AUDITORS' SWITCHING:AN EMPIRICAL INVESTIGATION

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ABSTRACT

Auditors' switching is commony examined based on statistical techniques such as discriminant analysis or logit and probit specifications. This paper employs two dichotomous statistical techniques to show both whether auditors' switching can be forecasted and which method is better fitted for the task. In Greece, the phenomenon is recent and research findings indicate that models fit better depending on the data. Essentially, auditors' switching can be forecasted and the most differentiating variables between groups of classification are Market Value of Equity/Book Value of Total Debt.

INTRODUCTION

T he market for auditing services has changed worldwide in recent years. In EEC countries,the liberalization of the profession resulted in auditors in EEC member countries facing radical changes.According to the 8th Directive (1984), minimum educational requirements were imposed in an attempt to encourage the mobility of professional auditors. In the US, changes appear in the form of the removal of restrictions on direct uninvited solicitation.

The rapidly increasing rate of gross legal costs as a percentage of revenues incurred by the "big six" accounting firms, brought litigation risk to the forefront of the battle of the audit function. Factors that explain auditor's switching (variance in stock returns,etc.) partially explain litigation risk,too. The current infant stage of the research focuses on auditor's switching in the context of business investigations similar to those of bankruptcies,mergers and acquisitions,etc. with an application of cross-classification, discrete or binary dichotomous, and limited dependent statistical techniques.

This paper compares empirical findings drawn from an application of cross-classification models in auditors' switched versus non-switched companies through an assessment of the analytical quality of ratio analysis. The rest of the paper is organized as follows. The next section reviews the literature. Section III contains the research design. Section IV discusses statistical and methodological considerations of models and data used. Section V presents empirical findings. Section VI concludes with a summary and suggestions for further future research.

LITERATURE REVIEW

Several auditing models have specifically addressed the question of why client firms switch auditors (Johnson and Lys,1990; Dye,1991; DeFond, 1992; Teoh,1992; Krishnan,1994 and Gigler and Penno,1995). These studies have considered levels and changes in agency related client factors (board and management characteristics,growth,issuance of new stock or debt,etc.) as well as factors related to opinion-shopping, including financial stress. The interest in auditors' switching arises partly from regulatory concerns that auditors' switching might compromise financial reporting (opinion shopping) and partly from interest in how capital markets interpret auditors' switching. It has been shown (Bockus and Gigler,1998) that approximately 6% of auditors' switches are reported as either auditor resignations or declinations to stand for re-election and that about half these instances are either not explained or are explained as resignations for cause (that is,a resignation for reasons specific to the client). The other

explanations refer to auditor-related events that make it impossible for the auditor to continue to serve the client. And since auditor resignations occur when the incumbent auditor believes it is relatively likely that the client has a hidden risk, we would expect that firms whose auditors resign have a higher incidence of adverse outcomes than other firms.

The different research design of auditor's switches makes the interstudy consistency fluctuate. For example, size did not have an effect on auditor's switching among failing firms while it has an effect on control (healthy) companies (Schwartz and Menon,1985). Recently, litigation risk has come to the front of the literature. Meanwhile,evidence shows that the increase in litigation against auditing firms does not correlate to substandard performance (Krishnan,et.al.,1997). On the other hand, litigation risk makes auditors more selective in their choice of clients (Pratt and Stice,1994). Litigation risk is approximated by factors that partially explain the auditor's switching phenomenon. These include audit failure variables (i.e. auditor's independence,ratios of inventories and receivables to assets), auditors' resignation variables (variability in stock returns), among others. Because the audit assignment is a bilateral issue, clients also play a role. Prior research indicates that clients change their auditors for a variety of reasons (Gigler et.al.,1995). An audit client's characteristic constitutes a random variable which changes overtime.

Prior research refers to replacement of client's incumbent auditor (Johnson and Lys,1990) on the notion that economic considerations dictate the alignment of clients and audit firms. The evidence shows that a firm's financial condition is often an indicator of erroneous financial statements (Kinney and McDaniel,1989). The fact that correcting firms are smaller, less profitable, with higher debt and slower growth may signal auditors' perplexities and thus auditor's changes.

Changes in corporate management, the need for additional auditing services, disagreements over reporting matters, and conflict over audit fees have frequently been cited as motivating firms to initiate a search for a new CPA (Chow and Rice,1982; DeAngelo,1982; Eischenseher and Schields, 1983). An additional critical variable influencing auditor switching is financial distress (Schwartz and Menon,1985). A major finding indicates that there is a higher incidence of auditor switching among failing firms. Besides, it has been hypothesized that the presence of long-term debt contracts creates a demand for higher-quality audits (Eichenseher and Shields,1986).

