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FORUM : AUDITOR INDEPENDENCE

RESEARCH METHODS FOR EXAMINING INDEPENDENCE ISSUES: EXPERIMENTAL AND ECONOMICS-OF-AUDITING APPROACHES

Audit quality has been defined by DeAngelo (1981a) and Watts and Zimmerman (1986) in terms of the probability of auditors reporting errors, conditional on an error being discovered. Discussing the implications of this definition, DeAngelo (1981b, pp. 115-16) and Watts and Zimmerman (p. 314) suggest that the first element of the definition relates to an auditor's technical capability or competence and that the second refers to independence. These elements combine to affect the quality of the accounting numbers produced. Auditor independence therefore depends on an auditor's incentives not only to find errors but also to ensure that they are corrected in the financial statements or included in the audit report.

There have been numerous calls, internationally and in Australia, for research on independence, providing an opportunity for the academic community to marshal empirical evidence on this important issue. While we see great opportunities for future research, care is needed to ensure that the appropriate questions are researched, that the research methods are rigorous and that the independence of the researchers is maintained. This paper discusses some research methods issues related to the study of independence using two types of research: an experimental approach and an economics-of-auditing approach.

The most common method of addressing the judgments of auditors and those using audit reports is by way of experiments. Given the complexity of auditor judgments, the use of controlled experiments has the advantage of allowing researchers to control potentially influential variables and to test potential solutions before they are implemented in practice. This approach has been used to examine factors affecting the independence of auditor judgments (actual independence), the perceived independence of auditors and the likely effect of remedial actions by the firm and the profession.

The other dominant research paradigm in auditing is an economics-based approach. Studies taking this

Recent corporate failures in Australia and overseas have led many to question both the perceived and actual independence of auditors. We believe that it is unlikely that there is a general lack of independence among auditors or, at the other extreme, that there have been no breaches of independence. We suggest the need for research on factors that affect lack of actual independence. Research is also required on what factors affect independence as perceived by users of accounting reports. This paper outlines the research methods issues in the design of such studies.

approach use archival data such as previous audit opinions to detect evidence of a lack of independence. They use regression analysis to look for associations between reduced audit quality and factors that may decrease auditor independence. A major benefit is that they are based on decisions and judgments already made by audit firms.

EXPERIMENTAL RESEARCH

Experiments are scientific investigations in which the researcher manipulates one or more independent variables (while controlling other independent variables) and observes changes in the dependent variable or variables. To determine which aspects of auditor independence are best addressed by experiments, we adopt the independence risk framework developed by Johnstone *et al* (2001). They suggest that two conditions are necessary to create independence risk: (a) some actual or perceived incentive for the auditor; and (b) a judgment-based decision situation in which actual or perceived audit quality can be adversely affected. For example, an audit partner may have a long-term working relationship with a client that contributes a significant proportion of local office revenue. If a complex revenue-recognition issue arises for which there is limited authoritative guidance, and the client presses for an aggressive reporting treatment, then the independence risk may potentially affect audit quality. However, certain factors, such as better corporate governance mechanisms, audit firm policies and increased regulatory oversight, may mitigate the effects of these environmental conditions.

Johnstone *et al* (2001) point to the "critical" nature of understanding both incentives and judgment-based decisions that contribute to or result in increased independence risk. We discuss three relevant questions raised by Johnstone *et al*: (a) What incentives create independence risk? (b) What judgment-based decisions allow independence risk to affect audit quality? (c) What factors may mitigate independence-related environmental conditions?

Increased independence risk requires the presence of incentives that lead the auditor to adopt a particular downside risk (actual lack of independence) or that lead a user of the financial statements to conclude that the auditor will assume that downside risk (independence in appearance). These incentives can be either direct (eg, financial dependence including the source, magnitude and continuity of the fees) or indirect (eg, auditors auditing their own work such as financial statements or valuations, advising on management decisions or outsourcing internal audit services) (Johnstone *et al* 2001).

