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CORPORATE TAKEOVERS AND AUDITOR SWITCHING

by

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CORPORATE TAKEOVERS AND AUDITOR SWITCHING

Abstract

While evidence exists which suggests that takeovers/mergers do not result in a switch of auditor by the target, there is no well specified theory which describes relationships between auditor switches and corporate takeover activity. Two sets of hypotheses are developed which relate attributes of firms on both sides of the takeover transaction and the nature of the takeover *per se* to the propensity for switching the target's auditor to that of the acquiror. The first set predicts that the auditor of a target will be switched, the smaller the differences in the production-investment opportunity sets between the acquiror and the target. The auditor of the target will be retained the greater the relative expertise of the target's auditor (compared with the acquiror's auditor) in the target's production-investment opportunity sets. The tests offer only weak support for the hypotheses. The second set of hypotheses relate switching to the takeover process and predict that the target's auditor will be switched the greater the control of the target obtained by the acquiror and the greater the resistance of the target's management to the takeover. Again the results are not strongly supportive. Some possible explanations for the weak results are examined including horizontal and vertical takeover motivations and auditors as acquisition specialists.

CORPORATE TAKEOVERS AND AUDITOR SWITCHING

1. INTRODUCTION

This paper investigates the relationship between takeovers and the decision to subsequently retain or change the auditor of the target company when the takeover is successful. The evidence in both Australia,[1] and the U.S.A.,[2] supports the proposition that takeovers operate as a value increasing mechanism for equity holders of target companies. However, the evidence with respect to acquiror (bidding) firms is not nearly as conclusive. Most studies have reported that the average abnormal returns to acquirors is close to zero, suggesting that the market for corporate control is competitive [Dodd 1986, p. 351]. However as Dodd points out, what these broad statistical averages conceal is that particular acquisitions can be accompanied by either a gain or loss to the acquiror depending on the market's perception of whether or not the particular acquisition will be value increasing. To avoid this discounting of firm value, rational managers of the acquiror would be expected to take actions consistent with their intention to not only realize stockholders' expectations with respect to returns from acquiring the target, but to also preserve the claims of existing (bidder) stockholders post-acquisition.

While potential sources of value increases[3] on both the acquiror and target sides of the acquisition transaction have been suggested, there does not

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1 Walter (1984), Bishop et al. (1987).

2 See Jensen and Rubacks' (1983) review of U.S.A. Studies.

3 Jensen and Ruback (1983) identify potential reductions in production or distribution costs from e.g. realising economies of scale, vertical integration, adoption of a more efficient production or organisation technology and reduction in agency costs as possible sources of value creation. The stockholder wealth reducing attributes of free cash flow in takeovers is discussed by Jensen (1986).

appear to have been any attention paid to the role of target auditor choice in the process. The choice of auditor can be viewed as a contracting cost reducing mechanism in the firm [Ball 1988, Watts and Zimmerman 1986] and the decision to retain or switch the auditor of a target company following contracting for the acquisition of the target could also be directed at increases in acquiror and target firm value.

The issue investigated in this paper is whether attributes of the acquiror or target, or the takeover process itself, emerge as determinants of the auditor choice decision in these circumstances. If the target's management can choose an inefficient auditor lacking either the required competence and/or independence, then takeovers motivated by replacement of inefficient management could be expected to result in target auditor replacement also. Although there is some evidence in the U.S.A. which suggests that the auditor retention/switch decision is not determined by takeovers [Chow and Rice 1982], casual observation of takeover activity suggests that auditor switching and takeover activity are associated.[4]

Consequently, this paper has two purposes. First, it addresses the more general issue of the value that the auditor brings to the firm and how that value might change in the takeover situation. Second, it provides empirical evidence about firm attributes and determinants of auditor choice in circumstances of successful takeovers. The remainder of the paper is

[4] Takeover activity is likely to be biased toward an auditor switch in Australia because auditors of the target are required to retire on becoming a subsidiary (S280(14) Companies Act 1981). The auditors can make themselves available for renomination. Apart from this regulation, we are unaware of any other regulation which would either directly or indirectly affect the acquiror's choice of a subsidiary's auditor during the time period selected for our study.

structured as follows. The next section develops the argument on determinants of switches immediately after takeovers and presents the hypotheses. The sample selection and research design are described in section 3 and the empirical results are presented in Section 4. Section 5 provides some explanations for the anomolous results.

