Auditors' Influence On Earnings Management: Evidence From The Alternative Minimum Tax

Dr. Linda S. Burilovich, Accounting, Eastern Michigan University
Dr. Susan C. Kattelus, Accounting, Eastern Michigan University

Abstract

New alternative minimum tax provisions in 1986 gave managers a strong incentive to choose income decreasing accruals to lower financial net income and tax liability. This study of seventy-two stock life insurance firms from 1984 to 1989 shows that income decreasing discretionary accruals differs significantly across companies audited by (then) Big Eight audit firms, and the firms with the greatest market share appear to allow greater client discretion in determining accruals.

Introduction

The introduction of the book income adjustment as part of the corporate alternative minimum tax [AMT] provision of the 1986 Tax Reform Act in the United States provided a new incentive for manipulation of earnings by corporate managers. Under the AMT, one-half of the excess of book income over adjusted taxable income was subject to a 20% alternative minimum tax rate during the years 1987 through 1989.[1] This change created a strong incentive for managers to minimize book income. Evidence indicates that a significant number of firms chose income decreasing accruals in 1987 when subject to an AMT liability (Gramlich 1991).

Schipper (1989) notes that when such incentives exist, we can better understand specialized forms of earnings management by observing the reaction of managers to changes in the reporting environment. Within that environment various factors may limit the discretion of management in altering the earnings number, among which is the presence of an external auditor. The purpose of this study is to examine the influence of auditors on discretionary accounting decisions when incentives for earnings management exist, such as those created by the AMT. The specific research question we address is whether an association exists between the firm's auditor and management's estimation of income-decreasing discretionary accruals. We test the hypothesis of a link between the external auditor and the magnitude of management's discretion exercised over accounting estimates by focusing on the behavior of specific accruals creating a book-tax difference in response to the imposition of the AMT. A model is developed in which the response is measured separately for firms using different auditors.

The present study focuses on the life insurance industry because of the unique ability to isolate those accruals which systematically create a book-tax difference and thus play a role in the AMT status of the firm. A sample of stock life insurance firms is selected from the NAARS [National Automated Accounting Research System] data base with observations from 1984 through 1989, six years surrounding the 1986 tax law change. Test results from a model of accruals estimated from this sample of 72 firms over six years (432 firm-years) suggest that some differences exist between the magnitude of firms' responses to the AMT according to the identity of their auditor; specifically among some firms within the (then) Big Eight market.[2]

The remainder of this paper is organized as follows. The next section positions this study in the earnings management literature. Hypotheses are then developed based on auditors' expertise in an industry and the unique AMT example. The research design including development of a model of discretionary accruals is presented. Finally, results are shown followed by some conclusions.

Earnings Management

The earliest earnings management studies were concerned with the ability of corporate managers to manipulate earnings. One of the first theories of managerial choice suggested that managers make accounting choices that will smooth reported earnings (Gordon 1964). This theory linked the reduced variability of earnings with an increase in stock price, and thus, an increase in management's personal wealth when compensation is tied to the value of the firm's stock. A variety of other incentives for income-increasing earnings management have been explored since that time including debt covenant restraints (Leftwich 1983), bonus plans (Healy 1985, McNichols and Wilson 1988], labor union negotiations (Liberty and Zimmerman 1986), management buyouts (DeAngelo 1986), and import relief (Jones 1991).

Recent research has studied income-decreasing earnings management in response to the alternative minimum book-tax adjustment. Gramlich (1991) provided the first evidence that firms did alter their accounting behavior in response to the AMT. Other studies such as Manzon (1992), Burilovich (1990), Dhaliwal and Wang (1992), and Boynton, Dobbins and Plesko (1992) have provided methodological refinements.

There are two vehicles through which management can manipulate earnings: first, through choice of accounting methods; and second, through estimation of accruals. Most of the above studies examined the manager's estimation of accruals in response to the specified incentive. This action would appear to be the most efficient means for altering the earnings number since frequent changes in accounting methods are more costly and less discrete.

DeAngelo (1986) introduced the concept of a model of accruals which has two components. The nondiscretionary component is determined by exogenous factors such as economic conditions or demand for sales and other factors which are beyond the control of management. The discretionary component is that part of the accrual which the manager may change. These discretionary accruals include valuation of accounts receivable, recognition of future warranty expense, capitalization vs. expensing of assets, and provision for deferred taxes.

External auditors may play a significant role in determining the level and direction of these accrual estimates. There may be an acceptable margin for error which will be tolerated by the users of accounting reports and by auditors expressing opinions on those reports.[3] This boundary essentially defines materiality since the auditor views changes within the boundary as immaterial. The role of the auditor may be described as a monitoring of estimates to ascertain that this acceptable boundary is not violated.