In considering judgment-based decisions that could allow independence risk to affect audit quality, it should be noted that there needs to be an uncertainty about the appropriate decision or valuation judgment the auditor should make (eg, a high degree of uncertainty about the appropriate revenue recognition policy). Research could look at independence in fact in

respect of a range of judgments. The proposition being tested is: As the level of discretion available to the auditor increases, do the judgments made become less independent? Similarly, there are opportunities for research on whether judgments about the nature and extent of audit evidence vary with changes in the incentives faced by the auditor (eg, the internal audit issue). Also, materiality decisions require judgments about the magnitude of the omissions or misstatements in financial information that will impair the decisions of users of these statements. Materiality also becomes an issue in judgments by the auditor about waiving proposed adjustments on the ground that they are immaterial (Johnstone *et al* 2001).

If the issue being addressed is independence in appearance, the interesting interactions are likely to be between the incentives discussed under question (a) and attributes of the client (eg, a propensity to adopt aggressive accounting policies, the extent of provisions, etc.). The proposition being investigated would be that users' view of auditors' independence would be more affected by the existence of incentives where the auditor has greater discretion in making judgments.

As one of the advantages of an experiment is the ability to investigate the likely consequences of actions before those actions are taken, this research method is particularly appropriate in examining factors that may mitigate independence-related circumstances. Experiments could address factors such as corporate governance, regulatory oversight and auditing firm policies, and examine how these factors will affect independence in appearance and in fact. For example, if the composition of the audit committee were seen as a possible mitigating factor, then we should be looking at the effect of this composition, or changes in it, on the judgments of auditors and users of financial statements. It would be necessary to look at the interaction of changes in composition of the audit committee with specific incentives and specific accounting decisions. Further, it is important to decide which factors need to be manipulated and which need to be controlled.

Auditing firm policies such as concurring partner reviews, peer reviews and within-firm consultations are also possible mitigating factors. There is extensive literature examining audit teams and the review process (see Rich, Solomon and Trotman 1997), much of which adopts an experimental approach. The designs and the theory from this research appear to be useful in studying the process and outcome of reviews and consultations in various circumstances where independence in fact or appearance can be affected. For example, concurring partner reviews involve a second examination of significant audit decisions by someone who may not have the same incentives as other parties involved earlier in the review. Examining these activities while manipulating incentives and audit-based decisions appears to be a fruitful way to study mitigating factors.

Research designs

Research designs are intended to provide objective, accurate answers to research questions and to control error variance. Research questions are usually expressed in terms of hypotheses and the hypotheses are derived from theory. The theories in auditing are generally developed from previous research (including descriptive research) or theories from other disciplines such as economics, cognitive psychology and social psychology. Theories "borrowed" from other disciplines need to be adapted using knowledge of the auditing process (eg, Gibbins 1984). Researchers use theory to guide which factors to include — or exclude — as independent and dependent variables. They also use theory to determine the conceptual levels at which each independent variable should be manipulated and to decide who the participants will be and the number of participants likely to be needed in order to have a good chance of detecting any hypothesised relationships.

Independent variables

Choices have to be made about the number of independent variables to be incorporated. As the number of independent variables increases and/or the number of levels of each independent variable increases, the number of subjects required for the experiment increase dramatically. For example, a 2 x 2 design (involving the manipulation of two independent variables) at two levels results in four cells. Increasing the design to incorporate one further independent variable results in eight cells (2 x 2 x 2). If the independent variables are manipulated over more than two levels, the numbers again increase quickly. It is important in selecting the variables to consider the interaction between them. For example, in what circumstances is the provision of internal audit services most likely to have an impact on actual independence? In what circumstances is this effect likely to be mitigated? Factorial designs that predict a specific interaction between two or more factors are most likely to lead to useful results.

There are many ways to manipulate an independent variable. One simple way is to tell participants either that they had been, or had not been, involved in the internal audit previously. A more powerful manipulation would be to have the participants carry out inter-

nal audit activities on the client and subsequently carry out financial audit activities. A control group would not carry out the initial internal audit activities. If we find differences between the two treatments, there are two potential explanations. One is that carrying out internal audit services on the client affects subsequent audit judgments. The other explanation is that doing the extra task first gives the participants practice which improves their performance. This confounding factor could be overcome by the following design: *Treatment A*: carry out internal audit work on client A and follow up with financial statement audit work on client A. *Treatment B*: carry out internal audit work on client B and then financial statement audit work on client A.

