

Voluntary Audits: An Empirical Study

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Abstract

This study examines 380 incorporated societies in New Zealand. It investigates the demand for audits in a modern voluntary audit setting, in which a number of levels of auditor qualification and reputation can be chosen. Where audits are not compulsory, a substantial number of organisations do choose to appoint auditors. Voluntary audits of all types are associated with larger organisational size. The results of this study support the audit as a form of monitoring and bonding, contracting, signalling and organisational control; they do not support the insurance explanation for auditing in a voluntary setting.

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Voluntary Audits: An Empirical Study

Introduction

This paper examines the demand for auditing in a voluntary setting. This issue has been examined in previous studies, and voluntary auditing has been explained by incentives under agency and contracting, signalling, and insurance theories and as a result of organisational loss of control. A related issue, the choice of auditor, has also been explained as signalling the quality of the information reported, and as providing a form of insurance. The data for this study was obtained from incorporated societies in New Zealand.

There are five complementary explanations for auditing.

1. Monitoring by principals together with bonding by agents
2. Contracting between parties, a common example being between borrowers and lenders
3. Signalling insiders' knowledge of superior performance, by selection of an auditor with a high reputation
4. Insurance, whereby trustees, investors or creditors wish to demonstrate prudence and insure against losses
5. Organisational control for internal management.

Agency theory and contracting

Previous empirical studies provide evidence that auditing and similar institutional arrangements, such as voluntary reviews and voluntary formation of audit committees, are associated with high agency costs, indicated by greater size, higher leverage or lower managerial ownership (Zimmerman 1977; Chow 1982; Pincus et al. 1989; Ettredge et al. 1994). However, Chow did not test managerial ownership, while Pincus et al. did not find a consistent relation with debt, and evidence from New Zealand does not show the expected relationships (Bradbury, 1990).

Chow (1982: 272) proposes that a firm's demand for auditing decreases with managerial ownership and increases with leverage, accounting-based debt covenants, and firm size. A higher level of managerial ownership is expected to reduce the demand for an audit, as the degree of conflict between the manager and the shareholders decreases. A greater proportion of debt in a firm's capital structure gives shareholders a greater incentive to transfer wealth from the bondholders. There is then a greater potential gain to shareholders from contracting with the bondholders, including voluntarily engaging an external auditor. The role of external auditors in reducing the conflict of interest is hypothesized to be of greater importance for firms that use more accounting-based debt covenants. Size affects the demand for auditing because with larger entities there is a greater potential for wealth transfer, but the marginal costs of an audit do not increase at the same rate. To test the hypotheses, Chow uses a sample of 165 firms from 1926, when auditing was not required by the securities regulations. The results are consistent with the predictions that leverage, accounting-based debt covenants, and firm size are related to auditing. Data problems prevent testing the relationship with managerial ownership (Chow, 1982: 287).

Pincus, Rusbarsky & Wong (1989) show that firms that voluntarily form audit committees have lower managerial ownership of the company's stock than firms without audit committees. There is also some support for an association between agency costs of debt and voluntary audit committee formation, but this is only significant for certain industry groupings (Pincus et al. 1989: 259–260). Bradbury (1990) reports a similar study in a New Zealand setting. He hypothesizes greater agency cost and therefore increased probability of an audit committee when there is a greater number of non-executive shareholders, higher leverage, lower value of assets-in-place, intercorporate ownership (as a proxy for outside directors), or lower directors' ownership (Bradbury, 1990: 21–22). However, the results show little support for the hypotheses. Only the number of directors and presence of intercorporate control are related to the formation of an audit committee.

Ettredge, Simon, Smith & Stone (1994) examine why some companies purchase timely quarterly reviews, under which their quarterly financial information is reviewed by an independent accountant before release. Their study of 371 companies in the United States of America shows that the choice of a timely review by independent accountants is positively associated with company size, issuance of new securities, financial leverage and timely review by internal auditors. There is also a hypothesized negative association with management ownership. Ettredge et al. (1994: 154) conclude that the results support the proposition that companies contracting for timely reviews have higher agency costs. Zimmerman (1977) finds that cities with a mayoral system, in which the

city chief executive is directly elected, and there is, therefore, no agency relationship between council members and management, are significantly more likely not to be audited. Furthermore, manager cities, in which the council appoints the chief executive and there is an agency relationship, are more likely to engage large national auditors.