In their study of the discretionary behavior of the provision for bad debts, McNichols and Wilson (1988) note that:

"The discretionary component of the provision includes discretion allowed by GAAP plus additional discretion motivated solely by earnings management. For instance, even if auditors knew management's probability assessment of future uncollectibles, they would not require that the valuation allowance reflect the expected value of this distribution...Rather, they would set reasonable bounds (for example, a three-standard-deviation interval about the mean) and require that the bad debts provision ensure that the allowance fall within these bounds." (footnote 2, p.1)

Elliott and Shaw (1988) provide a similar description of limitations on asset write-offs by noting that "... managers had some discretion over these losses as to both timing and amount, although auditors may limit this discretion." (p. 94). These comments imply a constraint imposed by auditors in their role as external monitors. However, they do not provide a rationale for positing differing degrees of restriction across audit firms. Such a theory may be drawn from prior research on the audit industry.

Hypotheses Development

Auditors and Market Share

Research into the relationship among auditors has always dichotomized the audit industry into Big Eight and non-Big Eight public accounting firms. Prior studies on the highly competitive intra-Big Eight market indicate that audit firms will gain a competitive edge by becoming experts in a segment of the audit market (Danos and Eichenseher 1986). A firm's expertise in an audit segment is signaled by the size of the firm and its market share since the quality of its product cannot be observed.[4] Danos and Eichenseher (1982) show that not only do large audit firms have comparative advantages in highly regulated industries, but there is also a uniformly high and perhaps increasing aggregate Big Eight market share position over audit submarkets, such as regulated industries. Clients who need specialized services will purchase from an expert in that submarket and tend to purchase those services from the least cost supplier (Johnson and Lys 1990). These factors of auditor expertise and competition may bind the client and the auditor. The client's investment in the search for an expert in the specialized field may reduce the tendency to switch auditors. The auditor's cost of "low balling" (i.e., artificially reducing the audit fee to obtain an engagement) combined with the vested costs of adding a new client and becoming an expert may also bind the auditor to the client (DeAngelo 1981, Magee and Tseng 1990).

This locked-in effect leads to auditor tenure and contributes to the relative negotiating strength of the auditor and client during the audit process. While maintaining independence, the auditor does impact the extent of earnings management exercised by the client (Antle and Nalebuff 1991). Specialization in a regulated industry may lead the auditor to employ greater restriction or allow greater freedom due to a more extended knowledge of the issues involved. For example, in the insurance industry, an industry expert may feel that statutory accounting principles [SAP] are more important to regulators than generally accepted accounting principles [GAAP], and consequently, allow the client more discretion in choosing elective accruals for GAAP. Further, the trust that develops between the auditor and client over the auditor's tenure may lead to greater auditor responsiveness to the client's needs, and consequently, less imposition of restrictions on the client.[5]

Prior literature does not examine the impact of auditor choice on the extent or magnitude of earnings management. Presumably if there is some variation in the freedom which individual audit firms will grant to management in adjusting accruals, this factor will impact competition within the audit industry. We assume that market share within a specialized industry denotes the industry expertise held by specific audit firms. A greater knowledge of unique industry factors may reduce the auditor's perception of risk in granting client discretion. Petroni and Beasley (1993) examine the conservatism of auditors in Big Eight vs. non-Big Eight firms in

the property-casualty insurance industry. They observe more conservative behavior on the part of Big Eight auditors for financially troubled clients relative to non-Big Eight auditors and attribute this larger conservative bias to the fact that Big Eight auditors have more to lose. We do not have financially troubled firms within our sample, and thus, do not address this area of risk.

The AMT Example

In 1986 Congress altered the corporate alternative minimum tax such that one-half of any positive difference between book and taxable income would increase the AMT base. This difference is called Business Untaxed Reported Profits [BURP]. In the calculation of the book income adjustment, most firms were required to use reports submitted to the Securities and Exchange Commission (i.e., GAAP financial statements) during the years 1987 through 1989. After this period a proxy for economic income known as adjusted current earnings [ACE] is substituted for book income in the adjustment. Thus, for this unique three year period, the incentive to lower reported financial earnings existed for many firms.[6]

Hypotheses

The traditional view of the auditor/client relationship is that the auditor, being conservative, will limit management's tendency to choose accounting methods and estimate discretionary accruals that will increase net income. In the AMT environment, however, the client's incentive is to minimize financial net income, and so now the auditor's role is to place a limit on this conservatism of management. Although probably much more concerned with clients who overstate income rather than manipulate to lower income, the auditor must still attest to the fairness of the financial statements for a broad set of users. So although the auditor may even specialize in tax-minimizing strategies, we posit that he or she will restrict the discretion which management exercises in adjusting accruals to within some acceptable range based on materiality. This materiality range differs across auditors and clients. We state this hypothesis in the alternative form.

H_1: The magnitude of discretionary changes in *income decreasing* accruals varies with the firm's choice of auditor.

For those auditors closely bound to their client in long term relationships, we posit that the more experienced they are in that regulated industry, the more discretion they will allow their clients. Our proxy for the experienced auditor is the market share held within the industry. We state the second hypothesis in the alternative form.

H_2: The larger the auditor's market share of a regulated industry, the greater discretion an auditor will allow in the client's choice of discretionary *income decreasing* accruals.