2. FACTORS INFLUENCING TARGET AUDITOR SWITCHES AFTER CORPORATE TAKEOVERS

Within the theory of the firm (see Coase 1937) an emerging body of evidence supports the proposition that the choices of accounting methods are endogenous to a contracting equilibrium [Zimmer 1986, Whittred 1987]. These choices are made as part of the contract solution to ex ante restrict wealth transfers by claimholders. Ball (1988, p. 30) articulates the theory to the auditor choice problem. Auditor choice involves selecting a contractually "accepted" technology to adjudicate on those particular accounting methods used in contracting between the claimholders on the firm. The auditor's adjudication role is played out ex post, i.e., after the contracts are in place, to determine the allocation of the wealth among the claimholders. This leads to the proposition that the demand for auditing is an increasing function of the cost of pre-specifying the firm's accounting methods for all feasible future states [Ball 1988, p. 32].

While these general statements about the role of the auditor are sufficient to describe an equilibrium with respect to minimization of firm contracting costs, they are incomplete in that they do not describe the process by which a contracting equilibrium is restored, and the part the auditor plays in that restoration when the contractual configuration of the firm changes

markedly, as can be the case with a takeover. As will be shown in this section, within the theory of the firm at least two possible explanations can be offered for actions with respect to the decision to switch or retain the target's auditor.

The first argument predicts that the target's auditor will be retained if the production-investment opportunity set of the acquiror and the target are different. If an acquiror takes over a target, then the value of the target's incumbent auditor is not only an increasing function of the cost of the acquiror pre-specifying the target's accounting methods for all possible future states, but also of the cost of the acquiror's auditor adjudicating as the states are revealed in the new firm. Anderson and Stokes (1989) argue that the variation in the production-investment decisions (and the associated contracts that constitute auditee firms) induces a demand for diversity in auditors, i.e., audit technologies for monitoring and arbitrating. If a target's production-investment decisions are different from those that the acquiror's auditor has monitored or arbitrated upon previously, then it is less likely that the acquiror will switch the target's auditor to the acquiror's auditor. On the other hand, if there is less variation between the acquiror and target immediately preceeding the takeover, it is more likely that an acquiror will switch the target's auditor to be replaced by the acquiror's auditor. The line of argument leads to predictions of both the propensity to switch auditors of targets and the choice of the replacement auditor:

H1 Acquirors are more likely to switch the targets' auditors to the acquirors' auditors, the smaller the differences in the production-investment opportunity sets between the acquirors and their respective targets.

The second argument addresses differences in auditors. Auditors are observed to specialize according to the attributes of their clients [Arnett and Danos 1979, Eichenseher and Danos 1981], so retention of the target's auditor would be expected when the target's auditor demonstrates some comparative advantage (relative to the acquiror's auditor) in the audit. Optimal auditor-auditee contracting implies that the incumbent audit firm of the target is in that position because it is the efficient supplier of an audit technology, given the production-investment opportunity set of the target. However, the position of the auditor of the acquiror is slightly different. Where a takeover reflects (sudden) variations in the production-investment configuration of the acquiror, the auditor will have to invest in new and different productive factors to maintain a comparative advantage in the supply of the audit to the new "group". Failure by the auditor to adapt will result in loss of comparative advantage and could result in replacement by another supplier.

However, in such takeovers the process of investing by the acquiror's auditor is long run, and may not be executed contemporaneously with the takeover. During the "investment period" the acquiror's auditor may have an incentive to promote retention of the target's auditor. The investment in technology by the acquiror's auditor is further complicated by the auditor holding a portfolio of auditees. Changes for one auditee may be insufficient inducement for the auditor to invest in an expanded audit technology to encompass the new subsidiary. The extent of expected returns and costs from investing in the new audit technology across clients will be important considerations. The investment in a new technology is made by the auditor only to the extent that it is expected to be value increasing for the audit firm. If the investment is not worthwhile, again the acquiror's auditor may promote retention of the target's auditor. This argument implies:

H2 Acquirors are less likely to switch the targets' auditors to the acquirors' auditors, the greater the expertise of the targets' auditors in the targets' production-investment opportunity sets relative to their acquirors' auditors.