In market-based accounting research, the issuance of new securities also plays a role in auditors' perceptions. It could be either an incentive to change auditors or an indication of the nature of the change itself. An auditor's change is argued to have signalling value regarding the firm and information about the firm vis-a-vis accounting data (Titman and Trueman, 1986). Teoh(1992) shows that investors' reaction to switches depends on the context of the switch and the characteristics of the switching firm. It is the information conveyed by the audit opinion prior to the switch that plays an important role. The stock price response to the announcement of an auditor's change depends on the pre-switch audit opinion. The stock price reaction to a switch will tend to be more negative after a clean than after a qualified opinion because high value retentions are more common after a clean opinion while low value retentions are more common after a qualified opinion.

In contrast, previous studies have shown that the market reaction to auditor switches is negative because the switch signifies that the firm was attempting to influence the auditor. Since a switch after a clean opinion leads to a positive probability of qualification, a rise in the cost to the firm-if it is qualified-leads to a greater stock price decline at the announcement of a switch after a clean opinion. Besides, auditors' switching depends in part on firm value. A firm with intermediate value switches auditors in the hope of obtaining a favorable opinion, while a low value firm does not switch because there is virtually no hope of improving its position. A high value firm abstains because it is confident of a clean opinion from the incumbent auditor. Investor reaction to an auditor's switch is conditioned on the pre-switch audit opinion and other factors related to the costs and benefits of switching.

Furthermore, the decision to choose or switch auditors in a subsidiary company often occurs at the parent level and is determined by group characteristics of the subsidiary. Branson et.al.(2004) assert that apart from the traditional research on auditor choice and auditor switching "referral" the situation where the subsidiary-encouraged by the parent company-appoints the same auditor as the parent company, must be considered as an explanatory variable to understand auditor switching behavior in small open economies like Belgium.

THE RESEARCH DESIGN

The first research question leads to the suitable research method that will be employed in this study. Could switched companies be discriminated from non-switched companies, how correctly they can be classified and whether prediction can be appropriately used in decision making. A suitable research method is to compare companies that switch auditors with a control group of non-switching companies. Discriminant analysis is the most suitable statistical technique that has been successfully tested in many fields in order to discriminate between groups of companies. The pioneering work of Altman (1968) has been employed in this study due to its high performance in many similar fields (liquidations, reorganizations,mergers and acquisitions,among others). Depending on the nature of the data of the two groups of companies alternative methods such as discriminant analysis and logit or probit specifications are tested with the purpose of the appropriate selection apart from theoretical dogmas and proliferations.

Theoretically, it has been argued that if the explanatory variables are normally distributed, then one should use discriminant analysis. However,if the explanatory variables are not normally distributed, then discriminant analysis gives inconsistent estimates,and one is better off using logit analysis (Maddala,1991). Logistic regression is considered preferable for both theoretical reasons and due to the particularities of the sample selection. Theoretically, logistic regression is usually preferable to discriminant analysis when one wants to see the contribution of each variable to differentiating between groups. It is also effective even when the main objective is classification. Because normality which plays a very important role in the performance of each method is unclear "at first glance" in our data set,such attributes are evaluated in the methodological considerations section that follows in this study.

Altman(1968) selected the following variables to discriminate groups of companies in a bankruptcy prediction paradigm. Profitability liquidity, and leverage ratios as computed below have been tested and successfully justified as the leading ratios for corporate prediction purposes. Auditors' switch has been associated with financial distress and in turn financial distress is a main cause for a bankruptcy. In such a context,the rationale is to employ Altman's model in order to make predictions for an auditor's switch. The analysis is completed for a sample of companies where a need for a predicton accuracy is currently pertinent. The list of ratios are as follows:

$X1$ = Working Capital/Total Assets (a measure of the net liquid assets of the firm relative to the total capitalization where liquidity and assets characteristics are explicitly considered)

$X2$ = Retained Earnings/Total Assets (a measure of cumulative profitability where the age of the firm is implicitly considered)

$X3$ = Return on Assets (a measure of the true productivity of the firm's assets)

$X4$ = Market Value of Equity/Book Value of Total Debt (a measure which shows how much the firm's assets can decline in value before the liabilities exceed the assets)

$X5$ = Sales/Total Assets (a measure of management's capability in dealing with competitive conditions)

The discriminant function is as follows:

$Z = X1 + X2 + X3 + X4 + X5$

Where

Z = Overall Index

SAMPLE SELECTION AND LIMITATIONS OF THE STUDY

Companies listed in the Athens Stock Exchange were selected for investigation in this study. The emphasis is centrered on financial stress with no partitioning of the sample into resignations and dismissals. The size of the sample is based on the number of firms included in the ASE Year-book commencing with the first published data on 1996 when audit reports were first presented as a supplement to firms' financial statements. Unfortunately, audit reports have not been published since 1999 and for a long time period subsequent. Consequently, only three annual financial statements have been employed for investigation in terms of financial ratio analysis.