Research Design

In this section we develop tests designed to measure the magnitude of accrual changes in response to the AMT in the life insurance industry. Our tests are extended to estimate the differences in the magnitude of discretion allowed by nine categories of audit firms, each of the Big Eight firms and then all other firms. The magnitude of discretion is measured in the form of an elasticity. The elasticity measure in this context is the percentage change in accruals in response to a percentage change in tax dollars paid by the firm.[7] Burilovich (1990) examined the accounting behavior of stock life insurance companies in response to the AMT. The response was measured in the form of a price elasticity in which accruals were modeled as a function of their alternative minimum tax price. The alternative minimum tax price is defined as the marginal change in the AMT liability for each additional dollar of accruals. We employ the same data and the same theoretical model of accruals to determine whether the elasticities vary significantly across auditor identities.

An Accruals Model and Variables

A random coefficients model is devel-

oped to explain discretionary accruals in the life insurance industry. Discretionary accruals are posited to be a function of industry factors, exogenous factors, tax implications, auditor effects, and control factors.

Dependent Variable

In order to obtain a more powerful test of the incentive to manipulate earnings in response to the AMT, it is necessary to isolate those accruals which create a book-tax difference [noted as **A**]. We select the life insurance industry for two reasons: 1) the unique ability to isolate those accruals which systematically create a book-tax difference and thus play a role in the AMT status of the firm, and 2) the public availability of SAP [Statutory Accounting Principles] financial statements. SAP income provides a fairly accurate proxy for taxable income. The difference between GAAP and SAP is created by the same accruals which separate GAAP and taxable income, shown in Figure 1.

Industry Factors

The accruals creating that difference for stock life insurance companies include deferred policy acquisition costs [DPAC] and policy reserve differences [PRD]. Deferred policy acquisition costs are defined as any cost which varies with insurance issued, and primarily consists of agents' commissions and allocation of costs of operation which are determined to be related to the issue of a new policy. These costs are capitalized and amortized over the life of the insurance policy under GAAP rules. These same costs are immediately expensed for tax purposes.[8] This rule tends to create a large positive difference between book and taxable income in the initial years and a much smaller negative difference in the remaining years of the life of the policy. There is an immediate write-off of these costs when a policy is terminated either by lapse or payout.

Figure 1
Book-Tax Differences
For Stock Life Insurance Companies

GAAP Income
Less:
Tax-Exempt Income
Dividends Received Deduction
Deferred Policy Acquisition Costs
Policy Reserve Differences
Other Idiosyncratic Differences
Equals:
Taxable Income

Source: AICPA's *Audit Guide for Stock Life Insurance Companies* (1972)

Policy reserve differences represent the present value of future liabilities on outstanding policies. The required reserve is actuarially determined on the basis of interest and mortality assumptions. Reserves are increased incrementally each year over the life of a policy and will differ for book and tax purposes. The tax reserve is based on statutory interest and mortality rates which are issued by the state in which the policy is sold. These rates are very conservative, and thus tend to create a larger reserve and larger annual accrual for the reserve. The reserve increase is reported as an expense, and thus larger reserves will result in lower taxable income. The GAAP reserve is based on more realistic interest and mortality rates which tend to result in a lower reserve accrual.[9] Since the accrual reduces income this translates into a smaller expense and larger GAAP income relative to taxable income, and thus creates a larger book-tax difference. Lagged values of these two industry factors of the book-tax difference are included in a model to control for the effect of the estimate of past accruals which affect present amortization.[10]

Exogenous Factors

The behavior of accruals (book-tax difference) for policy acquisition costs and policy reserves should thus be a function of three ex-

ogenous factors; growth in outstanding insurance policies or new policies issued [GROWTH], lapses in outstanding policies [LAPSES], and benefits paid out from insurance policies [BENEFITS].

Tax Factor

The AMT introduced in the Tax Reform Act of 1986 provided an incentive which should cause the accrual to behave systematically depending on the AMT status of the firm. We measure this incentive in the form of a price imposed by the AMT on the accrual estimate [PRICE]. Tax price is defined as the marginal change in the firm's AMT liability for each additional dollar of accruals. It can be shown that price will vary from 0 to 10 cents per dollar of accruals. The figure of 10 cents comes from multiplying 50% of the tax-book difference by the AMT tax rate of 20%. Figure 2 illustrates the AMT formula.[11]

The firm whose regular tax liability exceeds its Tentative Minimum Tax calculation will pay no AMT, and thus the marginal tax price of a dollar for such a firm will be zero. The firm whose Tentative Minimum Tax calculation exceeds its regular tax liability will pay 10 cents per dollar. Since firms with net operating loss [NOL] carryovers may offset up to 90% of income subject to the AMT with NOLS, the marginal price for such a firm may be as low as one cent per dollar.

The empirical estimates of price included in this study are based on three levels. If it is observed that the firm has no NOL and its GAAP income exceeds its statutory income, the price level is 10 cents per dollar.[12] If a firm has GAAP income in excess of statutory income and reports NOL carryovers, the price level is one cent per dollar.[13] For firms having statutory income in excess of GAAP income, the price level is zero. Price is also set to zero for any year in which the book income adjustment was not in effect. Figure 3 provides a summary of the price levels.

