possibilities are (1) a level shift, captured in a step function, (2) a single point spike that is nonrecurring, captured in a delta function, and (3) a spike and counter spike (again captured in delta functions).

In the stable equilibrium model, the system will return to its equilibrium position over time as a result of a low amplitude mini-shock. Fluctuations in financial markets and other markets have been explained in this manner since early economists envisioned a (stable) pendulum-like model with a single attractor to the equilibrium at the vertical position. Market movements that did not exhibit attraction toward long term stability were interpreted as the result of multiple and exogenous positive and negative shocks to the otherwise stable system. In a nonlinear system, however, shocks play a very different role.

In figure 3-a, a step function is illustrated. The amplitude of the function, on the vertical axis, and t1 and t2, on the horizontal axis, are three new freely chosen parameters. As shown by the before and after angular velocity vs. angle diagrams show, a chaotic result appears as a result of the shock. The motion study exhibits three time scales; the constant driving force prior to the ramp, the transient force as a response to the ramp, and the force after the ramp regresses to the original force. The diagrams were a result of relatively weak damping, which allowed for a ready transition to chaotic motion. Since damping is a linear force, the same step under very heavy damping will prevent as chaotic an event from occurring.

Figure 3-b illustrates the spike/counterspike example. Again, the timing and amplitude is freely chosen. The system starts out with regular motion as in the 'before' diagram. Just after the first spike, chaotic behavior is induced as in the 'transient' diagram. Interestingly, this result occurred even though the spike amplitude was chosen such that a regular phase-locked result was expected. After the counterspike, the system appears to exhibit less irregularity, but is still chaotic ('after'). As t approaches infinity, however, the system does approach the stable orbit again ('long after').

Spike-like shocks are complicating factors in that they can create further unpredictable effects once the system is in a state of chaotic motion. Corrective "counterspike" actions may become ineffective in producing stability. It has been assumed here that the amplitude of the positive spike was matched by the negative spike that followed. In the real world, the magnitude of the first spike may be rather elusive. The effect of the counterspike on the system is also dependent on the timing of the counterspike. Suppose, for example, financial markets were exhibiting relatively calm oscillatory movement. A shock could send the system into a chaotic event, where outcomes vary widely and are unpredictable. Because of the complexity of the actual highly nonlinear economic

system, a regulatory authority would have only a slight chance of devising and timing a response that had any more likelihood of restoring relative calm than doing nothing at all.

SYSTEM COMPLICATION

Exact as it is, the pendulum example is a rather minimal model to illustrate chaos in comparison to models having a larger number of coupled phenomena in an attempt to capture a likeness of reality. A model encompassing the complexity of institutional, contractual, and behavioral aspects of global financial markets would easily have over a hundred coupled nonlinear equations, and would thus incorporate a near infinite number of ways in which chaotic effects could result. The value in observing the simplest of all nonlinear dynamic systems is that one can intuitively gain an understanding of the effects of the larger system.

CONCLUSIONS

Several Characteristics of the nonlinear chaotic system are evident by observing even this simple pendulum example. The chaotic system exhibits characteristics of instability, magnified reactions, persistence relative to time, and in some cases almost total unpredictability of direction and magnitude as a result of a shock to the system coupled with nonlinear characteristics inherent within the system. Real financial markets and the economic system in general, both domestic and worldwide, can transit from stable to mildly stable to chaotic behavior. By studying the astounding richness of dynamic behavior and the road to chaos of the simple three equation pendulum, we provide incentives to new approaches to market analysis and control. Since time is such a crucial element regarding the divergence of possible outcomes, it may be appropriate to suggest that the timing of regulatory measures and measures designed to counter negative events is of great importance. Beyond a certain point in time, the divergence of outcomes from a small difference in initial conditions becomes very large. Once the threshold for chaos onset has been crossed, any stabilizing policy move may well be rendered ineffective by the inherent nonlinear dynamics of the system.

Learning from the nonlinear pendulum model, one can conclude that, by concentrating on constraining, for example, the rampant spread of mutual fund index options (which can be seen as strangely nonlinear coupling terms in the global set of economic model equations), the regulatory authorities could stabilize a lost equilibrium much more effectively than via implementation of 'linear' damping mechanisms such as circuit breakers and jawboning, once chaos has commenced. This is, however, similar to prescribing preventative measures. The patient often reacts that since there is nothing obviously wrong, there is no need to interfere.

[FIGURES AVAILABLE BY CONTACTING THE PRIMARY AUTHOR]

REFERENCES

Abhyankar, A., L.S.Copeland, and W.Wong. 1997. "Uncovering Nonlinear Structure In Real Time Stock-Market Indexes: The S&P 500, the DAX, the Nikkei 225, and the FTSE-100." *Journal of Business and Economic Statistics* 15:1, January 1997. pp. 1-14.

Antoniou, A., and I. Garrett. 1993. "To What Extent Did Stock Index Futures Contribute to the October 1987 Stock Market Crash?" *Economic Journal* 103, pp. 1444-61.

Atchison, Michael D., and Mark A. White. 1996. "Disappearing Evidence of Chaos in Security Returns: A Simulation." *Quarterly Journal of Business and Economics,* 35:2, Spring 1996. pp. 21-37.

Baker, G.L., and J.P.Gollub. 1996. *Chaotic Dynamics: An Introduction. Second Edition.* Cambridge University Press, New York.

Baumol, W., and J. Benhabib. 1989. "Chaos: Significance, Mechanism, and Economic Applications." *Journal of Economic Perspectives* 3, pp. 77-105.

Brookfield, David. 1997. "Endogenous Instability in Financial Markets." *Bulletin of Economic Research* 49:1, 1997. pp. 71-76.

Connely, Thomas J. 1996. "Chaos Theory and the Financial Markets." *Journal of Financial Planning,* 9:6, December 1996. pp. 26-30.

Davidson, Paul. 1992. "Asset Deflation and Financial Fragility." Mimeo. The University of Tennessee. Knoxville, Tennessee.

_____. 1982. *Money and the Real World.* London: MacMillan Press Ltd.

Hsieh, David A. 1991. "Chaos and Nonlinear Dynamics: Application to Financial markets." *Journal of Finance,* 46:5, December 1991. pp. 1839-1877.

Lorenz, E.N. 1991. "Dimension of Weather and Climate Attractors." *Nature* 353 (1991), p.241.