In order to locate a switch, auditors' reports for 1996 and 1997 were considered. The total number of firms is 227 in 1996, 254 in 1997 and 381 in 1998. The total number of firms included in the final sample is 215 which satisfy the presumption of two consecutive years before the auditor's switch and also have a full time series sequence. Subtotals based on the industrial classification code appear in Appendix I. Companies with an auditor's switch are presented by S as shown in Appendix II. They are eleven in total for the period 1996-1997, and nine for the period 1997-1998. The rest of the list in Appendix II appears with N(non-switching firms). Because the direction of the switch is an important issue it is worth noting that about the half of switched firms are changes to Big Six and mainly are changes away from the Governmental Sworn-in Auditors. The other six of eleven companies are changes to newly established private auditing firms. Two companies of the latter group are changes to the new legal form of the Governmental body which is currently called Board of Certified Auditors,SA operating as a corporation. This is evidence that liberalization of the profession had an effect on the market but the impact of the Big Six is still unclear.

DATA AND METHODOLOGY

The most usual statistical assumption (Lo,1986;Palepu,1986; Karels and Prakash, 1987; Barnes, 1990; Maddala, 1991) is the equal probability distribution between the two groups of companies. Besides, the stability of discrete models over time is another issue usually examined through a univariate analysis between groups. At first, differences between groups are considered. As shown in Table 1 there are marginal differences between groups in a variable by variable consideration. It is clear that variable X4 displays the most significant difference between groups.

The means of each variable used in the analysis, as reported in Table 2, are more illustrative of the differences between groups of companies. As the swithching decision approaches a difficulty appears with variables X2 and X4. Obviously, this is evidence that leverage ratios are the most crucial variables in the discriminating process as well as the predictive ability of models employed in this study.

Table 1: Median Altman Values in Auditors' Switched Versus Non-Switched Companies.

Variable	Switched	Non-Switched
Panel A: One-year-before		
X1	0.268	0.215
X2	0.276	0.333
X3	0.060(1.573)	0.05
X4	1.579	1.386
X5	0.602	0.562
Panel B: Two-years-before		
X1	0.237	0.171
X2	0.282	0.363
X3	0.06	0.06
X4	1.634(1.441)	1.366(1.339)
X5	0.587	0.558
Panel C: Three-years-before		
X1	0.301	0.242(0.241)
X2	0.455	0.347
X3	0.04	0.075
X4	0.868	1.535(1.517)
X5	0.408	0.598

*This table reports median values of predictor variables. X1=Working Capital/Total Assets , X2=Retained Earnings/Total Assets, X3=Return on Assets, X4=Market Value of Equity/Book Value of Total Debt, X5=Sales/Total Assets. Switched indicates that the firms changed auditors. Non-switched indicates that the firm did not change auditors. The figure in each cell in the median. * Outliers omitted.*

Table 2: Average Ratios(Means)

Variable	Switched	Non-Switched
Panel A: One-year-before		
X1	0.192	0.191
X2	0.215	0.345
X3	0.124	0.08
X4	13.06(1.87)*	2.607
X5	0.795	0.627
Panel B: Two-years-before		
X1	0.182	0.184
X2	0.315	0.354
X3	0.052	0.071
X4	10.41(3.00)*	5.51(2.78)*
X5	0.569	0.641
Panel C: Three-years-before		
X1	0.3	0.251
X2	0.99	0.414
X3	0.02	0.051
X4	2.71	4.82
X5	0.58	0.68

*This table reports mean values of predictor variables. X1=Working Capital/Total Assets , X2=Retained Earnings/Total Assets, X3=Return on Assets, X4=Market Value of Equity/Book Value of Total Debt, X5=Sales/Total Assets. Switched indicates that the firms changed auditors. Non-switched indicates that the firm did not change auditors. The figure in each cell in the median. * Outliers omitted.*

A non-parametric method suitable for ordinal data specifies the most significant variables at the 5% level of significance. Specifically the Kolmogorov-Smirnov test for normality is used. The normality test is critical here because outliers may have a big influence. Prior studies have shown that non-normally distributed financial ratios are characterized by the presence of outliers. It is worth noting that one outlier in variable X1 is present in a non-switched company in all years under consideration. There is one outlier in variable X4 in auditors' switched companies in the first and second year before the switch respectively. There are four outliers in variable X4 in non-switched firms two years before the switch, and two outliers in the same variable X4 in th third year before the switch. The number of outliers is also very small in other studies when (Deakin, 1976; So,1987; Karels and Prakash,1987).Therefore, financial ratios are studied first in a raw data set and then with outliers omitted in all cases.