Figure 2
Alternative Minimum Tax Formula

	Taxable Income
±	Preferences And Other Adjustments[a]
=	Amt Income Before Book Income Adjustment
+	1/2 (Book Income - Alternative Minimum Taxable Income)
=	Alternative Minimum Taxable Income (Amti)
-	Net Operating Loss Deduction (Up To 90% Of Amti)
=	Amt Income
X	20% (Alternative Minimum Tax Rate)
=	Tentative Minimum Tax (Tmt) Before Credit
-	Foreign Tax Credit (Limited To 90% Of Tmt)[A]
=	Tentative Minimum Tax (Tmt)

Note: Tax Paid = Max {Regular Tax, Tentative Minimum Tax}

[a] These items are not significant in the life insurance industry. See IRC §§ 55, 56, 57 and IRS Form 4626

Auditor Factor

The specification of the accruals model also allows the price coefficient to vary across categories of auditors, testing the hypothesis that discretion allowed by one auditor differs from that allowed by others. The model is extended to include dummy variables for eight different audit categories [D_j, $j=1..8$]. A ninth category includes all other non-Big Eight auditors. This approach

Figure 3
Alternative Minimum Tax Price Levels For Sample Firms

Status	Net Operating Loss Carryovers ?	Tax Price Per Dollar	Subject To AMT ?
GAAP Income > Taxable Income[a]	Yes	$.01	Yes
GAAP Income > Taxable Income	No	$.10	Yes
GAAP Income ≤ Taxable Income		$.00	No
Years before 1987		$.00	No
[a] Taxable income is proxied by SAP (statutory accounting principles) income for this sample.			

treats the auditor as an inter-temporally and cross-sectionally consistent effect on the firm's accounting behavior.

Control Factor

A size variable [SIZE] is also introduced to control for heteroscedasticity. Size is measured as net premiums written for the year, a variable which is analogous to sales revenue for other industries. It enters the regression in log form since the relationship between DPAC and SIZE may not be linear. The model of accruals for a life insurance company, then, is expressed as

Equation 1:

$$A_{i,t} = \beta_0 + \beta_1 DPAC_{i,t-1} + \beta_2 PRD_{i,t-1} + \beta_3 GROWTH_{i,t} + \beta_4 LAPSES_{i,t} + \beta_5 BENEFITS_{i,t} + \beta_6 PRICE_{i,t} + S_j D_j PRICE_{i,t} + \beta_8 SIZE_{i,t} + e_{i,t}$$

Where

$A_{i,t}$ = $DPAC_{i,t} + PRD_{i,t}$
t = time periods
i = firm
j = auditor (1..8 for each Big Eight firm); 0 for all others
$e_{i,t}$ ~ $N\{0, s_e^2\}$

In this specification β_6 becomes the coefficient for the ninth category (non-Big Eight auditor). The residual of this model represents the discretionary component of accruals [A], accruals which are idiosyncratic and do not occur systematically for all firms.

Sample Selection and Data Sources

A sample of stock life insurance companies was compiled from a set of firms which are common to two data bases, NAARS and Best's. We focus on stock life insurance companies because mutual life insurance companies do not file GAAP statements and consequently have no reported book-tax difference. The sample was developed by a NAARS search under the SIC code 6300. Insurance companies which could be matched within statutory annual [SAP] reports published in the *Best's Annual Insurance Review - Life and Health* annual editions for 1984 to 1989 were included in the samples. Of the seventy-five firms obtained from the NAARS search, three were deleted due to inadequate data or absence of annual reports. Seventy two remaining firms (representing approximately 60% of premiums in the industry) or 432 firm-years are included with data available for years 1984 through 1989.

The boundaries were determined by data

availability and tax law effects. The earliest year in which annual reports for the complete sample of stock life insurance companies were available is 1984. The lower boundary also represents the year (1984) in which a complete revision in Subchapter L of the Internal Revenue Code which governs the life insurance industry took effect. The analysis ends in 1989 (the last year in which the book income adjustment was in effect) because two mergers took place within the audit industry, reducing the Big Eight firms to the Big Six, thus creating a change in the structure of the industry environment. Figure 4 shows the test period.

The empirical proxies for the variables in the model are obtained from the GAAP and statutory financial statements for the same time period. Table 1 provides sample descriptive statistics for the relevant variables. Although not revealed in Table 1, there were only three auditor switches over the whole test period.