Dependent variables

The choice of the dependent variable is crucial. It must be sensitive to changes in the independent variable (Trotman 1996). For example, an auditor's judgments on the amount of revenue that should be recognised or whether a particular dollar amount is material are more likely to be sensitive to changes in the incentive factors discussed earlier than on a dependent variable such as an audit qualification. Many factors may form the final judgment. If we find that incentive factors do not affect audit qualifications, it may be that there is no lack of independence in the auditor's initial judgments. Alternatively, there may be a lack of independence in the auditor's initial judgments but subsequent mitigating factors, such as a concurring partner review, may have overcome these problems. It is important to recognise that a mitigating factor may work in some circumstances and not in others.

The choice of the dependent variable to address independence-in-appearance raises some interesting issues. For example, should the dependent variable be a judgment by users of accounting reports about perceived independence, or should we examine whether the judgments that

these people normally make are affected by the factors we have manipulated (such as a bank loan officer's judgments on the ability of a client to repay a loan)? In this case there would be advantages in using the perception of independence as a moderating variable and examining to what extent it explains changes in judgments on the ability to repay. Again, the sequence in which these judgments are made may be important.

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Asking for a judgment on perceived independence before obtaining a judgment on the ability to repay may affect the loan officer's judgments. We would prefer to see the loan officer's judgment on ability to repay made before obtaining perceptions of independence.

If we are addressing actual independence, then the dependent variable should be an audit judgment. Examples of audit judgments used in previous research include the probability of auditor signing off without doing extra work (Arnold *et al* 1999), extent of reliance on client's internal audit department (Gramling 1999), budgeted audit hours and risk assessments (Houston 1999), likelihood of proposing an inventory write-down (Haynes *et al* 1998), auditors' accounting policy choices (Salterio 1996, Salterio and Koonce 1997), preliminary estimate of materiality (Parlin and Bartlett 1994) and likelihood of allowing client's proposed accounting treatment (Trompeter 1994). Evidence concerning a lack of independence would be based on comparisons of the dependent variables across treatments such as the incentives discussed earlier. While individual auditors may be affected by particular incentives, a lack of independence in a firm's judgments does not necessarily follow because firm controls (eg, review process, concurring partner review, etc.) may mitigate the effect.

Between-subject versus within-subject designs

We noted earlier that as the number of independent variables increases so does the number of participants. In that discussion we assumed that a between-subject design was used; that is, each subject is assigned to only one treatment condition. An alternative is to use a within-subject design where each subject is exposed to all treatments. It is also possible to manipulate some factors within-subjects and other factors between-subjects. Advantages of a within-subject design include a much smaller number of participants, greater statistical power and the ability to examine research questions such as learning effects and cue usage. However, within-subject designs also have a number of disadvantages (see Trotman 1996) such as demand effects and sensitisation to the hypotheses that are being addressed. In the case of research on independence, subjects may have incentives to make judgments that will show that there is no lack of independence.

Control of extraneous variables

For an experiment to be internally valid it is necessary that the observed effect has not been influenced by extraneous variables. For example, in examining the effect of an incentive (independent variable) on auditor judgments (dependent variable) we need to conclude that any differences in judgments between the participants who receive one incentive (say, firm also does internal audit) and those who receive a different incentive (firm does not do internal audit) are caused by those incentives and not some other factor. If the subjects receiving the first incentive have had more training or more experience, this could con-

found the results of the experiment. Experience and training would be classed as extraneous variables and would need to be controlled in order to enhance internal validity. Randomisation, by giving each subject an equal probability of being assigned to each treatment group, ensures that known or unknown extraneous variables will not systematically bias the study results. In particular, it controls for differences that exist between subjects prior to the experiment.

A key to increasing internal validity is to reduce alternative explanations for the results. Control groups are an effective means of doing this. Subjects in a control group are treated the same as those in the experimental group, except that they do not receive the treatment. For example, two different treatment groups are testing two different mitigating factors on independence risk. One may relate to composition of the audit committee and the other to internal firm audit procedures. By adding a control group, the researcher could conclude whether either treatment produced results different from those that would occur if the treatment were absent. In addition, the control group serves as a control for rival hypotheses because extraneous variables are held constant. Note that without the control group the researcher cannot conclude whether the existence of either mitigating factor led to improvements in performance.