As shown in Table 3 most of the variables in auditors' switched companies are normally distributed. In a consideration of the one-year-before data set only variable X4 is not normally distributed. Similarly, examining data three-years before the switch, variable X2 is not normally distributed. In contrast, variables in non-switched companies are not normally distributed in almost all years of the analysis. In any case it is a matter of non-homogeneity of the dataset that results in a limited ability of the model model to differentiate switched versus non-switched firms. It is also a matter of a small number of switched firms compared with that of non-switched firms. Therefore, we test for the best fitted model along with the accuracy of predictions. The results are presented in Table 4.

Table 3: Normality Statistics

Variable	Switched	Non-Switched
Panel A: One-year-before		
X1	0.656	0.260
X2	0.656	0.434
X3	0.210	0.000
X4	0.013(0.575)	0.000
X5	0.888	0.061
Panel B: Two-years-before		
X1	0.631	0.153
X2	0.718	0.759
X3	0.951	0.012
X4	0.052(0.191)	0.000
X5	0.084	0.021
Panel C: Three-years-before		
X1	0.997	0.169
X2	0.044	0.000
X3	0.965	0.000
X4	0.088	0.000
X5	0.761	0.015

This table reports the results of the Kolmogorov-Smirnov test for normality. X1=Working Capital/Total Assets , X2=Retained Earnings/Total Assets, X3=Return on Assets, X4=Market Value of Equity/Book Value of Total Debt, X5=Sales/Total Assets Numbers in parenthesis indicate outliers excluded. Switched indicates that the firms changed auditors. Non-switched indicates that the firm did not change auditors. The figure in each cell is the Klmogrov-Smernov test statistic.

Since the F probability (i.e. the p-value for the F ratio) in the one way ANOVA is less than 0.05 for variables not normally distributed in auditors' switched companies, F is statistically significant. Besides, there are very small values of F probability in many respects, so there is strong evidence for significance. Eigen valued which indicate the dependence of our results is higher in cases of switched firms but still relatively low. It is worth noting that results are significant at the 0% level in case of either the full sample or the non-switched firms. The high value of X2 reflects a real pattern in the dataset rather than mere chance. In contrast, significance is far lower in case of switched firms. In addition, the value of Wilks' lamda justifies a significant ANOVA result.

Tests for the discrimante model at various time intervals are presented in table 4. Using Kendall's statistic which is a measure of correlation, it is shown that correlation between variables differentiates between groups (switched versus non-switched companies). The highest statistically significant correlation between discriminating variables is attributed to variable X2 which is correlated with X5 one year before the switch. Similarly, X4 correlates with X1, and X3 correlates with X2 two years before the switch. Statistically significant correlation appears in the case of variables in non-switched companies between all variables except X5.

Table 4: Tests of Significance

Variable	F-ratio	X2	KW Statistic
Panel A: One-year-before			
X1	0.984(0.989)	0.425(0.459)	0.515(0.498)
X2	0.114	2.379	0.123
X3	0.154	0.937	0.334
X4	0.000(0.554)	0.064(0.071)	0.800(0.790)
X5	0.270	0.147	0.702
Panel B: Two-years-before			
X1	0.963(0.989)	0.262(0.289)	0.608(0.591)
X2	0.598	1.344	0.246
X3	0.278	0.898	0.345
X4	0.454	0.445(0.086)	0.505(0.769)
X5	0.653	0.139	0.709
Panel C: Three-years-before			
X1	0.709	0.073(0.088)	0.787(0.766)
X2	0.009	0.014	0.907
X3	0.623	1.847	0.174
X4	0.645	1.725	0.189(0.210)
X5	0.605	0.409	0.523

*This table tests the descriminate model at various time intervals before and the auditor switch event.   * Numbers in parenthesis indicate outliers excluded*

EMPIRICAL FINDINGS

The choice of the best fitting model is stressed through a discussion of all empirical findings drawn from a test of discriminant and logit analysis. In each year, a company is observed in one of two alternative states. Coefficients for each model and for each variable in one, two, and three years before the switch along with the whole data set are presented in Table 5.

Because for most variables here there is relatively little difference between the normal (i.e. probit and logit specifications), it is not necessary to use a probit model in this study. Wilks' Lamda which is one of the various statistics available for weighing the addition or deletion of variables in the analysis, is generally low. In discriminant analysis many variables contribute marginally (see Table 5). Obviously, this is consistent with the small differences between groups (see Table 1 and 2). Furthermore, the low eigenvalue means that each variable alone can not sufficiently explain the model. In discriminant analysis the significance of the test provides strong evidence leading to the selection of the best statistical technique.

In contrast, logit eliminated all those variables that did not substantially affect the outcome. Using the Wald-test with a critical value of 2, corresponding to an approximate 5 percent level of significance, it is shown that mainly three variables X2, X3 and X4 (retained earnings to total assets, return on assets, and market value of equity to book value of total debt) are significant in the model.