Minsky, Hyman P. 1986a. "Financial Markets and Economic Instability 1965-1980." *Nebraska Journal of Economics and Business* 20 (Autumn 1981), pp. 5-16.

_____. 1986b. *Stabilizing an Unstable Economy.* New Haven: Yale University Press.

_____. 1985. "The Financial Instability Hypothesis: A Restatement." In *Post Keynesian Economic Theory: A Challenge to Neoclassical Economics,* Arestis and Skouras. New York: M.E.Sharpe, Inc.

_____. 1982. "The Financial Instability Hypothesis: Capitalist Processes and the Behavior of the Economy." In *Financial Crises: Theory, History, and Policy.* Charles P. Kindleberger and Jean-Pierre Laffargue, pp. 13-39. Cambridge: Cambridge University Press.

Okunev, John, and Patrick J. Wilson. 1997. "Using Nonlinear Tests to Examine Integration Between Real Estate and Stock Markets." *Real Estate Economics,* 25:3 . pp. 487-503.

Palley, Thomas I. 1993. "Uncertainty, Expectations, and the Future: If We Don't Know the Answers, What are the Questions?" *Journal of Post Keynesian Economics* 16 (Fall 1993), pp. 3-18.

Phillipatos, G.C., E. Pilarina, and A.G. Malliaris. 1993. "Chaotic Behaviour in Stock Prices of European Stock Markets: A Comparative Analysis of Major Economic Regions." Working Paper, University of Tennessee, Knoxville, Tennessee.

Riggle, Charlene, and Gregory Madey. 1997. "An Analysis of the Impact of Chaotic Dynamics on Management Information Flow Models." *European Journal of Operational Research*, (103) November 16, 1997, pp. 242-254.

Scheinkman, J., and B. Lebaron. 1989. "Nonlinear Dynamics and Stock Returns." *Journal of Business* 62, pp. 311-337.

Wolfson, Martin H. 1994. *Financial Crises: Understanding the Postwar U.S. Experience*. New York: M.E.Sharpe.

A STUDY OF THE IMPACT OF TQM ON THE FINANCIAL PERFORMANCE OF FIRMS

David Benson, Electronic Data Systems (EDS)
Monte R. Swain, Brigham Young University

ABSTRACT

Total Quality Management (TQM) has been one of the most popular management philosophies of the last two decades. However, many have questioned whether TQM programs actually translate into bottom-line results. A number of studies have been conducted previously with mixed results. However, this research work presents several challenges, including 1) properly identifying a full TQM implementation, 2) defining appropriate criteria in order to evaluate effective process improvement as a result of TQM implementation, and 3) establishing a clear connection between process improvement and financial performance results.

This study examines Baldrige Award-winning companies to determine whether their TQM programs did, in fact, improve their financial performance. Focusing on Baldrige Award-winning companies provides some assurance of full TQM implementation that as result in measurable process improvement within the sample set. For this study, financial performance is evaluated on the basis of stock price returns. Specifically, we compared the performance of twelve publicly traded Baldrige Award winners to their industry index in the year of the award and subsequently at one and three year intervals. The results indicated that in the year of winning the award half of these companies outperformed their industry index. However, in the following year less than half of these companies outperformed their industry index. The literature suggests that TQM implementation results in superior management processes that enrich long-term, rather than short-term, performance. In fact, cumulative stock returns over a three-year period following receipt of the Baldrige Award seem to support this position. Nine of the twelve winning companies outperformed their industry index over this time period.

While there are important limitations to consider in a study such as this, our results indicate that long-term financial performance enhancements may exist for winners of the Baldrige Award. Nevertheless, we are concerned that the relationship between TQM status and financial performance is not stronger. Some recommendations regarding linkage of TQM investments to financial performance strategy are provided at the end of our report.

INTRODUCTION

Total Quality Management (TQM) is one of the most popular management philosophies in practice today. One survey found that over 74% of manufacturing firms have tried to implement a TQM program, with varying results (Conference Board, 1989). Some firms, such as Motorola, Harley-Davidson, Xerox, and Intel, have used TQM to become leaders in their fields. Other firms, however, have reported that their TQM initiatives have not significantly reduced costs, improved their

financial standing, or increased quality (Sharman, 1992; "The Straining of Quality," 1992; Jacob, 1993; Eskildson, 1994; Wiggins, 1995). For example, a survey by the consulting firm Arthur D. Little of 500 American manufacturing and service companies found that only one-third felt their total-quality programs were having a "significant impact" on their competitiveness ("The Cracks in Quality", 1992; Schaaf, 1993). In addition, a similar study by A.T. Kearney found that 80% of the firms surveyed felt that their TQM programs had not produced "tangible results" ("The Cracks in Quality", 1992; Schaaf, 1993). Sixty-three percent of firms that responded to an American Electronic Association survey stated that their TQM programs had failed to reduce internal defects by 10% or more, despite having been in effect an average of 2.8 years (1992). One firm (Wallace Company, Inc.) even went bankrupt following the implementation of a TQM program (Ivey, 1991; Wiggins, 1995). Analysts and other experts have differed over whether the problem is that companies have not been implementing TQM correctly, or if TQM, even when properly executed, does not improve financial performance (see, for example Goodman et al., 1994; Eskildson, 1995; Hoover, 1995). This paper will analyze whether a successfully implemented TQM program improves the financial performance of a firm.

DEFINING TQM

Before analyzing whether TQM improves financial performance, it is essential to understand TQM. TQM is a management approach that seeks to increase profitability by improving quality and increasing customer satisfaction, while promoting the well being and growth of the employees of the organization.

Much that has been written about TQM is based on the writings of W. Edwards Deming and Joseph M. Juran. They are considered the founders of the movement. Much of the theory of TQM is provided in Deming's book Out of Crisis (1986) and Juran's Managerial Breakthrough: A New Concept of the Manager's Job (1969). TQM is based on four assumptions focusing on cost, people, organizations, and the role of senior management.

First, Deming and Juran assume that quality is less costly to an organization than is poor workmanship. They point out that the costs of poor quality (such as inspection, rework, repairs, lost customers) are far greater than the costs of developing processes that produce high-quality products and services. Second, both Deming and Juran maintain that people naturally take pride in their work and will take initiative to improve it—if they are given the tools and training that are needed and if management pays attention to their ideas. Deming adds that organizations must remove all systems that create fear for the employees, such as punishment for poor performance, performance evaluations, and merit pay. The third assumption is that organizations are systems of highly interdependent parts, and that most of the problems within the organization cross traditional departmental lines. Hence, TQM emphasizes cross-functional teams since neither problems nor solutions generally can be isolated. Finally, Deming and Juran stress that, ultimately, top management is responsible for quality. Because senior managers create the systems that determines how products are designed and produced, the quality improvement process must begin with management's own commitment to total quality.