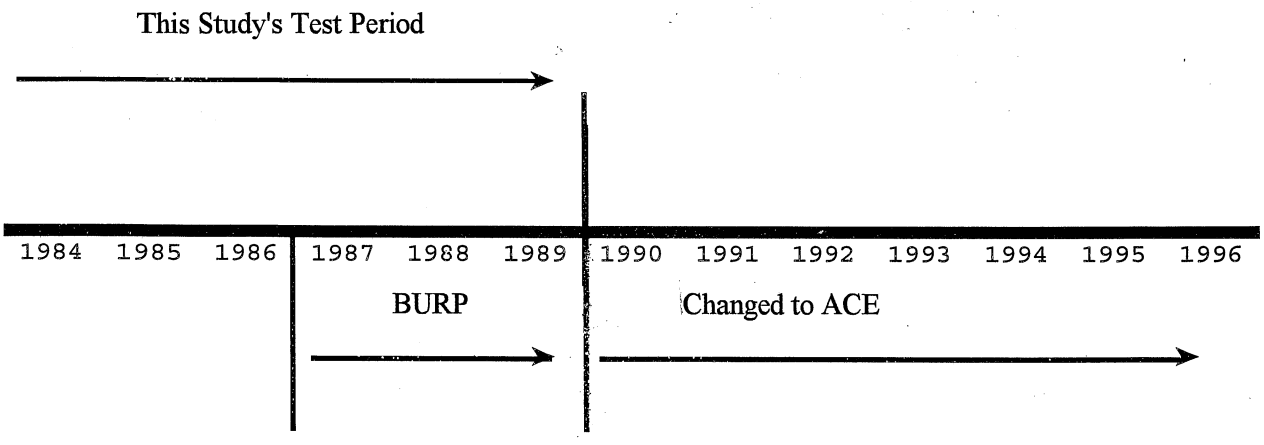
Results

A series of pooled estimates for Equation 1 are reported in Table 2.[14] Methods of estimation include ordinary least squares [OLS] and generalized least squares [GLS]. Due to the inherent problem of cross-sectional correlation and auto-correlation when estimating a pooled data set, an alternative estimation using a least squares dummy variable [LSDV] model was also employed. To avoid a correlated variables problem, the lagged values of **DPAC** and **PRD** are first estimated over the lagged values of the other explanatory variables, with the resulting predicted values employed in the final stage.

In this model dummy variables are introduced for each year in the sample, which allows the intercept to vary across time. The sample tested represents firms within the same industry, and thus may be subject to cross-sectional correlation due to events within each time period affecting this entire industry. The LSDV approach captures these effects in the intercept. The average elasticity for the OLS and LSDV models is -.88 and -1.19 respectively.[15]

The Durbin-Watson d-statistic for the OLS estimation is 1.8 suggesting the absence of significant autocorrelation. The d-statistic may be inconclusive due to the presence of lagged components of the dependent variable in the regression. As a precaution GLS estimates are also reported and imply an average elasticity of -.24. The OLS model restricts the residuals

Figure 4
Time Frame



BURP = Business Untaxed Reported Profits
ACE = Accumulated Current Earnings

Table 1
Variables And Descriptive Statistics (in thousands)

Variable	Description	Mean	Maximum	Minimum	Std.Dev.
DEPENDENT VARIABLE:					
A	Discretionary accruals causing a difference between book & taxable income	$30,046	$1,969,456	$265,143	$144,755
INDEPENDENT VARIABLES: INDUSTRY FACTORS					
DPAC	Deferred policy acquisition costs	$31,831	$592,380	$90,148	$39,932
PRD	Policy reserve difference	$701	$316,588	$135,866	$35,943
EXOGENOUS FACTORS					
GROWTH	Growth in outstanding insurance policies	$211,175	$4,396,180	0	$253,567
LAPSES	Lapses in outstanding insurance policies	$237,039	$5,780,190	0	$333,677
BENEFITS	Benefits paid out on insurance policies	$183,279	$4,183,880	0	$247,206
TAX FACTOR					
PRICE	AMT price per dollar of accruals	4¢	10¢	0¢	5.2¢
AUDITOR FACTOR					
D_j	Dummy variable for audit firm j where j = 1..8		1	0	
CONTROL FACTOR					
SIZE	Net premiums written for the year	$4,292,543	$93,007,800	0	$540,545

across all firms and years to have the same mean and variance. An F-test of the restricted estimation [OLS] vs. the unrestricted model [LSDV] indicates that the unrestricted model is not statistically superior to the OLS model [$F_{8,272} = 1.67$].

Table 3 provides the individual estimates of the tax-price elasticities at the means of A and PRICE for each Big Eight auditor. Under the OLS estimation six out of the eight firms appear to have elasticities which differ significantly from the non-Big Eight market. These significant differences tend to disappear under the GLS estimation. Peat Marwick stands out as the one firm with a significantly positive coefficient under the OLS estimation.

Big Eight market shares (within this sample) are also reported in Table 3. Market share was measured in two ways: the percentage of firms in this sample audited by the same audit firm, as well as the total assets of the sample firms audited by the same audit firm. Audit firms retain the same ranking under both measures of market share. There appears to be some correlation between market share and elasticity. The Spearman rank correlation of market share and OLS elasticity is -0.61, indicating a greater elasticity for those firms monitored by auditors with a larger market share. The average elasticity estimate for this model represents that of firms monitored by non-Big Eight auditors.