Separation of years indicates that one year of data provides a sufficient empirical findings. In contrast, many variables contribute marginally in the significance of the model in case of the discriminant analysis with X3,X4 and X5 as indicated by positive coefficients. Discriminant coefficients are all positive in the case of bankruptcy as reported by Altman (1968). Once the values of the discriminant coefficients are estimated, it is possible to calculate discriminant scores for each observation in the sample, or any firm, and to assign the observations to one of the groups based on this score. The essence of the procedure is to compare the profile of an individual firm with that of the alternative groupings.

Table 5: Regression Coefficients (All Data)

Factor	Discriminant Coefficients	Logistic Coefficients
Panel A: One-year before		
Constant		-3.588(24.498)
		-3.473(20.081)
X1	-0.317	-0.833(-0.688)
	-0.378	-0.629(0.308)
X2	-0.305	-1.610(1.299)
	-0.44	-1.406(0.815)
X3	0.3	3.196(2.006)
	0.653	3.499(2.034)
X4	0.919	0.053(1.902)
	0.026	-0.016(0.012)
X5	0.475	1.019(3.666)
	0.701	0.919(2.635)

Eigenvalue=0.114 (0.003), Correlation=0.320 (0.172), Wilk' Lamda=0.898 (0.971), X2=22.708 (6.243) Significance=0.0004 (0.283), LC Goodness of Fit=215.23(205.11), LC X2=11.113(5.397), LC Significance=0.049(0.369)

Panel B: Two-years before		
Constant		-2.496(12.399)
		-2.737(10.479)
X1	0.074	-0.079(0.007)
	0.622	-0.445(0.164)
X2	0.029	0.064(0.002)
	-0.066	0.137(0.007)
X3	0.823	-7.132(0.988)
	0.695	-4.798(0.387)
X4	-0.649	0.009(0.413)
	-0.437	0.024(0.099)
X5	0.129	-0.102(0.240)
	0.031	-0.006(0.000)

Eigenvalue=0.010(0.005), Correlation=0.010(0.067), Wilk' Lamda=0.990(0.996), X2=2.100(0.908), Significance=0.836(0.970), LC Goodness of Fit=212.250(207.814), LC X2=1.989(0.925), LC Significance=0.851(0.968)

Panel C: Three-years before		
Constant		-3.317(16.321)
		-3.298(15.768)
X1	0.24	1.110(0.571)
	0.305	1.293(0.646)
X2	0.919	0.502(2.901)
	0.9	-0.490(2.711)
X3	-0.21	-0.801(0.246)
	-0.271	-0.914(0.304)
X4	-0.258	-0.055(0.283)
	-0.3	-0.066(0.297)
X5	-0.13	-0.215(0.082)
	-0.132	-0.242(0.101)

Eigenvalue=0.039(0.040), Correlation=0.195(0.196), X2=7.592(7.599), Significance=0.180(0.180), LC Goodness of Fit=202.689(200.933), LC X2=4.433(4.377)

Panel D: One and Two Years Before		
Constant		
		-3.199(33.675)
X1	-0.236	-0.225(0.114)
	-0.608	-0.632(0.695)
X2	-0.452	-1.215(1.451)
	-0.515	-0.880(0.717)
X3	0.249	1.220(0.294)
	0.548	2.081(0.882)
X4	0.837	0.013(2.150)
	0.311	-0.029(0.206)
X5	0.372	0.388(0.916)
	0.622	0.484(1.257)

Eigenvalue=0.019(0.008), Correlation=0.137(0.091), Wilk' Lamda=0.981(0.992), X2=8.002(3.461), Significance=0.156(0.629), LC Goodness of Fit=432.018(428.22), LC X2=5.368(3.196), LC Significance=0.670)

Table 5: Regression Coefficients Continued (All Data)

Factor	Discriminant Coefficients	Logistic Coefficients
Panel E:One,Two and Three Years Before		
Constant		-3.245(81.993)
		-3.182(66.652)
X1	-0.325	-0.265(0.228)
	-0.414	-0.341(0.305)
X2	0.667	0.401(2.131)
	0.956	0.433(2.566)
X3	0.103	0.247(0.040)
	0.091	0.339(0.059)
X4	0.881	-0.014(0.080)
	-0.122	0.089(0.059)
X5	0.136	0.114(0.104)
	0.106	0.089(0.059)

Eigenvalue=0.009(0.006), Correlation=0.094(0.076), Wilk' Lamda=0.991(0.994), X2=5.552(3.590), Significance=3.352(0.610) LC Goodness of Fit=638.404(637.826) LC X2=3.610(2.507) LC Significance=0.607(0.776)
*In this table regression results are reported. * Numbers in parenthesis indicate Wald Test. Figures in the second raw indicate results with outliers excluded.*

In this manner, the firm is assigned to the group it is most closely resembles. Variables ordered by size indicate that the large contributors to group separation of the discriminating function vary by year before the switching decision. Specifically, variable X4 contributes more compared to X3 which is the most significant contributor in a bankruptcy paradigm (Altman,1960).