Based on these assumptions, Deming and Juran offer five ways to improve an organization:

1) Explicitly identify and measure customer requirements. TQM defines who a customer is very broadly. Customers can be internal or external to the organization. Essentially, a customer is defined as anyone further down the production line. To achieve quality, it is critical to know what customers want and to provide products and services that meet or exceed those requirements. With this data in hand, the organization can focus on improving those processes that will most affect customer satisfaction and retention.

2) Create supplier partnerships. Deming and Juran suggest that organizations should choose vendors on the basis of quality, not just on price. In addition, they recommend that organizations work directly with suppliers to ensure that their materials are of the highest quality possible. Ultimately, the goal is for suppliers to provide materials with zero defects so that the company does not need to waste time inspecting the goods, a non-value adding activity.

3) Establish cross-functional teams to improve processes and solve problems. These cross-functional teams serve to identify and analyze the "vital few" problems. Other teams, also cross-functional, are then formed to diagnose those problems and solve them.

4) Eliminate dependence on mass inspection. Too many companies attempt to inspect quality into products. TQM asserts that organizations must focus on building quality into their products. TQM maintains that goals of zero defects or "six sigma" (3.4 defects per million) quality are attainable.

5) Use statistical techniques to monitor performance. These techniques should be focused on two processes: first, statistical measures need to be used throughout the manufacturing process to ensure that quality standards are met. Second, these statistical tools can be used to monitor and analyze work processes to identify the points of highest leverage for quality improvement.

TQM RESEARCH CHALLENGES

Research of TQM involves at least three challenges. First, one needs to clearly define what a full-fledged TQM implementation would involve for a particular context; then determine if, in fact TQM has been implemented. It is not clear that an organization has completed a full TQM implementation if only one or two of the five TQM improvements listed above have been instigated. Further, does any significant redesign of a process, division, or organization qualify as a TQM implementation? These critical issues must be resolved before research on the effects of TQM can proceed. In fact, one study found that of 99 papers about the effects of TQM published in academic and practitioner journals between 1989 and 1993, only 4 percent attempted to determine whether TQM truly had been implemented (Hackman and Wageman, 1995).

The second assessment that one must make is the determination of process criteria of effectiveness. TQM focuses on improvement of processes and functions, resulting in reduced rework costs, fewer defects, increased customer satisfaction, fewer warranty expenses, etc. The degree to which the improvements in processes internal to the organization actually occur is indicative of the success of a TQM implementation. Much research of the effectiveness of TQM is focused on relating process improvements to TQM execution.

Finally, it is our position of this paper that research of TQM effectiveness must eventually focus on financial impacts of an implementation. One then must assess whether the TQM program (and its accompanying process improvements) improved the financial performance of the firm using

some bottom-line outcome criteria such as increased revenue, higher stock price, higher price-to-earnings multiple, etc. As Hackman and Wageman (1995, 320) explain, "It is important to examine both process and outcome criteria because, as scholars who study decision-making know all too well, a capricious environment sometimes can intervene between process and outcome in a way that turns behaviors that could not have been better into results that could hardly have been worse." Clearly, isolating the impact of a TQM program on financial results such as revenue or stock prices presents an additional set of challenges to the research.

In order to overcome the first two problems with analyzing TQM, research presented in this paper is limited to analyzing Baldrige Award winners. Because application for the award involves a rigorous review of actual quality practices by qualified judges, it is safe to assume that these award winners actually have implemented the full TQM package, and that they have documented substantial process improvements (United States Government Accounting Office, 1991; Eskildson, 1995; Hackman and Wageman, 1995; Malcolm Baldrige National Quality Award Consortium, 1996).

THE MALCOLM BALDRIGE AWARD

The Malcolm Baldrige National Quality Award is an annual award recognizing U.S. companies that excel in quality management and quality achievement. It is the highest honor that an American company can receive. The Baldrige Award is governed by the National Institute of Standards and Technology (NIST), a branch of the U.S. Department of Commerce. A consortium including the American Productivity and Quality Center and the American Society of Quality Control administers the award. According to the NIST's Malcolm Baldrige National Quality Award 1996 Award Criteria, the award has three purposes:

- To promote awareness of quality as an increasingly important element in competitiveness
- To recognize quality achievements of U.S. companies
- To publicize successful quality strategies and the benefits derived from implementing these strategies.

The award can be given annually to up to two companies in each of the categories of manufacturing, service, and small business. However, the standards for winning the award are absolute, not relative. This means that all winners must meet certain strict criteria, even if it results in fewer than six awards being presented in any one year. In fact, in the nine years since the award's inception in 1988, the NIST has only given out 28 awards, and never bestowed the maximum six awards in a single year.

The Baldrige Award examiners evaluate firms in seven areas: (1) leadership, (2) information and analysis, (3) strategic planning, (4) human resource development and management, (5) process management, (6) business results, and (7) customer focus and satisfaction. Up to 1,000 points are awarded across all seven categories. Exhibit 1 provides a list of Baldrige Award criteria along with the points awarded in each category. There appears to be significant overlap between the seven Baldrige Award criteria and the definitions and improvements that Deming and Juran use to delineate TQM. Therefore, the Baldrige Award appears to be a good surrogate for the full implementation of a TQM program within an organization.

LITERATURE REVIEW

A review of the TQM literature suggests that research of the relationship between TQM and financial results are mixed. The United States Government Accounting Office (1991) surveyed the 22 highest-scoring applicants of 1988 and 1989 for the Baldrige Award. They found that the majority of the companies achieved greater customer satisfaction, reduced errors and product lead-times, and improved employee relations. The study also found that the selected companies improved profitability, as measured by market share, return on assets, and return on sales. However, the results are not conclusive because less than half of the 22 firms in the study reported any information at all concerning financial measures. Specifically, seven of the nine reporting companies increased return on assets (ROA is measured here as a company's earnings before interest and taxes divided by average gross sales) by an average of 1.3 percent. Six of eight reporting companies increased their return on sales (Measured as earnings before interest and taxes divided by sales.) by an average of 0.4 percent. With such a small sample, and such marginal results, it is difficult to state definitively that the TQM programs of these companies significantly improved their financial results.