To provide evidence of the validity of manipulated variables, researchers often carry out a manipulation check to confirm that the strength and direction of cues perceived by the subject are consistent with the treatments given and that relevant information has been encoded. For example, an experiment might hypothesise that the auditor's judgments will be affected by whether the audit firm also carries out internal audit services for the client, the percentage of the audit office's total fees received from the client, and the auditor's level of discretion under GAAP in revenue recognition. A manipulation check will consist of questions designed to produce answers on these issues.

ECONOMICS-OF-AUDITING APPROACHES

Studies of independence using economics-of-auditing approaches use regression-based methods. The dependent variable is usually an observed outcome associated with the audit process, such as the quality of accounting information or a deviation of expected auditors' opinions from observed auditors' opinions. The independent variables of interest are relationships or circumstances where it is believed auditor independence is at greater risk, such as where non-audit services (NAS) are provided. These studies address independence in fact rather than perceived independence.

Auditor-independence issues compatible with an economics-of-auditing approach include the provision of NAS, audit firm tenure, partner tenure, fee dependence and auditor/client relationships. Some independence issues such as gifts to auditors and loans

between auditors and their clients are not suited to an economics-of-auditing approach because the data or a reasonable proxy are not generally available.

Economics-of-auditing approaches can provide detail on certain judgment-based decisions or audit firm characteristics. If the judgment-based decision is the type of revenue recognition procedure adopted (or an aggressive accounting policy choice), and this can be observed, we can test for associations between this judgment outcome and incentives of the audit firm, such as the level of NAS provided to the client. While it is possible to associate individual accounting policy choices with incentives to breach independence, this has not been a common approach as researchers have tended to aggregate earnings quality measures such as the level of discretionary accruals. However, consideration should be given to disaggregating and examining the effect of these incentives on individual accounting policy choices.

Research design

Many of the key research design issues discussed for experiments also apply to economics-based research. Theory has a critical role in the latter, and great care is needed in the selection of dependent and independent variables and control for extraneous variables.

Dependent variables

Four broad categories of observable outcomes associated with independence can be identified. The first category focuses on characteristics of the audit opinion that may suggest breaches of independence. These studies emphasise the second part of the audit quality definition (reporting independence) of DeAngelo (1981a), although clearly there is a competency component (the first part of the definition), as the reporting of an issue first requires the auditor to identify the issue. The second group of studies attempts to show a statistical association between the quality of accounting numbers (dependent variable) and circumstances giving rise to a breach of independence (independent variable). This approach combines both parts of the De Angelo definition of independence, although there is an emphasis on the first stage, the detection of errors or irregularities. The third and fourth groups attempt to measure independence by showing an association between the circumstances giving rise to a breach of independence and either audit failure or audit fees.

Audit opinions

Assessing the appropriateness of an auditor's opinion involves a number of difficulties. Irrespective of the incentives to discover errors, auditors can report an error only when one is discovered. While the circumstances in which auditors will qualify their opinions are defined in the auditing standards and are observable, it is very difficult to observe when a qualification should have been given but was not. This problem can normally be resolved only with access to proprietary information from auditors and/or clients. A second-best solution is to analyse the effects of indepen-

dence issues on auditors' decisions whether to qualify, while controlling for other factors assumed to affect the likelihood of qualification.

In contrast to early research, the incidence of qualifications as a proxy for auditor quality is now generally considered to be a poor proxy of audit quality because it ignores the question of whether the qualifications were appropriate. Current research emphasises a comparison of likely audit opinions with actual opinions. Dopuch *et al* (1987) and Monroe and Teh (1993), among others, have developed models that identify the probability of clients receiving qualified (modified) opinions as a result of financial distress, calculated from publicly available information. These models can help to show whether a going-concern qualification is appropriate, given the underlying financial profile. It can be argued that modified opinions (including emphasis of matter) based on this issue are less negotiable than those involving disagreements with management, resulting in a reduced level of noise in this measure.