Signalling and insurance

Other explanations for voluntary auditing, and for the choice of auditor, include

- signalling by way of appointing an auditor with a high reputation
- providing a form of insurance by having the potential to take legal action against the auditor.

Dye (1993) demonstrates that audit fees depend on

- the informational value of the audit
- the option value of the claim that users of financial statements have on the auditors' wealth in the event an audit is determined to have been substandard.

Audit firm selection can be used as a means of signalling. Selecting a high quality audit firm signal insiders' knowledge of superior performance. Choosing a larger audit firm, especially a member of the Big 5, indicates a higher quality audit. Auditors with a greater number of clients have more to lose by failing to report a discovered breach in a particular client's records, and this collateral aspect increases the audit quality supplied by larger audit firms (DeAngelo, 1981). Large firms can also provide higher quality audits because of comparative advantage, economies of scale, greater partner personal wealth and investment in brand names. Evidence that Big 5 firms are perceived as providing a higher quality service is also provided by studies showing they are able to charge fee premiums (Francis & Simon 1987; Johnson et al. 1995). Datar, Feltham & Hughes (1991) present a model that shows that the choice of auditor and the resulting audited report give some insight into an entrepreneur's private information. Willenborg (1999) studies the demand for auditing by initial public offerings (IPOs), and finds support for both signalling and insurance explanations for auditing. Wallace (1987) suggest that this information effect could carry over to the non-profit sector, and questions whether non-profit entities that issue audited financial statements receive greater contributions.

Wallace (1987) also suggests that the insurance dimension of an audit creates additional demand, as it appeals to trustees, investors and creditors who wish both to demonstrate their exercise of prudent care and insure against losses. Auditors are viewed as having 'deep pockets' by potential litigants after a company has failed. Chow, Kramer & Wallace (1998) suggest auditors also provide for potential recovery of losses. Providers of external financing and custodians of others' funds may demand audits as a way of increasing the chance of recovering certain types of losses, or as evidence of due care in discharging responsibilities. The insurance hypothesis is supported by the effect of the bankruptcy of the audit firm Laventhol and Horwath in the United States of America, which resulted in the insurance protection offered by the audit being withdrawn. Disclosure of the bankruptcy had an adverse effect on the share prices of their client companies (Menon & Williams 1994; Baber, Kumar & Verghese 1995).

Organisational loss of control

Abdel-Khalik (1993) proposes that owners seek voluntary audits as a compensatory control system for organisational loss of control in hierarchical organisations. In a small organisation, the owner or manager controls operations by direct supervision and personal observation. As an organisation grows, delegation becomes necessary, and reduced observability gives rise to risks of moral hazard, and opportunism. The greater the number of employees, the more administrative layers the organisation has and the more difficult it is to observe the actions of subordinates. The size of the company (total assets) is also relevant, as it indicates the maximum amount of wealth at risk. Abdel-Khalik (1993) finds significant positive relationships between audit fees and layers of hierarchy, size and debt.

The explanations are not inconsistent with agency theory or with each other. Agency theory explanations have been tested by studying listed companies in the United States of America (both in 1926 and more recently) and in New Zealand (but do not provide support for the agency explanations in the New Zealand setting). Studying IPOs also supports the signalling and insurance explanations for the appointment of auditors. Organisational control has been tested in unlisted companies.

Incorporated societies

Previous research into the demand for auditors has not examined incorporated societies. There are several advantages to using incorporated societies as a research setting.

- There are a large number of them
- They are subject to voluntary audit in a modern setting
- They voluntarily choose from a wide range of auditor choices
- They offer the opportunity to extend existing research to another setting.

Incorporated societies in New Zealand exist under the Incorporated Societies Act 1908. They are separate legal entities from their members, and have perpetual succession and limited liability. However, they are not permitted to operate for the purpose of making pecuniary gains for distribution to members. Incorporated societies include industry associations, trade unions and voluntary groups formed for sports or cultural purposes. Although they cannot have a purpose of making gains to distribute to members, they can engage in trading activities towards other ends, and some are substantial enterprises such as the New Zealand Rugby Union, the Consumers Institute of New Zealand, or the New Zealand Automobile Association. Incorporated societies are required to deliver annual financial statements to the Registrar of Incorporated Societies, and these statements are then available on a public file. It is not compulsory for the financial statements to be audited, although the Registrar of Incorporated Societies recommends that it is 'desirable' (Companies Office 1999).