Further tests are conducted to determine whether differences in elasticities exist within the Big-Eight market. Table 4 reports the t-statistics

Table 2
Regression Results - Equation 1
Coefficient Estimates (t-statistics in parentheses)

$$A_{i,t} = ß_0 + ß_1 DPAC_{i,t-1} + ß_2 PRD_{i,t-1} + ß_3 GROWTH_{i,t} + ß_4 LAPSES_{i,t} + ß_5 BENEFITS_{i,t} + ß_6 PRICE_{i,t} + S_j D_j PRICE_{i,t} + ß_8 SIZE_{i,t} + e_{i,t}$$

	$DPAC_{-1}$	PRD_{-1}	GROWTH	LAPSES	BENEFITS	PRICE	SIZE (log)	R^2
OLS	.324	.303	.001	-.00003	-.0002	-833460	.001	.13
	(1.78)	(1.41)	(0.91)	(-0.72)	(-0.21)	(-0.59)	(0.49)	
LSDV	.366	.324	.013	-.00003	-.00007	-1131000	.001	.14
	(1.85)	(1.49)	(0.94)	(-0.08)	(-0.09)	(-0.71)	(0.49)	
GLS*	.664	.859	.013	-.00001	-.0001	-230650	.0001	.39
	(5.39)	(4.90)	(4.47)	(-2.40)	(-1.72)	(-1.65)	(0.47)	

* GLS estimates are based on a transformation which assumes a constant ρ across all firms. Kmenta suggests this alternative to estimation of $ρ_i$ for individual firms when the length of the times series prevents a stable estimated (1986, p. 621):

which reveal the significant differences between elasticities (and thereby price coefficients) for each of the Big-Eight firms, as well as the non-Big Eight firms. Our tests do not provide informative conclusions regarding Big Eight vs. non-Big Eight firms due to the limited number of data points (five firm-years) available for non-Big Eight auditors within this sample.

Coopers & Lybrand, one of the industry leaders with 23.9% of this sample's market, is significantly different (t= 1.780, p = .05) from Peat Marwick, who holds 25% of the market. Coopers & Lybrand is also significantly different from Ernst & Whinney, the industry leader with 31.9% of the market (t=1.321, p = .10). We interpret this difference as evidence of various levels of conservatism within the lead auditors of the industry. We do not offer specific explanations regarding the rationale for Peat Marwick's different behavior (negative sign). Two of the industry leaders appear to allow a significant amount of discretion in responding to the AMT. Ernst & Whinney and Coopers & Lybrand show a negative elasticity, indicating a rational response to the AMT. The industry leader, E&W, appears to provide the greatest discretion. C&L, who holds a smaller market share, allows significantly less discretion, but nevertheless shows the predicted response to the AMT. Interestingly, Peat Marwick clients do not appear to respond to the AMT. Their positive coefficient suggests the discretionary accruals have declined in response to an AMT cost. This suggests the presence of other factors which are not visible in this analysis.

Conclusions

This study finds that across certain audit firms there may be a significant association between the client firms' discretion to adjust accruals in order to lower net income and their choice of auditor. There are some inconsistencies across audit firms having the largest industry share. This propensity to allow discretion may be due to long-standing relationships between auditor and client or a greater industry expertise on the part of the auditor. Alterna-

Table 3
Elasticities* Of AMT Accruals: Unrestricted Coefficient Estimates
(t-statistics in parentheses)

	AA	AY	CL	DH	EW	PM	PW	TR	Non-Big8
OLS	-1.03 (2.13)	-0.66 (1.83)	-.055 (2.55)	-1.00 (1.87)	-0.77 (1.87)	0.11 (2.04)	-1.30 (1.35)	-0.07 (0.86)	-0.88 (-0.59)
GLS	-0.75 (0.87)	0.08 (0.46)	-0.13 (0.52)	-0.13 (0.32)	-0.13 (0.32)	0.10 (1.10)	-0.85 (0.37)	0.005 (0.50)	-.24 (-1.65)
Sample's Market Share	2.8 %	2.8 %	23.9 %	1.4 %	31.9 %	25.0 %	2.8 %	8.0 %	1.4 %
Firm-Years n = 360	10	10	86	5	115	90	10	29	5

AA = Arthur Andersen AY = Arthur Young CL = Coopers & Lybrand DH = Deloitte Haskins & Sells
EW = Ernst & Whinney PM = Peat Marwick PW = Price Waterhouse TR = Touche Ross

* The average elasticity for each auditor is calculated as b_j * (A_j' / $PRICE_j'$) . Where A_j' and $PRICE_j'$ are the mean values of A and PRICE for firms audited by auditor j, and b_j is the coefficient estimate for auditor j.

tively, it may be due to the tax planning expertise of the auditor. We are not able to discern the underlying cause of the relationship between auditor and managerial discretion from publicly available information.

If managers are influenced by their external auditors to manage earnings such that some equilibrium between GAAP compliance and tax minimization occurs, then it is not surprising that we find a significant impact for the audit firm on that discretion. Policy makers could take this into account when regulating firms through the income tax law. These findings provide an initial probe into the impact of external auditors on the ability of clients to manage earnings.