The importance of refining the audit opinion dependent variable is also shown by the issue of audit tenure, in particular opinion-shopping around the time of an auditor switch. Rather than comparing pre-switch and post-switch audit reports, Lennox (2000) tests for opinion-shopping by predicting the opinions companies would have received had they made opposite switch decisions. His results indicate that companies would have received unfavourable reports more often had they not switched, suggesting that companies may successfully engage in opinion-shopping.

Earnings management (measured by identified discretionary accruals)

Auditor independence is deemed to be compromised when management is allowed to exercise undue influence on the level of earnings reported. Various measures of earnings management capability are therefore used to capture the degree of auditor independence. Identified discretionary accruals are regarded as an area where management will use its discretion to manipulate accounting numbers. Discretionary accruals are normally calculated as the difference between total accruals and an estimate of non-discretionary accruals. A number of papers compare different approaches to this calculation (Jones 1991, Dechow *et al* 1995, Becker *et al* 1998). Less independent auditors are likely to allow management to use a higher level of discretionary accruals, resulting in earnings figures that management desire.

Earnings management (measured by earnings patterns)

Recent studies have found evidence in earnings reporting patterns consistent with earnings management. Specifically, the frequency of firms reporting earnings to (1) exceed prior year's earnings (or earnings per share); (2) avoid reporting a loss; or (3) meet or exceed analysts' forecasts is much greater than chance (Degeorge *et al* 1999, Burgstahler and Dichev 1997, Holland and Ramsay 2001).

The studies examined the distribution of earnings over a large number of categories (categories are usually banded each 0.5% or 1% of earnings). Of particular interest are the earnings in categories immediately above and below the benchmark of interest. The researchers found a significantly lower number of observations than expected in the band immediately below the benchmark, and a significantly greater number in the band immediately above, suggesting earnings management in these narrow categories. Whether such potential ability to manipulate earnings is associated with auditor independence concerns (such as the amount of NAS provided) is an empirical question.

Audit failure

It is possible to associate independence concerns with evidence of audit failure, such as litigation, identified fraudulent financial reporting and actions taken by regulatory bodies in relation to misleading financial statements.

In 1999, the Committee of Sponsoring Organizations (COSO) investigated fraudulent financial reporting by US public companies (COSO 1999). A review of nearly 300 instances of alleged fraudulent financial reporting found that many involved senior management and that many of the companies concerned had poor corporate governance (Beasley *et al* 1999). Thus, in some overseas jurisdictions a large number of observed occurrences of audit failure can be associated with characteristics of independence.

In the US, the Securities and Exchange Commission (SEC) can investigate the reporting practices of a company and may, if it concludes that the financial statements are materially misleading, order revised financial statements. In Australia, similar actions can be taken by the Australian Securities and Investments Commission (ASIC), although the incidence of revisions to financial statements appears to be low. However, some work has been undertaken in Australia on the association between auditor litigation and pricing of audit services (Houghton and Teo 2001). It may be that cases of litigation can be analysed to identify those involving claims of lack of independence (as distinct from claims of lack of technical competence) against the auditor.

Audit fees

Studies including Simunic (1980, 1984) and Francis and Stokes (1986) provide detailed and convincing arguments that fee levels may affect independence. The arguments include the view that a lower level of audit fees than would be expected for such a client suggests a lower-quality audit is undertaken, and therefore independence is at risk. A further risk is that the auditors gain their required return through other means such as future audit fees (this is the argument used in the lowballing literature) or the provision of more profitable non-audit services. It should be noted that using this dependent variable one can only infer, rather than directly test, an effect on independence.

Independent variables

Some of the independent variables used in economics-of-auditing studies are provision of non-audit services by auditors, audit firm tenure, partner tenure, fee dependence, audit employment relationships and corporate governance. Each of these factors could be an independent variable in an experiment; the difference is that in an experiment they are manipulated whereas in an economics-of-auditing study they are measured.