Incorporated societies may appoint anyone as auditor, whether or not the auditor has any qualifications. Choices used include engaging a chartered accountancy firm or sole practitioner in public practice; prevailing upon a chartered accountant or other qualified accountant who may be willing to do the audit; and even appointing a member of the society itself, who may or may not be qualified as an accountant or auditor. Thus there are incorporated societies that

- choose to have an audit and others that do not
- use qualified auditors and others that use unqualified auditors
- are audited by audit firms or sole practitioners, and others that are audited by qualified individuals
- use Big 5 or second-tier audit firms and others that use lesser-known firms or sole practitioners.

Development of hypotheses

The alternative choices of auditor provide different benefits to managers and financial report users, and allow the five complementary explanations for the audit function to be examined. Under all of the explanations for auditing, the benefit of an audit is likely to be relatively greater as a society becomes larger, because increased size means the ratio of the cost of the audit, in proportion to the relative benefits it produces, will be lower, and the potential for wealth transfer and the amount of wealth at risk will be higher. We therefore hypothesize that

H₁: The bigger the society, the greater the likelihood of it being audited.

Monitoring and bonding

As very small societies increase in size, it is more likely that members will demand an audit as a means of monitoring, or that the controlling group of members or management will find it desirable to provide one. An unqualified auditor who is a respected member of the society may be able to conduct a monitoring or bonding function that is adequate, particularly in smaller societies. Monitoring and bonding implies the existence of a self-interested agent, such as an employee to manage the institute's affairs, and it is expected that as the extent of salaries paid increases, there will also be greater demand for audit and for higher-quality audit. We therefore hypothesize that

H₂: The higher the salaries and wages paid by a society, the greater the likelihood of it being audited.

Contracting

Contracting between parties such as borrowers and lenders may lead to the need for an audit. Contracting requires the existence of an independent auditor, outside the membership of the entity. For example, lenders are unlikely to consider an audit by an unqualified person to be adequate, particularly if that person is a member of the society. Therefore, a qualified auditor is likely to be necessary where there is debt, and we hypothesize that

H₃: The greater the debt owed by a society to third parties, the greater the likelihood that its auditor will be qualified.

Signalling

In societies, the signalling function of auditor choice is analogous to that of companies making an initial public offering. It is a means for management and existing members to signal to prospective members that insiders are aware of superior performance. Signalling the insiders' knowledge of superior performance, by selection of an auditor with a higher reputation, appeals to potential members (and existing members renewing their membership). We therefore hypothesize that

H₄: The bigger the society, the greater the likelihood that it will engage a highly reputable auditor.

Insurance

Unqualified auditors and qualified individuals usually do not have professional indemnity insurance so they are unlikely to have the 'deep pockets' that are believed to motivate some entities in their choice of auditors. Small audit firms and sole practitioners are likely to have professional indemnity insurance and more substantial assets than private individuals. They are therefore more likely to provide an insurance role than individuals not in public practice, but a small firm is not generally regarded as highly as Big 5 or second-tier national firms (such as Spicer and Oppenheim, or Grant Thornton). These larger firms have substantial audit practices and international affiliations.

DeAngelo (1981) argued that audit quality is an increasing function of the number of audits performed by a firm. Large firms that specialise in auditing would be expected to have higher reputations than smaller audit firms.

Providers of finance to an incorporated society want to ensure that the funds they contribute are used for the purpose for which they were provided, or that their investment in the society is safe. We therefore make the following hypotheses relating to the insurance role of auditors regarding funds provided from sources other than normal operating revenue.

H₅: The higher the level of donations and grants made to a society, the greater the likelihood of it using an audit firm.

H₆: The higher the level of donations and grants made to a society, the higher the reputation of its audit firm is likely to be.

H₇: The higher a society's level of debt, the greater the likelihood of it using an audit firm.

H₈: The higher a society's level of debt, the higher the reputation of its audit firm is likely to be.

Internal management

As an organisation grows larger and develops more administrative layers and retains more employees, the more it should benefit from an audit as a compensatory control system. Higher salaries paid by a society indicate more staff members, more levels of management and, hence, greater possibility of loss of control. If the auditors are to provide a comprehensive control system by giving professional advice to management, then management is likely to require knowledgeable and experienced auditors who are most likely to be found in larger Big 5 or second-tier firms. This leads to the final hypothesis.