The American Society of Quality Control (1992) questioned over 600 executives to determine the effect that TQM was having on their firms. Seventy-three percent of the executives reported that their quality programs had achieved significant results. However, this study does not attempt to directly observe significant financial results of TQM implementation among this sample.

Hoover (1995) and Goodman et al. (1994) analyze why firms experience various financial results with their individual TQM programs. One focus of these two studies is to distinguish results of improper TQM implementation from the possibility that TQM is theoretically flawed. Both sets of researchers conclude that when properly installed, TQM improved financial performance. Hoover (1995) found that TQM, when properly applied, improves competitiveness and success in an organization. He contrasts two companies that implemented TQM. The program of one of the companies was very successful and the company was able to reduce scrap cost by 65%, rework by 64%, and customer service backlog by 41%. The other company's program produced few measurable results even after six years, and the program was eventually canceled. By contrasting the two programs, Hoover (1995) found that the successful programs differed from the unsuccessful program in several key areas, including the level of leadership from top management, the focus on the customer, and the amount of employee involvement. Nevertheless, Hoover does not directly connect successful process improvements to improvements in financial performance. Goodman et al. (1994) maintain that TQM programs fail because of poorly set priorities and the lack of rigorous measurement of results. They argue that too often companies focus on what management perceives are key customer problems (which often are wrong), and that "the results of TQM efforts are often not tracked in a way that allows companies to separate what does and does not work in the marketplace" (p. 46). However, they maintain that executed properly, TQM can dramatically improve an organization.

Garvin (1991, 80) asserts that the Baldrige Award "more than any other initiative. . . has reshaped managers' thinking and behavior." Garvin responds to critics of the award who fault the award because some companies have stumbled financially after winning the award. He points out that the award was never meant to measure short-term financial results. Garvin states that the award does not measure many things critical to financial success, such as effective marketing, innovative R&D, and sound financial planning. He points out that "Baldrige winners are as vulnerable as other companies to economic downturns, changes in fashion, and shifts in technology. But they are far

better positioned to recover gracefully because they have superior management processes in place" (p. 83). Therefore, the Baldrige Award is a good predictor of long-term success and future profitability. However, Garvin does not attempt to empirically demonstrate this assertion.

The NIST (1995, 1996, 1997) has conducted several different comparisons of the return on the stock of the Baldrige Award winners to stock market as a whole, as measured by the Standard & Poor's 500 index (S&P 500). In each study the stock returns of the Baldrige Award winners as a group have outperformed the S&P 500. However, the research methodology used by the NIST does not individually analyze each Baldrige Award winner, making it difficult to direct assess the impact of the award status on an individual company's financial performance. In fact, the results of our study reveal that a few firms in the group of Baldrige Award winners are responsible for this result. Other firms have had abysmal stock returns after winning the award.

Mahajan et al. (1992), on the other hand, maintain that the correlation between quality and financial performance is very weak. The authors studied 12 firms from the computer and office equipment industry. Half were consistently highly rated in Fortune's annual list of "most admired corporations," and half were consistent laggards on the same list. They then had industry analysts from investment firms rate these firms on the eight points of corporate. Finally, they tracked the financial performance of these firms over the next three years. For the first year of measurement, the authors found a statistically significant relationship between performance and quality ratings for four out of eight measurements: return on equity, return on sales, earnings before interest and taxes, and return on total capital. For the following two years, the strength of the relationship between financial indicators and the scores of company quality consistently decayed over time. In addition, none of these relationships are statistically significant in the second and third year. From these observations, the authors conclude that "although the relationship between the financial health of companies and excellence is positive, excellence of a firm is not an indication of its future performance" (p. 330).

Schilit (1994) sought to find out whether firms that produced top quality products outperformed other companies financially. In 1987, Fortune magazine, with the help of a group of quality experts, consultants, security analysts, industry representatives, academicians, and others, chose 100 products made by American companies that were judged to be the best of their kind in the world. From the 100 companies that made these products, 72 were publicly traded. Schilit tracked stock price for these 72 companies over a five year period beginning 1 January 1988. The quality firms' average five-year gain in stock price was 71.1%, or 14.2% per year. However, the S&P 500 gained 77.74% over this time or 15.55% per year. Schilit, also found that there was a wide discrepancy in the performance of the stocks in the group. Microsoft performed the best with a 608% increase in stock price. Meanwhile Digital Equipment Corporation's stock, the poorest performer, lost 75% of its value over the same time period. Overall, 20 companies also lost value between 1988 and 1993—a time in which stock prices were initially extremely depressed following the October 1987 crash. Again, like Mahajan et al. (1992), Schilit found that having a quality product was not a strong predictor of financial performance.

Eskildson (1995) argues that for many firms, TQM will not lead them to financial success. He reviewed more than 150 organizational downturns and found that high costs and excessive debt were the top two major causes of financial problems, while poor quality was ranked fifth as a major cause of financial problems. Eskildson also notes that many Baldrige Award winners have struggled financially after winning the award. For example, Federal Express lost $1.5 billion on its European

operation, the Wallace Company declared bankruptcy, and many the Ritz-Carlton hotels were losing money or become insolvent. Furthermore, GM, IBM, Kodak, and Westinghouse each had Baldrige-Award winning divisions, yet each incurred "substantial and sustained overall corporate losses that led to the replacement of their chairmen" (p. 26).

METHOD AND RESULTS

The intent of this study is to provide important illumination of the question of whether successful TQM programs result in financial improvement for the organization. Baldrige Award winners are used in our sample to overcome difficulties associated with determining if a program is indeed TQM. More specifically, Baldrige Award winners used in this study are limited to publicly traded companies in order to ensure access to information and to determine shifts in fair market values. Of the 28 company awardees, only 14 were publicly traded at the time of winning the Baldrige Award. However, three of the winners are divisions within one company, AT&T. Consequently, this study focuses on 12 different firms. For purposes of this study, we establish AT&T as a Baldrige Award winner in 1992. This decision on based on the fact that two separate AT&T divisions won the Baldrige Award in 1992, and that this year represented the first recognition of AT&T. Exhibit 2 lists the Baldrige Award winners by year and indicates whether the firm is publicly traded.