As far as the correct classification, results offered in next Table 6 justify the preference of logit over discriminant analysis. Switched firms are more correctly classified using logit. When all data (both years) are used, the percentage of correct classification is 96.02% with a logit model and 83.58% with discriminant analysis. Results are almost the same when a longer time period is employed. In contrast, when one year-before data are used results seem improved in the case of the discriminant analysis.

Table 6: Classification Table for GROUP (Percent Correct-Overall Index)

Variable	Descriminant Analysis	Logit Model
Panel A: One-year-before		
One Year Before	89.77 (72.30)	93.35 (95.31)
Two Years Before	60.93 (57.89)	94.88 (95.22)
Three Years Before	83.58 (83.84)	96.02 (95.96)
One and Two Years Before	77.67 (61.85)	94.88 (95.26)
One, Two and Three Years Before	77.18 (61.51)	95.09 (95.33)

*This table shows the comparative effectiveness of discriminant and logit analysis. * Second rate in discriminant analysis column is outliers omitted. ** Second rate in logit is with all variables. The numbers in each cell are percentages*

When two years before the switch are used the percentage of correctly classified (switched versus non-switched firms) is 77.57% and 94.86%, respectively. This finding is very close to other business paradigms (i.e. bankruptcies,mergers and acquisitions,etc.). It is worth noting that the percentage of correctly classified companies is much lower in other fields of business research such as acquired versus non-acquired companies where percentage ranges around 76% and 73% in discriminant and logit analysis, respectively.

Based on the above empirical findings, it is suggested that the prediction model is an accurate forecast of auditors' switching. The results hold not only with two years prior to the event as in other business decisions (bankruptcy,etc.), but also for other time frames. In the latter case, the accuracy diminishes as the lead time increases. Finally, normality in the data sets played a role in the success of one versus the

other model since the moderate degree of normality led to logit rather than discriminant analysis. Apart from the trend in the five predictive variables traced on a univariate basis or the years preceding a switch, the ratios of four other important but less significant ratios are listed in next Table 7.

Table 7: Average Ratios

Variable	Switched	Non-Switched	
Panel A: One-year-before			
Current Ratio		2.43	13.98
Profits		3386	3163.45
Total Debt/Total Assets		0.43	0.44
Sales/Equity		1.51	1.48
Panel B: Two-years-before			
Current Ratio		5.51	10.00
Profits		2332	318.91
Total Debt/Total Assets		0.38	1.43
Sales/Equity		1.45	1.5
Panel C: Three-years-before			
Current Ratio		4.07	3.95
Profits		3863	2328.13
Total Debt/Total Assets		1.25	0.47
Sales/Equity		0.98	1.46

This table shows the ability of various variables to predict auditors switching

CONCLUSIONS AND SUGGESTIONS FOR FURTHER FUTURE RESEARCH

This study examined differentiating factors between auditors' switching and non-switching firms in a new research context. This research is novel because auditors' switching data has only recently become publicly available in Greece. This also led to the small sample size employed in this study. The performance of models designed for other purposes are tested on auditors' switching decisions. Results indicate that the most differentiating factor of switched versus non-switched firms is mainly Market Value of Equity/Book Value of Total Debt. It is worth noting that using data of two years before the switch, no variable can explain the model. Annual data for two years-before the switch provide evidence similar to the case when the first year before the switch is used. That is, variable X4 is the most important discriminating factor in a logit analysis.

Application of these models tested both the determinants of a dichotomous choice in an uninvestigated area in a specific country, and the robustness of some widely used models. It provided evidence that only two variables were marginally statistically significant in a switching event. On the other hand, the matter of normality is investigated as a determinant factor in the selection of the appropriate statistical technique. Comparing cross-classification empirical findings provides a good testimony of the convergence or divergence of real empirical findings in various business contexts. The application of these models compared with empirical findings in other forms of incorporation and/or corporate governance may provide different empirical findings and represents an opportunity for further research.