H₉: The greater the total salaries and wages paid by a society, the larger the audit firm it is likely to engage.

Measurement of variables

Size is measured by two alternatives, total assets and total income. Debt is measured by the percentage of debt to total assets (DEBTPER), staff emoluments by the percentage of salaries and wages to total income (SALARYPER), and grants and donations by the percentage of these items to total income (DGPER).

Variables examined, and the explanations that have been proposed for their relevance, are shown in Fig. 1.

Independent variable (measured by)	Explanation
Size (assets, income)	Potential for wealth transfer (Chow) Assets at risk (Abdel-Khalik) Insurance (Dye, Wallace) Political costs Organisational complexity (Abdel-Khalik)
Debt (debt as a percentage of assets)	Contracting (Chow, Abdel-Khalik)
Salaries and wages (salaries and wages as a percentage of income)	Presence of self-interested agents Organisational complexity (Abdel-Khalik)
Voluntary contributions by donation and grant (donations and grants as a percentage of income)	Informational signalling (Wallace)

Fig. 1 Explanation of independent variables

The tests conducted examine

- whether there are relationships between the explanatory variables and the choice of an audit, measured by dependent variables indicating whether there is an audit or not
- whether the auditor is qualified or unqualified

- whether an audit firm (including sole practitioners) or an auditor who is a qualified individual is engaged
- whether the audit firm is large (either one of the Big 5 or a second-tier audit firm), a lesser-known firm, or a sole practitioner
- whether the large firm is a Big 5 or a second-tier firm.

The dependent variables, with potential explanations for the choices, are shown in Fig. 2.

Explanation for choice	Dependent variable: choice between	Independent variables
Size	All choices	Size (H_1)
Monitoring/bonding	Audit and no audit	Salaries and wages (H_2)
Contracting	Unqualified and qualified	Debt (H_3)
Signalling	Individuals and firms	Size (H_4)
Insurance	Individuals and firms Small and large firms	Donations and grants (H_5, H_6) Debt (H_7, H_8)
Organisational complexity	Small and large firms	Salaries and wages (H_9)

Fig. 2 Explanation of dependent variables

Data and results

A random sample of the names and registration numbers of 600 incorporated societies, 300 each in Auckland and Wellington, was obtained from the Registrar of Incorporated Societies. The office of the Registrar in each city was visited, and the financial statements held on the files for each society were inspected. Of the 600 items sampled, there were 380 usable sets of financial statements available (see Table 1).

The most common reason why many societies were unable to be used in this study was that they had not filed any recent financial statements. The Registrar's office is currently attempting to enforce the obligations of societies to file financial statements, by writing to those that have defaulted on their obligation and threatening to remove their incorporated status, although a proportion of the defaulting societies are no longer operational in any case.

Descriptive statistics are shown in Table 2. The observations are progressively broken down, firstly between unaudited entities and audited entities. Observations for audited entities are further classified according to whether or not the auditor is qualified. Those entities that use qualified auditors are then successively broken down according to whether an audit firm is used, followed by whether the firm is small or large, and finally separated into groups that use second-tier and Big 5 firms.

In almost every case, the breakdown analysis shows entities are more likely to choose an audit as each of the variables for size, debt, salaries/wages and donations/grants increase, and similarly to choose a higher-quality auditor with each of the variables. In the main, exceptions relate to donations and grants, where there are mixed results for the choices made when choosing between big firms (Big 5 or second tier) and small firms. Entities with larger donations and grants show a tendency to be audited by second-tier firms rather than by the Big 5.

The median, mean and maximum values for audited societies are larger than for unaudited societies on all of the measures used (assets, income, debt, salaries and wages, and donations and grants). For every measure, entities with qualified auditors are larger than those with unqualified auditors, and societies using firms (including sole practitioners) are larger than those that use individuals. The values for entities that use big firms are larger than those that use small firms, with the exception of median and maximum donations and grants. Values for entities audited by the Big 5 are larger than for those audited by second-tier firms, except for median salaries and all measures of donations and grants.