Suggestions for Future Research

If managers lowered their book income while the Business Untaxed Reported Profits was in place and their experienced auditors allowed them to do so, then future research can investigate if auditor's influence continued after 1989 when the BURP adjustment was changed to an Accumulated Current Earnings test, a measurement more similar to Earnings and Profits. In addition, as the Big Eight accounting firms merged into six, market expertise, evidenced by market share, can be reevaluated to see if the associations found in this study hold. Finally, the underlying cause of the relationship between auditors and managerial discretion may best be understood by using research methodologies other than archival, publicly available data.

The authors wish to thank Randy El-

Table 4
t-Statistics For Significant Differences Between Big-Eight Auditor Elasticities

Auditor	AA	AY	CL	DH	EW	PM	PW	TR
AA								
AY	0.004							
CL	0.867	0.205						
DH	0.000	0.208	0.710					
EW	0.005	0.267	1.321*	1.448*				
PM	0.122	0.888	1.780**	0.001	1.103			
PW	0.000	0.000	2.687***	0.000	0.511	0.860		
TR	0.000	0.000	0.297	0.000	0.000	0.350	0.000	

Note: t-statistics represent results of tests of the null hypothesis that $b_j \neq b_k$, where j and k are auditors, such that $j \neq k$. The statistic is calculated as $t = (B_j - B_k)/\sqrt{s_{Bj}^2 + s_{Bk}^2 - 2\,Cov(B_j, B_k)} \sim t_{(n-k)}$ For discussion, see Gujarati, D. [1988, pp. 227-8] and for proof see Aigner [1971, p. 91-2].

*** significant at < .01; ** < .05; * < .10

der as well as participants of an Eastern Michigan University Accounting Research Workshop and American Accounting Association Regional Meetings for their valuable comments.

Endnotes

1. "Book income" is GAAP [Generally Accepted Accounting Principles] for most companies.
2. Although six large C.P.A. firms exist today after mergers in 1989, we retain the terms "Big Eight" and "non-Big Eight" because the study covers a period in which eight large public accounting firms existed.
3. This tolerance may exist because the costs of obtaining perfect information tend to exceed the benefits derived therefrom. Statement of Auditing Standards [SAS] #57 (effective 1-1-89) provides guidance to auditors in determining how much discretion is allowed in auditing estimates due to materiality.
4. Audit quality has been defined as the probability that the auditor will discover and report a breach in the client's accounting system (DeAngelo 1981). In this study, we address one perception of audit quality which is responsiveness to clients' needs (Carcello et al. 1992).
5. This industry does not offer a good field study of the impact of time with client or auditor switches. While auditor tenure or auditor switches may be variables primarily affecting managers' decisions with auditors' market share having a secondary effect, they should have little confounding effect in this study because there is virtually no variation for either one of them within this sample.
6. Pourjalali (1994) has reported a lowering of income in 1986 and 1987 for a sample of 1,231 firms (70% of which were manufacturing companies). His findings support a hypothesis of shifting income to years 1988 and 1989 in response to lower corporate income tax rates. We note that accruals examined within the life insurance industry have very minor effects on taxable income, and thus are not likely to have a material impact on any management of taxable income. Therefore, we do not anticipate the change in corporate tax rates to have a confounding effect on our analysis.

7. Elasticity is defined in the traditional economic sense of a percentage change in demand in response to a percentage change in price.
8. A recent change in the tax code required all insurance companies to use an amortization process for policy acquisition costs. These changes did not go into effect during the period in which the book-income adjustment was applicable.
9. These variables (mortality and interest rates) are not separately observable from the financial statements.
10. Management sets the interest rate (with approval of the actuary) which determines the present value of the reserve. The incremental increases each year are based on the same rate throughout the life of the reserve.
11. The IRC provides for a minimum tax credit which is not captured in this model. The credit takes effect when the regular tax liability exceeds the tentative minimum tax due to reversals of accounting deferrals which created an alternative minimum tax in previous years. In such circumstances, the minimum tax credit may offset a portion of the regular tax liability. The credit is excluded in this model due to the extensive horizon required for reversals of specific accruals analyzed.
12. In this context statutory income is used as a proxy for taxable income. IRC sec. 811 indicates a close equivalency of statutory and taxable income.
13. The price of one cent per dollar of accruals is based on the assumption that a firm had adequate net operating losses to offset 90% of its alternative minimum taxable income. The AMT formula presented in Figure 2 and the AMT price levels in Figure 3 reveal that the marginal price per dollar of accruals would be one cent per dollar under this assumption.
14. The 1984 data were used to provide the lagged values for 1985; thus 360 years are available for estimation of the model.
15. The average elasticity for each auditor is calculated as $b_j (A_j' / PRICE_j')$. Where A_j' and $PRICE_j'$ are the mean values of A and PRICE for firms audited by auditor j, and b_j is the coefficient estimate for auditor j.