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APPRENDIXES

Appendix 1: The Sample

	SOL	Auditing Firms	Big Six	Mixed	Total
Panel A: Year 1996					
Banks	9	2	1	1(1)	14**
Insurance	2	-	-	2	4
Leasing	2	1	-	-	3
Investment	15	2	-	-	17
Holding Companies	5	1	1	-	7
Telecommunications	-	-	-	1(1)	1
Passenger Shipping	1	-	1	1(1)	3
Textiles	11	6	-	1(1)	18
Chemical Products	2	3	-	-	5
Pharmaceutical & Cosmetics	2	1	1	-	4
Building Material/Cement Comp.	2	-	2	1(1)	5
Construction & Technical	12	12	-	-	24
Mines & Metalurgical	14	6	2	-	22
Food Comp.	9	3	3	-	15
Flour Mills	3	1	-	-	4
Cold Storages	-	1	-	-	1
Tobacco	-	1	1	-	2
Containers & Papermills	-	1	1	-	2
Industries of Wood Products	2	0	-	-	2
Hotels	2	-	-	-	2
Miscallaneous Corp.	12	6	2	-	20
Informatics	1	2	-	-	3
Printed Information Systems	1	-	-	-	1
Mass Media	-	1	-	-	1
Parallel Market	19	15	1	-	34
TOTAL	126	66	16	7	215
Panel B:Year 1997					
Banks	8	2	1	2(2)	14*
Insurances	2	-	-	2	4
Leasing Companies	2	1	-	-	3
Investment Companies	14	3	-	-	17
Holding Companies	5	1	1	-	7
Telecommunications	-	-		1(1)	1
Passenger Shipping	2	-	1	-	3
Textiles	11	7	-	-	18
Chemical Products	2	3	-	-	5
Pharmaceutical & Cosmetics	2	1	1	-	4
Building Material/Cement Comp.	2	-	2	1(1)	5
Construction & Technical	12	12	-	-	24
Mines & Metalurgical	11	8	2	1(1)	22
Food Comp.	7	5	3		15
Flour Mills	2	1		1(1)	4
Cold Storages		1			1
Tobacco		1	1		2
Containers & Papermills		2	1		3
Industries of Wood Product	2				2
Hotels	1	1			2
Miscallaneous Corp.	12	6	2		20
Informatics	1	2			3
Printed Information System	1				1
Mass Media		1			1
Parallel Market	18	15	1		34
TOTAL	117	73	16	8	215

* Certified Public Accountants in Greece(Sworn-in Auditors) as a Governmental Body.
** Total includes Central Bank of Greece where auditors are appointed by its Governor.

Appendix 2: List of Companies

BANKS

Alpha Credit Bank	N
Bank of Attica	N
General Hellenic Bank	N
Bank of Greece	N
Commercial Bank of Greece	N
Ergo Bank SA	N
National Bank of Greece	N
Nibid	S
Ionian Bank	N
Bank of Central Greece	N
Bank of Macedonia-Thrace	N
Bank of Piraeus	N
Chios Bank	N
Bank of Athens SA	N

INSURANCE

Ethiki General Insurance	N
Aspis Pronia General Insurance	N
European Reliance General Ins.	N
The Phoenix Greek Gen. Ins. Co.	N

LEASING

Alpha Leasing SA	N
Etva Leasing Sa	N
Ergodata SA	N

INVESTMENT COMPANIES

Alpha Investment SA	N
Alpha Finance	N
Aelian Investment Fund	N
Aspis Investment SA	N
DIAS SA Closed End Invst. Fnd.	S
National Investment Fund	N
Hellenic Investment Comp	N
Commercial Investment SA	N
Exelixi Sa	N
Investment Development Fund	N
Ergo Investment SA	N
Interinvest	N
Ionian Investment	N
Marfin SA	N
Piraeus Investment SA	N
The Greek Progress Fund	N
Orion Int. Invst. Trust Fnd	N

HOLDING COMPANIES

Alcar SA	N
Viohalco	N
Attica Enterprises Holding	N
Ideal Group SA	N
Keranis SA	N
Klonatex ICST & TCA	N
J. Boutaris & Sons	N

TELECOMMUNICATIONS

Hellenic Telecom. SA	N

PASSENGER SHIPPING

Dane Sea Line	S
Strintzis Lines	N
Martime Company of Lesvos	N

TEXTILES

Demetriades Ltd	N
Hellenic Fabrics SA	S
Elfico SA	N
Selected Textile Intl. Ass. SA	N
Britannia Wersted Ind	N
Etma Rayon	N
Lanakam SA	N
Naussa Spinning Mills	N
Textile Ind. Nafpaktos G.Pol	N
K. Doudos SA	N
Macedonian Spinning Mills	N
Minerva Knitwear SA	N
Knitwear Factory MAXIM	N
EL.D. Mouzakis SA	N
Nimatemporiki SA	N
Tria Alpha	N
Fanco SA	N
Fintexport	N

CHEMICAL PRODUCTS

ESHA SA	N
P.D. Papoutsanis SA	N
Petzetakis SA	N
Thrace Plastics SA	N
Macedonian Plastics	N