All of the variables are related to size, and in the statistical tests the variables for debt, salaries and wages, and donations and grants are scaled by total assets or total income. Panel B of Table 2 presents the results of Mann-Whitney tests for

- differences in the mean ranks of entities choosing an audit or no audit
- audits of various qualities, according to size (both assets and income)
- debt as a percentage of assets
- salaries and wages as a percentage of total income
- donations and grants as a percentage of total income.

The results confirm that size, DEBTPER and SALARYPER are significantly related to auditor choice, except where the choice between a Big 5 or second-tier audit firm is concerned. Donations and grants (DGPER) are not significantly related to auditor choice.

Non-parametric correlation coefficients are shown in Table 3. As expected, there is a high correlation between the size measures of assets and income. There are also significant correlations between these size measures and both debt and salary, suggesting larger entities are also likely to have more debt and more employee expenses. Donations and grants as a percentage of income are correlated with income and salaries, but not assets and debt.

Logistic regression results are reported in Tables 4 and 5. There are fewer significant results associated with auditor choice when other variables are taken into account. In Table 4, assets are significantly related to all of the auditor choices except that between Big 5 and second tier, consistent with Hypothesis 1. Hypothesis 2 is supported by the significant positive relationship between SALARYPER and the choice to have an audit. In addition, Hypothesis 3 is supported by the significant, positive, relationship between DEBTPER and the choice of a qualified auditor. Hypothesis 4 is supported by the positive relationship between size and the selection of an audit firm rather than an individual as auditor. However, Hypotheses 5 and 6 are not supported, as there is no relationship between DGPER and the choice of a qualified auditor, or the choice of a Big 5 or second-tier firm, and there is a negative and significant relationship between DEBTPER and the choice of a Big 5 firm. Hypotheses 7 and 8 are also not supported, as there is no relationship between DEBTPER and the choice of a firm over an individual or of a large firm over a small firm. Hypothesis 9 is supported by the significant positive relationship between SALARYPER and the choice of a large firm (either Big 5 or second-tier).

The models using income as a size measure are reported in Table 5. The results are very similar and support the hypotheses to the same degree of significance with one exception. Hypothesis 3 (a predicted relationship between DEBTPER and choice of qualified auditor) is not supported in this model. Table 5 also shows a significant positive relationship between SALARYPER and the choice of a qualified auditor.

The overall models are highly significant at $p = 0.00$ in each case, except for the model of a choice between Big 5 and second-tier audit firms, but the models do not explain the high level of variation, as indicated by the pseudo R^2 measures. Although the variables tested are important determinants of auditor choice, there appear from this to be other factors as well. Although the explanatory variables are correlated to some extent, diagnostic tests using condition numbers and variance inflation factors do not appear to indicate the existence of multi-collinearity problems.

Discussion

The study looks at issues considered in previous studies, including voluntary audit and auditor choice. First, it examines the choice of whether to have an audit or not. When faced with this choice, most entities do choose an audit. Those that do not are small, and their salaries, wages and debt are low (if any). Second, the choice of a progressively higher quality auditor is usually related to the same variables. Increasing assets or income and increasing salaries appear to make a higher quality audit more valuable. The exception to this rule is the Big 5 audit firms, whose clients are not as large, on average, as those audited by the second-tier firms, and this is discussed below. Debt is not significantly associated with auditor choice in several multivariate models, and donations and grants are not significantly associated with auditor choice in either univariate or multivariate testing.

The results provide support for Hypotheses 1, 2, 3, 4 and 9, but do not support Hypotheses 5, 6, 7 and 8. They support

- the argument that auditors are relatively more useful as organisation size increases
- monitoring and bonding as an explanation for auditing, and they also support contracting
- signalling as an explanation of auditing, and auditing as a means of compensating for organisational loss of control.

The four hypotheses that are not supported are concerned with the insurance or 'deep pockets' explanation of auditing. Lack of support for this explanation may be related to the setting examined, as it is less common for the auditors of incorporated societies to be subject to legal action.