Exhibit 3 evaluates each Baldrige Award winner's stock price return against the stock price return of its industry index using Dow Jones data. Comparing stock price of each Baldrige Award company to its own industry index should isolate the financial effects of the TQM program from the effects of external economic forces. Annual stock return data are gathered in year of winning the award (year n), in the following year (year n+1), and cumulative over three years following the award announcement (year n+3), providing some measure of both short-term and long-term financial impact of TQM programs (Baldrige Award winners are announced in October of each year).

In order to provide some comparison with the NIST (1995, 1996, 1997) research, we also provide data comparing the return of the Baldrige Award winners to the S&P 500. This provides some measure of the performance of awardees to the market as a whole. As with the industry index comparison, annual stock price returns for the S&P 500 are gathered in year n, year n+1, and cumulative in year n+3.

In the year of receiving the Baldrige Award, stock price returns for six of twelve companies outperformed the industry index and six of twelve companies outperformed the S&P 500. In the year following the award, five of the twelve companies outperformed their industry index and five outperformed the S&P 500. Three years after the award, nine out of the twelve companies surpassed their industry index, while only four bettered the S&P 500.

These results appear to be consistent with Garvin's (1991) position that the Baldrige Award does not protect a company from short-term company specific and market corrections; however, over the long-term, the companies should be in a better position to recover and perform well because they have superior processes in place. Because more companies outperformed their industry after three years than after one year, the data in this study would tend to support that conclusion. The data contradicts the conclusions of Mahajan et al. (1992) in their study of firms that scored high on a separate set of quality attributes. They found that the relationship between the excellence of the firm

and its financial performance diminished over time. They predicted then that the Baldrige Award would not be a good predictor of a company's long-term performance. However, the comparisons in the current study of Baldrige Award winners to their market indices seem to indicate an opposite result.

On the whole, less of the firms in this study were able to beat the S&P 500 over any of the time periods. This could be due to extraordinary growth of the S&P 500 over the past several years, particularly in the areas of high technology, financial services, and health care—all industries that are not well represented among the Baldrige Award winners. Nevertheless, although companies were more likely to beat their industry index than the market as a whole, we reassert that impeding external economic influences makes it difficult to draw conclusions based on comparisons with broad-based market returns.

LIMITATIONS ON ANALYSIS

The results of this study appear to clearly indicate that successful implementation of TQM results in enhanced long-term financial performance. However, while the process of relating TQM implementation to financial performance seems to be a relatively straightforward process, this is actually a rather tenuous position to defend for several reasons. First, it is difficult to show a cause and effect relationship between process improvements due to TQM and financial performance results. Issues related to internal validity are rampant when one takes a position that all outcomes are the sole result of any single change in the environment. A host of other variables extraneous to the proposed relationship can be possible contributing factors. Nevertheless, some researchers of TQM seem to ignore this important fact of empirical research. The implication that, after TQM is implemented, any improvements in productivity or profitability must have been caused by the quality program is suspect. In fact, improvements could have been caused by other events that occurred at the same time, such as a natural streamlining that takes place when processes are scrutinized, or productivity gains caused by the famous "Hawthorne Effect." The Hawthorne Effect is the phenomenon that people work harder when they are being studied (Hackman & Wageman, 1995, p. 323).

Second, as mentioned earlier, outside disturbances can distort the outcome between work processes and organizational outcomes. Many times, even when a relationship does exist between process improvements and organizational outcomes, certain outside influences can overpower the effects of the program. For example, Wruck and Jensen (1994) studied the TQM program at Sterling Chemical. Even though many experts noted that the program was highly successful, the company's overall financial performance suffered due to industry and market factors. We attempted to compensate for intervening market factors by measuring the companies against their market indices. However, it is likely that a number of variables still exist within the industry comparison that intervene in the relationship between effects of the Baldrige Award companies' quality programs and long-term stock price performance.

Third, it is difficult to determine a satisfactory time frame in which to evaluate a TQM program's effect on an organization's financial performance. There is often a discrepancy between short-term and long-term organizational results, and experts differ as to how long after an intervention one should wait before analyzing outcome measures (Whetten and Cameron, 1994). The longer the research time frame, the more opportunity a TQM program has to realize results, but

the more those results are diluted by other factors. We attempt to compensate for this by taking multiple measurements across different time horizons. However, determining the appropriate time interval still remains a problem.

Finally, the Baldrige Award allows divisions of firms to win the award, which can make it difficult to determine that particular division's success. Typically, these divisions represent only a small part of the entire company. Therefore, the performance of the division may not be large enough to explicitly affect financial performance for the company as a whole and therefore is not reflected in stock price returns. A good example in this study is Cadillac, a division of General Motors. Cadillac won the award in 1990 and may have had a very positive performance financially as a segment. Nevertheless, its parent company reported overall losses on its 1992 and 1993 income statements.

CONCLUSION AND RECOMMENDATIONS

It seems logical that improving the quality of a product or a business process would improve the financial performance of a firm. As our analysis shows, this is often, but not always, the case.

Some scholars (Collier, 1992; Garvin, 1991) have pointed out that TQM does not analyze other areas of a firm that are vital to its financial success, such as marketing, research and development, and financial management. Since TQM does not score the financial structure of the organization, it is conceivable that a company may have a world-class quality system and even win the Baldrige Award, yet its decisions on how to finance the company could lead to its financial ruin.

Recent financial performance models recommended by Kaplan and Norton's (1996) Balanced Scorecard theory that process improvements must be linked to financial results support this idea. Others have argued previously that because the operational results drive a company's financial performance, companies should focus mainly on process and operational improvements and let the financial performance take care of itself (Johnson, 1992). However, as Kaplan and Norton suggest, focusing on operational improvements alone will not improve financial results unless they are somehow linked to the bottom line. They note:

> Many managers fail to link programs, such as total quality management . . . to outcomes that directly influence customers and that deliver future financial performance. In such organizations, the improvement programs have incorrectly been taken as the ultimate objective . . . . The inevitable result is that such organizations become disillusioned about the lack of intangible payoffs from their change program. (pp. 150-151)

In a separate publication, Kaplan and Norton (1992, 78) point out that companies that implement quality programs often experience disappointing financial results because "companies don't follow up their operational improvements with another round of actions." They note that some companies improve their business processes, but they don't use those improvements to either grow revenue or reduce costs. In other words, they don't go far enough in their TQM programs in order to link process improvements to improvements in financial performance. For example, a firm can reduce the number of defects, improve quality, and improve on-time delivery, but if they fail to leverage the improved quality to sell products to new customers, or if they do not release any new products to market, those process improvements will fail to produce the kind of financial success demanded by

the capital market. Since the Baldrige Award criteria does not focuses heavily on linking process improvements to financial performance, this may explain why there is inconsistent dominance of Baldrige Award winners in the stock market