PHARMACEUTICAL COMPANIES

Lavipharm SA	N
Rilken SA	N
Pappaellina Gr. of Comp	N
Gr. Sarantis	N

BUILDING MATERIAL AND CEMENT

Kekrops Hotel Tourist Building	N
Keramia Allatini	N
Heracles General Cement	N
Titan Cement	N
Halyps Cement	N

CONSTRUCTION ENTERPRISES

Avax Sa Const. Co.	N
Aegek Sa	N
Athena Hellenic Engin	N
Aktor Sa Tech. Comp	N
Atemke Sa	N
Atti-Kat	N
Vioter	N
General Const. Comp	N
Gekat	N
Gnomon	N
Edrasis-C. Phallidas	N
Helleniki Technodomiki	N
Ergas Sa	N
European Technical	N
Themeliodomi	N
C. Sarantopoulos	N
Mesochoritis Bros	N
Michaniki	N
Mochlos SA	N
Proodeftiki Technical Comp	N
Terna Tourist Techc & Mar.	N
Volos Techniki Comp	N
Technical Olymbic	N
Technodomi M. Travlos	N

MINES

Silver & Baryte Ores B. Min.	N

METALLURGICAL

ALCATEL CABLES Hellas	N
Aluminium of Attica	N
Aluminum of Greece	N
BIOSSOL SA	N
O. Daring Sain	N
Elval Aluminum Process	N
Hellenic Cables	N
Light Metals Ind	N
Intracom Sa	N
A. Kaplinis-Simos Stl. Srv	S
N. Levederis	N
Metka Sa	N
Bitros Sa	N
Mytilineos Hold. Sa	N
Radio-Athinai Aevete	S
Arcadia Metal Ind C. R.	N
Sidenor SA	S
Pipe Works L G P SA	N
Fourlis SA	N
Halkor SA	S
Sheet Steel Comp	N

FOOD

A-B Vassilopoulos	N
Goody's	N
Delta Diary	N
Elais Oleaginous Prod	N
Hellenic Sugar Ind	N
Hellenic Bottling Comp	N
Hellenic Biscuit Comp	N
Thessaliki Spirits	N
Kambas SA	N
Katselis Sons SA Brd. Ind	N
Uncle Stathis SA	N
Nikas Sa	N
Oinerga	S
Jacobs Suchard Pavlidis	N
Chipita International SA	N

FLOUR MILLS

Allatini Ind and Com.	S
Flour Mills Loulis	N
Flour Mills Saran.	N
St. George Mills	N

COLD STORAGE

Parnassos Ent.	N

TOBACCO

Karelia Tobacco Comp	N
Papastratos Cigarette	N

CONTAINERS AND PAPER MILLS

VIS Container Mfg.	N
Hellas CAN	N
M.J. Maillis SA	N

WOOD PRODUCTS

Xylemporia	N
Shellman	N

HOTELS

Ionian Hotel Enterprises	S
Lampsa Hotel Comp	N

MISCALLANEOUS

Athinea SA	N
Alisida SA	N
Warehouses Comp	N
General Com. and Ind.	N
Elemec Sports Abete	N
Electrac SA	N
Emporikos Desmos	N
Hermes SA Bld. Ent.	N
Eskimo SA	N
Zampa SA	N
Athens Medical	N
Hippotour	N
Klaudatos SA	N
Lampropoulos Bros	N
X.Benroubi SA	N
Sanyo Hellas Holding	N
Sato AE	N
S.P. Tasoglou SA	N
Sportsman SA	N
Sfakianiakis SA	N

INFORMATICS COMPANIES

ALTEC CA Inform & Com.	N
DELTA Informatics	N
Intrasoft SA	N

PRINTED INFORMATICS SYSTEMS

Inform P. Lykos SA	N

MASS MEDIA

Tiletypos SA	N

PARALLEL MARKET

Albio Biokarpet Sa	N
Vernikos Yaghts	N
Gener Sa	N
Dis Sa	N
Diekat Sa	N
Ekter Sa	N
Elve Sa	N
Hellatex Sa Syntex Yarns	N
Endyssi Sa	N
Euromedica SA	N
Athens Medical	N
Imperio	N

Intertyp	N
Selonda Aqcuaculture	N
C. Cardassilaris SA	N
Corfil SA	N
Koumbas Ins	N
Kreka SA	N
Metalloplastiki Agriniou	N
Metrolife Commercial	N
Mouriades SA	N
Babyland Toys SA	N
Nirefs	N
E. Pairis SA	N
Piraeus Leasing	N
Pouliades Ass	N
Radio A. Korasside	N
RIDENCO SA	N
REMEK Pharm.	N
S.SIGALAS SA	N
SINGULAR SA	N
Const. Co C. Const.	N
Yalco-Const. SA	N
FlexoPack SA	N