Donations and grants are not significantly associated with auditor choice or quality. Although Wallace (1987) asks whether an audit is associated with greater contributions, there is no evidence of that in this study. However, in this working paper, no distinction is made between central government grants and funds from other bodies and individuals. The results regarding the Big 5 firms are not consistent with the findings of previous studies. Big 5 firms do not appear to be preferred by the largest entities or by those with the highest debt (thus indicating the highest quality audit). These entities appear more likely to be audited by second-tier firms, although this result is not significant. There is significant evidence that entities that receive larger donations are more likely to be audited by second-tier audit firms. Anecdotal evidence suggests that Big 5

firms prefer not to become involved with incorporated society audits (partners are encouraged to support their community organisations with money, not donations of audit services). When the Big 5 do become involved with an incorporated society audit the incorporated society is more likely to be of a commercial nature, rather than a community organisation supported by donations and grants. This is consistent with the results obtained. A further explanation is that a high level of DGPER corresponds to low revenue from other sources, mainly members. A negative relationship between DGPER and the choice of a Big 5 auditor implies a positive relationship between funds received from members and the choice of a Big 5 auditor.

There is anecdotal evidence that in the past the audit market was somewhat different, for example, the Big 5 were active in small audits; more entities were audited; and there were fewer defaults in reporting to the Registrar. This anecdotal evidence can be tested if additional data is obtained and subjected to longitudinal testing.

Conclusion

The results of this study are generally consistent with those from previous research into companies and organisations supported by taxes or other involuntary contributions by the general public. However, incorporated societies show significant differences in some respects. The results of this study support the conclusions of previous research that larger entities will seek out auditors with a higher reputation. However, we found no effect where societies received increased external funding through debt or grants and donations. With regard to donations from persons associated with an entity, the absence of signalling or deep pocket effects may be due to donors being sufficiently aware of the way their contributions are being expended so they do not require any external monitoring. Such persons would consider the money, once contributed, to be a sunk cost and, thus, there would be no insurance effect.

This study has suggested that higher reputation auditors are reluctant to accept not-for-profit audits. Although higher debt means incorporated societies are more likely to engage qualified auditors, the rejection of hypotheses 5 to 8 shows that there is no other signalling or insurance effect on the audit/no audit decision or on the choice of auditor. The absence of any effect by donations and grants on signalling is surprising and contrary to the effects found in previous research.

Further analysis is required to see whether the results obtained vary for different types of entity. This analysis may show that different types of organisations — such as national, local, religious, sporting, and cultural organisations, or community groups — have different motives for appointing auditors and that they tend to appoint different types of auditor.

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Appendix

- Table 1: Usable observations
- Table 2: Panel A. Descriptive statistics by type of audit
Panel B. Mann-Whitney U statistics for the differences in mean rank
- Table 3: Spearman correlation coefficients among explanatory variables
- Table 4: Logistic regressions of the relations between type of audit (if any) and size (total assets), debt, salaries/wages and donations/grants
- Table 5: Logistic regressions of the relations between type of audit (if any) and size (total income), debt, salaries/wages and donations/grants

Table 1: Usable observations

Societies sampled	600
Duplications in sample	14
Wound-up or struck-off	4
Latest financial statements older than 1996	62
No financial statements on file*	121
Incomplete financial statements	3
Financial statements subject to a review or compilation engagement	<u>16</u>
Usable entities	<u>380</u>
* Of these societies, 25 were incorporated in 1999 or 2000	

Table 2: Panel A. Descriptive statistics by type of audit (n = 380)