References

1. A. M. Best Company, *Best's Annual Insurance Review - Life and Health,* New Jersey, Best's Data Services, 1985 to 1989.
2. Aigner, D., *Basic Econometrics,* Englewood Cliffs, New Jersey, Prentice Hall, pp. 91-92, 1971.
3. American Institute of Certified Public Accountants, "Auditing Accounting Estimates," *Statement of Auditing Standard #57,* New York, New York, 1988.
4. Antle, Rick and Barry Nalebuff, "Conservatism and Auditor-Client Negotiations," *Journal of Accounting Research,* Vol. 29, pp. 31-54, 1991.
5. Boynton IV, Charles E. and Paul Dobbins and George Plesko, "Earnings Management and the Corporate AMT," *Journal of Accounting Research,* Vol. 30, pp. 131-160, 1992.
6. Burilovich, Linda, "GAAP Elasticities in the Life Insurance Industry," Unpublished Ph.D. dissertation, Ann Arbor, MI, University of Michigan, 1990.
7. Carcello, Joseph V. and Roger H. Hermanson and N. T. McGrath, "Audit Quality Attributes: The Perceptions of Partners, Preparers, and Financial Statement Users," *Auditing: A Journal of Practice and Theory,* Vol. 11, No. 2, pp. 1-15, 1992.
8. Danos, Paul and John W. Eichenseher, "Audit Industry Dynamics: Factors Affecting Changes in Client-Industry Market Shares," *Journal of Accounting Research,* Vol. 20, No. 2, pp. 604-616, 1981.
9. _____, "Long-Term Trends Toward Seller Concentration in the U.S. Audit Market," *Accounting Review,* Vol. 61, No. 4, pp. 633-650, 1986.
10. DeAngelo, Linda E., "Auditor Independence, 'Low-Balling', and Disclosure Regulation," *Journal of Accounting and Economics,* Vol. 3, No. 2, pp. 113-127, 1981.

11. _____, "Accounting Numbers as Market Valuation Substitutes: A Study of Management Buyouts of Public Stockholders," *Accounting Review,* Vol. 61, No. 2, pp. 400-420, 1986.
12. Dhaliwal, Dan S. and S. C. Wang, "The Effect of the Book Income Adjustment in the 1986 Alternative Minimum Tax on Corporate Financial Reporting," *Journal of Accounting and Economics,* Vol. 16, No. 1, pp. 7-26, 1992.
13. Elliott, John A. and Wayne H. Shaw, "Write-offs as Accounting Procedures to Manage Perceptions," *Journal of Accounting Research,* Vol. 26, No. 3, pp. 91-119, 1988.
14. Gordon, Myron J., "Postulates, Principles and Research in Accounting," *Accounting Review,* Vol. 39, No. 2, pp. 251-263, 1964.
15. Gramlich, Jeffrey D., "The Effect of the Alternative Minimum Tax Book Income Adjustment on Accrual Decisions," *The Journal of the American Taxation Association,* Vol. 13, No. 2, pp. 36-56, 1991.
16. Gujarati, D., *Basic Econometrics,* New York, McGraw Hill, Inc., pp. 227-228, 1988.
17. Healy, Paul M., "The Effect of Bonus Schemes on Accounting Decisions," *Journal of Accounting and Economics,* Vol. 7, No. 1, pp. 85-107, 1985.
18. Johnson, W. Bruce and Thomas Lys, "The Market for Audit Services: Evidence from Voluntary Auditor Changes," *Journal of Accounting and Economics,* Vol. 12, No. 1, pp. 281-308, 1990.
19. Jones, Jennifer J., "Earnings Management During Import Relief Investigations," *Journal of Accounting Research,* Vol. 29, No. 2, pp. 193-228, 1991.
20. Leftwich, Robert, "Accounting Information in Private Markets: Evidence from Private Lending Agreements," *Accounting Review* , Vol. 58, No. 1, pp. 23-42, 1983.
21. Liberty, Susan E. and Jerold J. Zimmerman, "Labor Union Contract Negotiations and Accounting Choices," *Accounting Review,*, Vol. 61, No. 4, pp. 692-712, 1986.
22. Magee, Robert P. and Mei-Chiun Tseng, "Audit Pricing and Independence," *Accounting Review* , Vol. 65, No. 2, pp. 315-336, 1990.
23. Manzon Jr., Gil B., "Earnings Management of Firms Subject to the Alternative Minimum Tax," *The Journal of the American Taxation Association,* Vol. 14, No. 1, pp. 88-111, 1992.
24. McNichols, Maureen and G. Peter Wilson, "Evidence of Earnings Management from the Provision for Bad Debts," *Journal of Accounting Research,* Vol. 26, No. 3, pp. 1-31, 1988.
25. Petroni, Kathy and Mark Beasley, "An Empirical Analysis of the Relation Between Audit Quality and the Accuracy of an Accounting Estimate," Working paper, Michigan State University, 1993.
26. Schipper, Katherine, "Commentary on Earnings Management," *Accounting Horizons,* Vol. 3, No. 4, pp. 91-102, 1989.