The independence issue that has attracted the most attention from researchers is the provision of NAS. Australian studies have figured prominently because the value of NAS has been reported in Australian financial statements for many years, whereas this is a recent innovation in the US. In the Australian studies, auditor independence is measured as the magnitude of NAS fees relative to total fees paid by the client to the firm, information that is disclosed in annual reports. This measure of independence is then regressed against one of the dependent variables outlined earlier.

Audit firm tenure, measured by the number of years the audit firm has audited the client, is another independent variable that has been examined. The main studies have focused on very short tenure, particularly where it concerns potential opinion shopping and its resulting impact on the type of audit reports issued. Although the evidence on this issue is mixed (Lennox 2000, 2002), the major study using Australian data is by Craswell (1988), who finds some support for the view that clients are able to remove a qualification by switching. Apart from opinion-shopping studies, there is little literature linking short and long-term tenure to independence issues. One example is a recent working paper of Casterella and Knechel (2002), who investigate which variables are associated with long and short-term audit failures.

There have been suggestions in the financial press that lengthy partner tenure may adversely affect auditor independence and there have been calls for partner rotation. We believe such calls should be backed by empirical evidence of an effect on independence. In Australia, where the signing partner is identified in the audit report and partner rotation is not mandated, it is possible to identify relevant benefits and costs. Carey and Simnett (2001), examining only listed companies that had the same signing partner for at least seven years, used a number of approaches to try to identify a relationship between independence and partner tenure. Future research could consider the sensitivity of the choice of this seven-year period. It should be noted that the first audit report signed by a partner may not indicate start of tenure with that client. For example, the present signing partner may previously have worked on the audit as a non-signing partner or manager. To measure this independent variable more accurately, additional data would be needed from audit firms.

A number of studies have examined the effect of fee dependence on audit independence (for example, the accompanying paper by Barkess *et al*). This indepen-

dent variable is measured in a number of ways. The numerator is normally either audit fees or both audit fees and NAS fees for the client. The denominator is usually total fees for the firm (Barkess *et al* 2002), total fees for that office of the firm that earns the fees (Craswell *et al* 2002) or total fees for the partner in charge of the audit (there would be difficulties collecting data on fees for each partner). Which measure is used may depend on the incentives in the audit firm. For example, the loss of a client may have a small effect on national audit firm, a bigger impact on a local office and a major impact on the partner.

Employment relationships between an audit firm and an audit client can give the impression that an auditor is not independent of the client. Legislators around the world have tended to prohibit or restrict employment relationships. The professional accounting bodies have also included prohibitions or restrictions on employment relationships in their ethical codes. Consequently, these relationships are beyond the reach of economics-of-auditing studies. Retired audit partners joining the boards of their former clients is a practice that may be seen as a threat to the independence of the audit firm, particularly if the former audit partner retains some financial arrangement or influence with the firm. While it is possible to identify directors who were previously partners of the firm auditing the client, present financial arrangements or influence would be difficult to measure.

Independent variables can also include potential mitigating factors for lack of independence. For example, what is the impact of various corporate governance mechanisms such as audit committees on the independence of the auditor? In what conditions are these corporate governance mechanisms most likely to be effective? In Australia, investigation of audit committee issues is facilitated because of the voluntary nature of the committees and stock exchange disclosure requirements. However, observing the existence of these corporate governance mechanisms does not necessarily demonstrate their effectiveness.

Control of extraneous variables

Consistent with our earlier discussion on internal validity, it is necessary to rule out conflicting explanations. This entails considering which control variables

should be included in the regression-based approach. For example, if we were determining the appropriateness of an audit qualification then it is necessary to control for other factors that influence the type of report issued. As noted, models developed by Dopuch *et al* (1987) and Monroe and Teh (1993) identify the probability of clients receiving qualified (modified) opinions as a result of financial distress, calculated from publicly available information. Regression studies can use such measures to show whether a qualification is appropriate, given the underlying financial profile. Two papers that have used this approach in their examination of independence issues are Craswell (1999) and Barkess *et al* (2002).