Variable ^a	Audited (n = 300)									
	Unaudited (n = 80)	Total Audited	Unqualified auditors (n = 72)	Total qualified auditors	Individuals (n = 87)	Total practitioners or firms	Small firms (n = 103)	Practitioners or firms (n = 141)		
Assets								Total Big 5 or second tier	Big 5 or second tier (n = 38)	Big 5 (n = 18)
Median	7,537	34,403	14,462	45,840	25,438	102,650	77,572	292,174	268,647	640,955
Mean	32,416	304,527	68,348	379,109	133,821	530,458	228,339	1,349,359	706,052	2,064,144
Std. dev.	102,496	1,062,403	163,678	1,206,251	630,576	1,433,364	411,437	2,522,781	1,517,499	3,201,628
Range	0-893,374	153-12,585,041	298-1,138,213	153-12,585,041	157-5,851,165	153-12,585,041	153-2,459,370	1,546-12,585,041	2,385-6,852,223	1,546-12,585,041
Income										
Median	7,737	30,222	10,747	50,639	23,613	73,219	52,294	406,666	313,586	506,572
Mean	22,478	363,076	33,216	467,242	64,593	715,685	158,692	2,225,428	740,557	3,875,285
Std. dev.	53,477	2,878,602	64,974	3,296,648	96,076	4,171,669	304,927	7,910,573	1,318,969	11,347,993
Range	0-415,193	0-48,562,714	311-402,961	0-48,562,714	1,260-498,918	0-48,562,714	0-1,808,000	893-48,562,714	2,523-5,933,056	893-48,562,714
Debt										
Median	0	0	0	1,038	0	3,068	1,575	22,553	14,100	44,816
Mean	1,417	75,847	5,764	97,978	57,766	122,790	35,112	360,441	94,912	655,472
Std. dev.	5,059	484,265	25,964	553,746	457,659	605,721	149,367	1,116,850	190,110	1,580,924
Range	0-29,447	0-6,232,698	0-165,995	0-6,232,698	0-4,272,377	0-6,232,698	0-1,466,640	0-6,232,698	0-833,861	0-6,232,698
Salaries and wages										
Median	0	0	0	0	0	3,443	0	100,906	120,808	38,691
Mean	1,537	107,086	4,787	139,391	14,798	216,268	45,808	678,305	177,682	1,234,554
Std. dev.	8,437	1,157,952	15,928	1,327,289	36,178	1,685,249	118,628	3,226,028	209,289	4,688,248
Range	0-66,225	0-20,000,000	0-97,994	0-20,000,000	0-192,800	0-20,000,000	0-912,317	0-20,000,000	0-785,767	0-20,000,000
Donations and grants										
Median	30	559	300	959	750	1,209	1,320	20	20,221	0
Mean	8,928	32,505	7,119	40,521	16,727	55,203	33,616	113,714	189,506	29,501
Std. dev.	41,007	119,409	19,844	135,606	33,373	169,007	121,394	250,278	326,172	56,218
Range	0-344,035	0-1,069,017	0-102,437	0-1,069,017	0-176,830	0-1,069,017	0-1,069,017	0-1,028,609	0-1,028,609	0-1,66,300
DEBTPER										
Median	0	0	0	0.01	0	0.04	0.01	0.11	0.07	0.14
Mean	0.06	0.11	0.04	0.13	0.11	0.14	0.13	0.18	0.15	0.21
Std. dev.	0.16	0.22	0.18	0.22	0.21	0.23	0.24	0.20	0.19	0.22
Range	0.00-0.97	0.00-1.30	0.00-1.30	0.00-1.12	0.00-0.78	0.00-1.12	0.00-1.12	0.00-0.72	0.00-0.66	0.00-0.72
SALARYPER										
Median	0	0	0	0	0	0.03	0	0.17	0.22	0.14
Mean	0.03	0.14	0.06	0.17	0.15	0.17	0.15	0.25	0.26	0.24
Std. dev.	0.13	0.24	0.16	0.33	0.27	0.24	0.23	0.24	0.24	0.24
Range	0.00-0.92	0.00-1.23	0.00-0.72	0.00-1.23	0.00-1.23	0.00-1.12	0.00-1.12	0.00-0.79	0.00-0.79	0.00-0.67
DGPER										
Median	0	0.04	0.02	0.05	0.07	0.03	0.06	0	0.06	0
Mean	0.20	0.21	0.16	0.23	0.25	0.22	0.23	0.18	0.29	0.07
Std. dev.	0.33	0.34	0.27	0.33	0.34	0.32	0.34	0.29	0.36	0.11
Range	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-1.00	0.00-0.97	0.00-0.97	0.00-0.32

Panel B. Mann-Whitney U statistics for the differences in mean rank
(1-tailed significance in brackets)

Variable ^a	Audited/ unaudited	Qualified/ unqualified	Practitioners/ individuals	Big 5 or second tier/ small firms	Big 5/second tier
Assets	6365 (0.000)	5206 (0.000)	3864.5 (0.000)	1110 (0.000)	135 (0.094)
Income	6239 (0.000)	4428 (0.000)	4036 (0.000)	994 (0.000)	155 (0.239)
DEBTPER	8876 (0.000)	5373.5 (0.000)	4993 (0.007)	1470 (0.010)	146 (0.166)
SALARYPER	8015 (0.000)	5720.5 (0.000)	5297 (0.036)	1292 (0.001)	173 (0.419)
DGPER	10324 (0.751)	7887 (0.325)	5839 (0.287)	1645 (0.080)	108 (0.018)