Exhibit 1: Malcolm Baldrige National Quality Award 1996 Criteria

Leadership (90 points)
- Senior Executive Leadership (45)
- Leadership systems and Organization (25)
- Public Responsibility and Corporate Citizenship (20)

Information and Analysis (75 points)
- Management of Information and Data (20)
- Competitive Comparisons and Benchmarking (15)
- Analysis and Use of Company-Level Data (40)

Strategic Planning (55 points)
- Strategy Development (35)
- Strategy Deployment (15)

Human Resource Development and Management (140 points)
- Human Resource Planning and Evaluation (20)
- High Performance Work Systems (45)
- Employee Education, Training, and Development (50)
- Employee Well-Being and Satisfaction (25)

Process Management (140 points)
- Design and Introduction of Products and Services (40)
- Process Management: Product and Service Production and Delivery (40)
- Process Management: Support Services (40)
- Management of Supplier Performance (30)

Business Results (250 points)
- Product and Service Quality Results (75)
- Company Operational and Financial Results (110)
- Human Resources Results (35)
- Supplier Performance Results (30)

Customer Focus and Satisfaction (250 points)
- Customer and Market Knowledge (30)
- Customer Relationship Management (30)
- Customer Satisfaction Determination (30)
- Customer Relationship Results (160)

Total Points 1000

Firms successfully implementing TQM must, by definition, demonstrate improvements in management of processes and people, supplier relationship, or organization structure. The data is our study suggests that TQM improves the long-term performance of the firm, as indicated by stock price returns. However, the results are not overwhelming. Obviously, additionally research is required to better document the relationship between TQM and financial performance. Nevertheless,

based on our analysis, it is reasonable to recommend that both practitioners and theorists pay better attention to the need to strengthen the link between TQM investments and the organization's critical financial results.

Exhibit 2
Malcolm Baldrige National Quality Award Winners
(Italics indicates firms are publicly traded at time of winning the award)

1988	Westinghouse Electric Corp. Commercial Nuclear Fuel Division
	Motorola Inc
	Globe Metallurgical
1989	Milliken & Company
	Xerox Business Products Division
1990	*Cadillac Motor Car Division*
	IBM Rochester
	Federal Express Corp.
	Wallace Company Inc.
1991	*Solectron Corp.*
	Zytec Corp.
	Marlow Industries
1992	*AT&T Network Systems Group/Transmission Systems Business Unit*
	AT&T Universal Card Services
	Texas Instruments Inc Defense Systems & Electronics Group
	Ritz-Carlton Hotel Co.
	Granite Rock Co.
1993	*Eastman Chemical Co.*
	Ames Rubber Corp.
1994	*AT&T Consumer Communications Services*
	GTE Directories Corp.
	Wainwright Industries Inc.
1995	*Armstrong World Industry Building Products Operations*
	Corning Telecommunications Products Division
1996	ADAC Laboratories
	Dana Commercial Credit Corporation
	Custom Research Inc
	Trident Precision Manufacturing Inc

Exhibit 3
Stock Price analysis of Baldrige award winners

				Annual Return in Year N			Annual Return in Year N+3			Annual Return in Year N+1		
Company	Ticker	Industry Group	Award date	Firm	Index	S&P 500	Firm	Index	S&P 500	Firm	Index	S&P 500
Motorola	MOT	Communications	1988	-15.6%	-22.5%	16.5%	39.6%	37.3%	31.6%	55.4%	44.6%	66.2%
Xerox	XRX	Office	1989	-1.9%	.60%	31.6%	-39.1%	-31.6%	-3.1%	42.2%	38.4%	35.9%
Cadillac	GM	Auto Manuf.	1990	-18.6%	-28.3%	-3.1%	-16.0%	-7.4%	30.4%	114.3%	59.6%	54.4%
Federal Express	FDX	Air Freight & Courier	1990	13.2%	22.3%	-3.1%	1.5%	27.4%	30.4%	107.0%	90.6%	54.4%
IBM	IBM	Computers	1990	20.1%	4.0%	-3.1%	-21.2%	-6.4%	30.4%	-21.6	-50.0%	54.4%
Solectron	SLR	Electronics	1991	115.6%	21.4%	30.4%	3.1%	-2.6%	7.6%	5.1%	25.8%	20.0%
Texas Instruments	TXN	Semiconductors	1992	51.6%	65.9%	7.6%	36.2%	41.5%	10.1%	295.8%	10.5%	53.5%
AT&T	T	Telecomm.	1992	30.4%	6.7%	7.6%	2.9%	13.0%	10.1%	37.7%	27.0%	53.5%
Eastman Chemical	MEN	Specialty Chemical	1993	-18.2%	3.6%	10.1%	20.0%	-5.9%	1.3%	34.7%	24.5%	78.4%
GTE	GTE	Telecomm.	1994	-13.2%	-7.6%	1.3%	44.4%	-44.2%	37.6%	73.9%	41.4%	125.7%
Armstrong	ACE	Building Materials	1995*	61.7%	34.4%	37.6%	11.6%	17.0%	23.0%	20.1%	41.3%	64.0%
Corning	GLW	Diversified Technology	1995*	7.0%	33.3%	37.6%	44.6%	25.8%	23.0%	38.1%	41.2%	64.0%

*Because these two firms were Baldrige Award winners in 1995, cumulative stock data at the time of this study are available for two years rather than three years.

REFERENCES

American Electronics Association. (1992). *Productivity Survey* (Chicago: Author).

American Society of Quality Control. (1992). *Quality: Executive Priority or Afterthought?* (Milwaukee: Author).

Collier, D. A. (1992). Service, please: The Malcolm Baldrige National Quality Award. *Business Horizons* (July/August): 88-95.

Conference Board, Inc. (1989). Current Practices in Measuring Quality (New York: Author).

Deming, W. E. (1986). Out of Crisis (Cambridge: MIT University Press).

Eskildson, L. (1994). Improving the odds of TQM's success. Quality Progress (April): 61-62.

Eskildson, L. (1995,) TQM's role in corporate success: Analyzing the evidence. National Productivity Review 14.4 (April): 25-38.

Garvin, D. A. (1991,). How the Baldrige Award really works. Harvard Business Review 69 (November/December): 80-94.