If the independence issue being considered is whether levels of audit fees and NAS fees affect auditor independence, then variables should be included that control for other factors found to affect audit fees and NAS fees. In their study of audit specialisation through audit fees, Craswell *et al* (1995) control for such factors as total assets, quick ratio, debt-to-equity ratio, return on investment and proportion of subsidiaries that represent foreign operations. In their study of NAS fees, Houghton and Teo (2001) control for such factors as client size, client complexity, client restructuring, appointment of a new CEO, debt or stock issues and previous operating performance. These are useful base models and it is important that future research builds on this earlier work.

Another obstacle to identifying breaches of auditor independence through an economics-of-auditing-approach is that they require large sample sizes. Results that fail to identify an independence breach are not necessarily evidence that there is no independence concern; the inability to identify an independence breach may be due to a lack of power. On the other hand, researchers must also ensure that attention is paid to both

significant and insignificant results.

The association between independence and other factors could be better determined by using proprietary (non-public) information. Technical competence, the first stage of DeAngelo's (1981) definition of independence, could be examined by identifying the exact level of work undertaken and seeing if this is associated with auditor independence. The second

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stage, reporting independence, could be examined by reviewing all errors or irregularities identified in an audit (potential adjustments), and determining whether the waived potential adjustments are associated in some way with independent variables suggested. Confidentiality issues need to be resolved but these are not insurmountable.

CONCLUSION

We see independence issues as an opportunity for researchers to provide a valuable input to changes in firm policies, professional regulations and corporations law. However, to have an impact the research needs to be of the highest standards. This paper has canvassed some of the research design issues that need to be considered by potential researchers in achieving this high standard.

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REFERENCES

- Arnold, D.F., R.A. Bernardi and P.E. Neidermeyer, 1999, "The Effect of Independence on Decisions Concerning Additional Audit Work: A European Perspective", *Auditing: A Journal of Practice and Theory* 18, Supplement: 45-67.
- Barkess, L., R. Simnett, and P. Urquhart, 2002, "The Effect of Client Fee Dependence on Audit Independence", *Australian Accounting Review*, Vol. 12, No. 3: 14-22.
- Beasley, M.S., J.V. Carcello and D.R. Hermanson, 1999, "Fraudulent Financial Reporting: 1987-1997, An Analysis of U.S. Public Companies", COSO, New York.
- Becker, C., M. DeFond, J. Jiambalvo and K.R. Subramanyam, 1998, "The Effect of Audit Quality on Earnings Management", *Contemporary Accounting Research* 15: 1-24.
- Burgstahler, D., and I. Dichev, 1997, "Earnings Management to Avoid Earnings Decreases and Losses", *Journal of Accounting and Economics*, Vol. 24, No. 1, December: 99-126.
- Carey P., and R. Simnett, 2002, "Audit Partner Tenure: Implications for Audit Quality and Mandatory Rotation Policy", working paper, University of New South Wales, Sydney.
- Casterella J., and R. Knechel, 2002, "The Relationship of Audit Failures and Auditor Tenure", paper presented at the American Accounting Association Auditing Section mid-year conference, Orlando.
- Craswell, A.T., J.R. Francis and S. Taylor, 1995, "Auditor Brand Name Reputation and Industry Specializations", *Journal of Accounting and Economics*, Vol. 20, No. 3: 297-322.
- Craswell, A.T., 1988, "The Association Between Modified Opinions and Auditor Switches", *Accounting and Business Research* 19: 23-31.
- Craswell, A.T., 1999, "Does the Provision of Non-Audit Services Impair Auditor Independence?", *International Journal of Auditing* 3, March: 29-40.
- Craswell, A., D. Stokes and J. Loughton, 2002, "Auditor Independence and Fee Dependence", *Journal of Accounting and Economics*, forthcoming.
- DeAngelo, L., 1981a, "Auditor Size and Quality", *Journal of Accounting and Economics*, August: 183-99.
- DeAngelo, L., 1981b, "Auditor Independence, 'Lowballing' and Disclosure Regulation", *Journal of Accounting and Economics*, August: 113-27.
- Dechow, P., A. Sweeney, and R. Sloan, 1995, "Detecting Earnings Management", *The Accounting Review* 70: 193-225.
- DeGeorge, F., J. Patel and R. Zeckhauser, 1999, "Earnings Management to Exceed Thresholds", *Journal of Business*, January: 1-33.
- Dopuch, N., R.W. Holthausen and R.W. Leftwich, 1987, "Predicting Audit Qualifications with Financial and Market Variables", *The Accounting Review*, Vol. 62, No. 3, July: 431-53.
- Francis, J., and D. Stokes, 1986, "Audit Prices, Product Differentiation, and Scale Economies: Further Evidence from the Australian Audit Market", *Journal of Accounting Research* 24: 383-93.
- Gibbins, M., 1984, "Propositions about the Psychology of Professional Judgment in Public Accounting", *Journal of Accounting Research*, Vol. 22, No. 1, Spring: 103-25.
- Gramling, A.A., 1999, "External Auditor's Reliance on Work Performed by Internal Auditors: The Influence of Fee Pressure on this Reliance Decision", *Auditing: A Journal of Practice and Theory* 18, Supplement: 117-35.
- Haynes, C.M., J.G. Jenkins and S.R. Nutt, 1998, "The Relationship Between Client Advocacy and Audit Experience: An Exploratory Analysis", *Auditing: A Journal of Practice and Theory* 17, Fall: 88-104.
- Holland, D., and A. Ramsay, 2001, "Do Australian Companies Manage Earnings to Meet Simple Earnings Benchmarks?", working paper, Monash University.
- Houghton, K., and E. Teo, 2001, "Audit Litigation and the Pricing of Audit Services", working paper, University of Melbourne.
- Houston, R.W., 1999, "The Effects of Fee Pressure and Client Risk on Audit Seniors' Time Budget Decisions", *Auditing: A Journal of Practice and Theory* 18, Fall: 70-86.
- Johnstone, K.M., M.H. Sutton and T.D. Warfield, 2001, "Antecedents and Consequences of Independence Risk: Framework for Analysis", *Accounting Horizons*, Vol. 15, No. 1, March: 1-18.