^aAssets = total assets

Income = total income

DEBTPER = total debt divided by total assets

SALARYPER = total salaries and wages divided by total income

DGPER = total donations and grants divided by total income

Table 3: Spearman correlation coefficients among the explanatory variables

Variable ^a	Assets	Income	DEBTPER	SALARYPER	DGPER
Assets	1.00				
Income	0.779** (0.000)	1.00			
DEBTPER	0.464** (0.000)	0.515** (0.000)	1.00		
SALARYPER	0.462** (0.000)	0.580** (0.000)	0.410** (0.000)	1.00	
DGPER	0.092 (0.068)	0.200** (0.000)	0.006 (0.912)	0.141** (0.005)	1.00

^aAssets = total assets

Income = total income

DEBTPER = total debt divided by total assets

SALARYPER = total salaries and wages divided by total income

DGPER = total donations and grants divided by total income

** significant at p = 0.01

Table 4

Logistic regressions of the relations between type of audit (if any) and size (total assets), debt, salaries/wages and donations/grants

Independent variables ^a	Choice between dependent variables				
	Audit or no audit	Unqualified or qualified auditor	Individual or firm	Small firm or large firm	Big 5 or second tier
Assets	0.000005	0.000002	0.0000009	0.000001	0.0000002
Significance ^b	0.01	0.02	0.02	0.00	0.17
DEBTPER	0.98	1.90	0.51	0.18	2.25
Significance ^b	0.13	0.03	0.22	0.43	0.16
SALARYPER	2.66	1.77	0.19	1.95	0.004
Significance ^b	0.01	0.02	0.38	0.01	0.49
DGPER	-0.22	0.43	-0.20	-0.52	-4.09
Significance ^b	0.31	0.20	0.33	0.23	0.03
Constant	0.78	0.49	0.28	-1.77	-0.15
Significance ^c	0.00	0.01	0.28	0.00	0.84
Sample size	380	300	228	141	38
Model chi-square	41.17	31.35	12.19	25.66	9.76
Significance	0.00	0.00	0.02	0.00	0.04
Percentage of correct predictions	79.50%	75.92%	67.61%	76.43%	71.05%
Pseudo R ² measures					
McFadden	0.108	0.094	0.039	0.159	0.189
Cox & Snell	0.104	0.100	0.052	0.167	0.227
Nagelkerke	0.163	0.149	0.071	0.243	0.302

^aAssets = total assets

DEBTPER = total debt divided by total assets

SALARYPER = total salaries and wages divided by total income

DGPER = total donations and grants divided by total income

^bTwo-tailed

^cOne-tailed

Table 5

Logistic regressions of the relations between type of audit (if any) and size (total income), debt, salaries/wages and donations/grants

Independent variables ^a	Choice between independent variables				
	Audit or no audit	Unqualified or qualified auditor	Individual or firm	Small firm or large firm	Big 5 or second tier
Assets	0.000009	0.000006	0.000005	0.000002	0.0000008
Significance ^b	0.01	0.01	0.00	0.00	0.33
DEBTPER	0.35	1.15	-0.24	-0.63	2.08
Significance ^b	0.35	0.12	0.36	0.28	0.18
SALARYPER	2.26	1.21	-0.46	1.66	-0.24
Significance ^b	0.02	0.09	0.24	0.03	0.44
DGPER	-0.39	0.34	-0.25	-0.66	-4.13
Significance ^b	0.19	0.26	0.30	0.17	0.03
Constant	0.82	0.44	0.09	-1.72	0.11
Significance ^c	0.00	0.02	0.68	0.00	0.86
Sample size	380	300	228	141	38
Model chi-square	40.97	37.82	30.42	30.83	8.96
Significance	0.00	0.00	0.00	0.00	0.06
Percentage of correct predictions	79.50%	75.92%	63.00%	76.43%	60.53%
Pseudo R ² measures					
McFadden	0.108	0.115	0.099	0.189	0.174
Cox & Snell	0.103	0.119	0.125	0.198	0.210
Nagelkerke	0.162	0.178	0.170	0.287	0.280

^aAssets = total assets

DEBTPER = total debt divided by total assets

SALARYPER = total salaries and wages divided by total income

DGPER = total donations and grants divided by total income

^bTwo-tailed

^cOne-tailed