Goodman, J. A., G. F. Bargatze, and C. Grimm. (1994). The key problem with TQM. Quality Progress 50 (January): 45–48.

Hackman, J. R., and R. Wagemen. (1995). Total quality management: Empirical, conceptual, and practical issues. Administrative Science Quarterly 40: 309-342.

Hoover, H. (1995). What went wrong in U.S. business's attempt to rescue its competitiveness? Quality Progress (July): 83-86.

Ivey, M. (1991). The ecstasy and the agony. Business Week 119 (October 21): 40.

Jacob, R. (1993). TQM: More than a dying fad? Fortune 124 (October 18): 66-72.

Johnson, H.T. (1992). Relevance Regained (The Free Press: New York).

Juran, J. M. (1969). Managerial Breakthrough: A New Concept of Manager and Job (Cambridge: McGraw-Hill).

Kaplan, R. S., and D.P. Norton. (1996). Translating Strategy into Action: The Balanced *Scorecard* (Boston: Harvard Business School Press).

Kaplan, R. S., and D.P. Norton. (1992). The balanced scorecard ¾Measures that drive performance. Harvard Business Review 76 (January/February): 71-79.

Mahajan, V., S. Sharma, and R. Netemeyer. (1992). Should we expect the Baldrige Award to predict a company's financial success? Technological Forecasting and Social *Change* 42: 325-334.

National Institute of Standards and Technology. (1995). Quality management proves to be a sound investment. *Press Release* [On-line] 95-05 (February). Internet. Available gopher://gopher-server.nist.gov:7346/0/.docs/.releases/n95-05.rel

National Institute of Standards and Technology. (1996). *Malcolm Baldrige National Quality Award 1996 Award Criteria* (Washington D.C.: U.S. Government Printing Office).

National Institute of Standards and Technology. (1996). Quality stocks yield big payoff. *Press Release* [On-line] 96-05 (February). Internet. Available www.nist.gov/qualstok.htm

National Institute of Standards and Technology. (1997). Stock study shows quality pays. Press Release [On-line] 97-04 (February). Internet. Available gopher://gopher-server.nist.gov:7346/0/.docs/.releases/n97-04.rel

Peters, T.J. (1984). *In Search of* Excellence*: Lessons from America's Best-Run Companies* (New York: Warner Books).

Schaaf, D. (1993). Is quality dead? *Training* (May): 7-11.

Schilit, W. K. (1994). The case against quality. *Business Horizons* (November/December): 27-34.

Sharman, G. (1992). Manager's journal: When quality control gets in the way of quality. *The Wall Street* Journal (February 24): A14.

The Cracks in Quality. (1992). *The Economist* (April 18): 67-68.

The Straining of Quality. (1995). *The Economist* (January 14): 55-56.

United States General Accounting Office. (1991). *Management Practices: U.S. Companies Improve* Performance *through Quality Efforts* (Washington, D.C.: U.S. Government Printing Office).

Whetten, D.A. and K.S. Cameron. (1994). Organizational effectiveness: Old models and new constructs. In J. Greeberd (ed.), *Organizational Behavior: The State of the Science*: 135-153 (Hillsdale, NJ: Erlbaum).

Wiggins, L. (1995). The Baldrige and other approaches to quality: Disillusionment or hope? *Production and Inventory Management Journal* 14: 80-84.

Wruck, K.H. and M.C. Jensen. (1994). Science, specific knowledge, and total quality management. *Journal of Accounting and Economics* 18: 247-287.

TAKE-HOME TESTS: COST-BENEFIT OF FREE-RIDING BEHAVIOR OF DIFFERENT QUALITIES OF ACCOUNTING STUDENTS

Emmanuel O. Onifade, Morehouse College
Fabian K. Nabangi, Morehouse College
Ruthie Reynolds, Tennessee State University
Rodger R. Trigg, Columbus State University

ABSTRACT

The purpose of this paper is to examine whether low (i.e., GPA < 3.0) and high performing (i.e., GPA >= 3.0) students can identify free-riding behavior as being unethical (not the right thing to do), whether they, as well as their peers, will do the right thing while performing take-home tests, and the effect of their free-riding behavior on the pedagogical benefit of take-home tests. Free-riding behavior occurs when a student asks someone else to complete a take-home test or to provide assistance to him/her while performing take-home tests. The results show that the low-performing students are more likely to free-ride than the high-performing students. There is a high correlation between the students' free riding behavior and their perception of their peers' free-riding behavior. Those who tend to free-ride do not benefit from take-home tests as well as those who do not tend to free-ride. The ethical implications of these results are discussed.

FINANCIAL CRISIS IN ASIA'S TIGER ECONOMIES: IS IT CONTAGIOUS?

Jean Roayaei, Fayetteville State University

ABSTRACT

The Asian financial crisis has been a costly proposition. Since July, 1997, the stock and currency markets of these countries have plunged by more than 230 billion dollars. More surprisingly, some Asian leaders have announced expansionary fiscal plans. These announcements have caused more panic in the global financial markets, which have perceived a lack of willingness by these leaders to deal with their countries' significant financial problems. Recent currency and stock market turmoil in Asia illustrates that an isolated currency plunge is now jeopardizing the soundness of global prosperity. At the present time, there is an urgent need for a greater degree of coordination among the United States, Europe, and Japan to minimize the financial losses which have been damaging to both domestic and international investors in Asian denominated securities. I will investigate the degree of financial loss in other Asian financial markets due to the domino effect which started in Thailand and then spread to other apparently healthy Asian markets. I will also investigate the potential financial loss to states which are major exporters of goods and services to the troubled Asian countries. Finally, a potential loss of exports and jobs in North Carolina due to Asian market turmoil will be analyzed.

SPECULATIVE ATTACKS ON SOUTHEAST ASIAN CURRENCIES: A FINANCIAL MELTDOWN

Jean Roayaei, Fayetteville State University
Yunkai Chen, Fayetteville State University
Pin-Chu Chu, Fayetteville State University

ABSTRACT

In our research, we will study recent speculative attacks on some of the Asian market currencies. The southeast Asian economies (miracle economies) have traditionally been some of the fastest growing economies of the world. We will concentrate on Baht (the Thai currency), Won (the South Korean currency), Ringgit (the Malaysian currency), and the Hong Kong currency and explore their significant devaluations since July, 1997.