- Jones, J., 1991, "Earnings Management During Import Relief Investigations", *Journal of Accounting Research*, Vol. 29, Autumn: 193–228.
- Lennox, C.S., 2000, "Do Companies Successfully Engage in Opinion Shopping? Evidence from the UK", *Journal of Accounting and Economics* 29: 321–37.
- Lennox, C.S., 2002, "Opinion Shopping, Audit Firm Dismissals, and Audit Committees", working paper, Hong Kong University of Science and Technology.
- Monroe, G., and S.T. Teh, 1993, "Predicting Uncertainty Audit Qualifications in Australia Using Publicly Available Information", *Accounting and Finance*, November: 79–106.
- Parlin, C.J., and R.W. Bartlett, 1994, "Prior Employment Effects and Independence in Fact", *Business and Professional Ethics Journal*, Vol. 13, No. 1 & 2: 185–205.
- Rich, J.S., I. Solomon and K.T. Trotman, 1997, "The Audit Review Process: A Characterization from the Persuasion Perspective", *Accounting, Organizations and Society*, Vol. 22, No. 5: 481–505.
- Salterio, S., 1996, "The Effects of Precedents and Client Position on Auditors' Financial Accounting Policy Judgment", *Accounting, Organizations and Society*, Vol. 21, No. 5: 467–86.
- Salterio, S., and L. Koonce, 1997, "The Persuasiveness of Audit Evidence: The Case of Accounting Policy Decisions", *Accounting, Organizations and Society*, Vol. 22, No. 6: 573–87.
- Simunic, D., 1980, "The Pricing of Audit Services: Theory and Evidence", *Journal of Accounting Research* 18: 161–90.
- Simunic, D., 1984, "Auditing, Consulting, and Auditor Independence", *Journal of Accounting Research* 22: 679–702.
- Trompeter, G., 1994, "The Effect of Partner Compensation Schemes and Generally Accepted Accounting Principles on Audit Partner Judgment", *Auditing: A Journal of Practice and Theory* 13, Fall: 56–68.
- Trotman, K.T., 1996, "Research Methods for Judgment and Decision Making Studies in Auditing", Coopers & Lybrand and Accounting Association of Australia and New Zealand.
- Watts, R., and J. Zimmerman, 1986, *Positive Accounting Theory*, Prentice-Hall, Englewood Cliffs NJ.