We have collected monthly data from January, 1985, to December, 1997, on several Asian currencies. The speculative attacks began in earnest in July, 1997, on Thailand's Bhat. Since July, 1997, the Bhat has lost almost fifty percent of its value. This is mainly due to the loss of confidence by its international creditors int eh ability of Thai financial authorities to shore-up the value of the currency. The tremendous loss of wealth due to this devaluation in Asian currency markets has caused a flight of capital from these countries to western Europe and mainly to the United States.

We have employed a martingale model to investigate the recent devaluation of southeast Asian countries. We have explicitly allowed for the fact that a bias may exist in the forward currency rate as forecaster of the future spot rate. WE can also demonstrate that the martingale model does perform better than the forward rate, serving as a predicator of future exchange rates.

It can be implied that forward currency rate is an unbiased predicator of the future spot rate which will indicate market efficiency. The financial institutions of further devaluations in the value of Bhat, Won, Ringgit, and Hong Kong Dollars are analyzed.

THE RELATIONSHIP BETWEEN NONAUDIT SERVICES, AUDITOR TENURE, AND OPINION QUALIFICATIONS

Alan K. Ortegren, Southern Illinois University at Edwardsville
Brad J. Reed, Southern Illinois University at Edwardsville
Thomas E. King, Southern Illinois University at Edwardsville

ABSTRACT

One of the most long-lived issues facing the auditing profession has been the question of whether the purchase of nonaudit services from a company's auditor can impair the independence of the auditor. This paper examines how the purchase of nonaudit services from a company's auditor impacts auditor tenure and the probability of an opinion qualification. Auditor tenure and the occurrence of opinion qualifications have been used previously in the literature as surrogates for the unobservable variable of interest which is auditor independence. The issue is especially important because many public accounting firms, including many of the largest, now derive more of their revenues from nonaudit services than from auditing, and accounting firms continue to move into new types of nonaudit services such as outsourced internal auditing. The concern with the perceived independence of auditors is likely to receive more attention in the future if current trends continue and especially if public accounting firms follow the recommendations of the recent report of the AICPA's Special Committee on Assurance Services (Elliot Report) to place additional emphasis on services not traditionally provided by external auditors.

The sample examined in this paper is comprised of New York Stock Exchange companies during the period 1979-1981. The amounts of nonaudit services purchased from the auditor are obtained from the company's proxy statements during the 1979-1981 time period when Accounting Series Release No. 250 was in effect. Auditor tenure has been suggested as a surrogate for the economic bonding that exists between an auditor and client, and this economic bonding has been hypothesized as impairing auditor independence. Contrary to prior research, this paper finds no direct association between the length of auditor tenure and the level of nonaudit services acquired by a company.

This study is the first to examine the association between nonaudit services and type of audit reports with U.S. companies. The results regarding the association between nonaudit services and the type of audit report received by a company provide some support for the hypothesis that the acquisition of auditor-provided nonaudit services increases the likelihood of a company receiving an unqualified audit report. The study found a positive association between levels of auditor-

provided nonaudit services and the frequency of an unqualified audit report in one of the two time periods studied.

The impact of auditor-provided nonaudit services on auditor independence is an open question with at least some evidence indicating a possibility of impairment. Given the import of the issue and the continuing move of accounting firms deeper into the realm of anonaudit services, the conflicting evidence to date would indicate that any satisfactory resolution must await further empirical investigation.

TOE-HOLD ACQUISITIONS AND CORPORATE BLOCKHOLDER PERFORMANCE

James Dawson Bogert, Morehead State University
Lee C. Adkins, Oklahoma State University

ABSTRACT

This study examines the abnormal returns of corporate blockholders that have maintained toe-hold acquisitions. The results indicate that in six, eighteen, and thirty-month time intervals, corporate blockholder abnormal returns are affected by the interaction between relative ownership, a ratio between the percentage of ownership held by the corporate blockholder to the percentage of ownership held by the target's management and other blockholders, and relative firm size, a ratio between the common stock market values of the corporate blockholder and the toe-hold target.

EXAMINING APARTMENT COMPLEX RENTS AS A FUNCTION OF MACRO COMPLEX PHYSICAL CHARACTERISTICS: A LARGE SAMPLE APPROACH

Charles A. Smith, University of Houston - Downtown
Anisul M. Islam, University of Houston - Downtown
Asghar Nazemazdeh, University of Houston - Downtown

ABSTRACT

The literature on the determinants of apartment complex rent has a micro focus and emphasizes unit features. This study examines the characteristics of both "unit" and the whole "complex" as possible contributing factors to rent. Using a large sample and utilizing OLS, it was concluded that age of complex, number of floors, occupancy rate, allowance of pets in the apartments, average unit size, whether utilities including water are paid by residents or not, the shape of the apartment roof, and whether the apartment has been renovated or not since it was built, are statistically significant in explaining the changes in apartment rents.

THE EFFECTS OF INFORMATION ASYMMETRY ON VOLUNTARY DISCLOSURE: AN EMPIRICAL ANALYSIS

Chyanlong Jan, Nova Southeastern University
Suduan Chen, Nova Southeastern University

ABSTRACT

Companies seek to communicate information to the financial market to raise their capital. The strategy of disclosing information is expected to lower the cost of capital and reduce monitoring costs. This helps alleviate the conflict of interests which arise between parties. Although benefits are expected for companies voluntarily disclosing their information to user groups, voluntary information disclosure remains a complex and difficult characteristic to measure.

This research assesses the extent of information disclosure in the corporate annual reports of high technology companies and examines the extent to which a number of independent variables are associated with the level of information disclosure. Attention focuses on the concept of voluntary information disclosure and how agency and proprietary costs affect managers' decisions to disclose certain information.

High technology companies are interesting because they face an accounting environment which cannot always reflect its characteristics - rapid growth, competition, technological innovation and research and development. Also because high technology firms are growing rapidly, any financial incentives are likely to be magnified, and as a consequence, high technology data tests can provide valuable links between voluntary information disclosure and firm specific characteristics.

This study is expected to provide additional knowledge about corporate disclosure practices in high technology companies. Such knowledge is expected to provide useful information to auditors, investors, financial analysts and regulatory authorities. An improved understanding of management's disclosure incentives could help auditors in making proper evaluations of the inherent risk of an engagement and the related audit effort decisions. Similarly, investors could make decisions on which stocks to buy or sell and how much to spend on an information search based on their evaluation of a firm's disclosure incentives. It could also help regulatory authorities and others such as the FASB in identifying areas which may need further regulation.

INDEX