A corollary to the propositions is that where an acquiror and target have the same auditor prior to the takeover, it is unlikely that a switch will take place after the takeover. Since auditors specialize in auditing technologies, the fact that the acquiror and target both have the same auditor would indicate that the differences between the production-investment opportunity sets of the two auditees would be low. However, the implications of this argument are not particularly interesting. It would be expected that the frequency of common acquiror and target auditors would be low even when the production-investment opportunity sets are very similar for reasons related to auditees' aversion to auditors of close competitors [Danos and Eichenseher 1988]. In short, we are suggesting that the existence of close substitutes in auditing technologies is sufficient to denote different suppliers. However, when the auditors of the acquiror and target are the same in such takeovers the auditor has an additional function as a broker between the acquiror and target. A broker is an intermediary between the contracting parties and is selected to reduce the costs of contracting between the parties. Consistent with the contracting theory explanation advanced here, auditors that are brokers are valued as contracting cost reducing mechanisms. This suggests that acquirors with the same auditors as their targets prior to the takeover, are less likely to switch the targets' auditors after the takeover.

The extent of control the acquiror has over a target could also affect the decision to switch the auditor. The lower the percentage of control of a

target that has passed to the acquiror, the greater the pressure the minority interest holders may exert upon the acquiror to retain the target's auditor. Consistent with the contracting theory explanation advanced here, the acquiror may not switch the target's auditor in order to reduce the costs of contracting with the minority interest holders. This suggests:

H3 Acquirors are more likely to switch targets' auditors to the acquirors' auditors, the greater the control obtained over targets.

The propensity to switch to the acquiror's auditor could depend upon any action the target's management takes to resist the takeover by the acquiror. If the takeover is "hostile" i.e., the target's management resists the takeover,[5] the acquiror is less likely to retain the target's management and auditor. There is evidence that auditors assist in defensive actions taken by targets in these hostile takeovers [Trotman 1981, Casey and Eddey 1986]. In such "hostile" takeovers it is more likely that the acquiror will replace the target's incumbent management with the acquiror's management and the incumbent auditor of the target is likely to be of lower value to the acquiror because assistance in the "hostile" defence could signal lower auditor independence (and higher agency costs for shareholders) and consequently the incumbent is switched. This suggests that targets with management that resist the takeovers, are more likely to have their auditors switched by the acquiror to the acquiror's auditor after the takeover:

H4 Acquirors are more likely to switch the targets' auditors to the acquirors' auditors where the targets' management resists the takeover.

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5 As distinct from the target's management opposing the takeover to elicit a higher price from the acquiror.

3. RESEARCH DESIGN

3.1 Operationalising Variables

With respect to tests of the first hypothesis, there is the problem with observing differences in production-investment opportunity sets (see Smith and Warner 1979, p. 153) and proxies for such differences alone would be expected to be noisy. However, as the auditor represents part of the interface between production-investment decisions within the firm and claimholder payoffs, this implies that the auditor is skilled not only in observing states revealed by the particular production-investment decisions of the firm, but also in mapping state revelation to claimholder contracts. In short, the auditor is skilled both in production-investment decisions of the firm and contracts implied by those decisions and this suggests proxy variables be used for both of these attributes. This proposition is consistent with auditors becoming industry specialists [Arnett and Danos 1979, Eichenseher and Danos 1981].

Accordingly, if different production-investment decisions derive a demand for different governance structures to minimize contracting costs, variations in firms' capital structures would be expected to exhibit consistency with variations in production-investment decisions. Following Myers (1977), investments which are reflected by assets-in-place are more likely to be able to support debt. In contrast "intangible" assets which are highly specific to the firms' operations will reflect options on investments in future periods and are less likely to support debt (and are therefore more likely to be equity financed). Empirical regularities between tangibility of investments and capital structure have been observed (e.g. Long and Malitz 1981, Zimmer 1986) in

support of the proposition. Watts and Zimmerman (1986, p. 360) propose that the tangibility of a firm's investments also is related to the specification of a firm's accounting procedure choice set.

Two variables are therefore used to proxy for differences in production-investment opportunity sets in the auditees. These variables are takeover type (classifying the takeover according to whether the acquisition of a target's investments represents a horizontal, vertical or an unrelated addition to the investments of the acquiror) and secured leverage. With respect to the first variable, where the acquisition represents a horizontal integration (between firms in a common industry), the acquiror is more likely to switch the target's auditor to that of the acquiror. The second variable is used to estimate the degree of specificity of the firms' investments. The implication is that differences in the type of debt will be indicative of differences in the type of investments (growth options and assets-in-place) of the firm. A distinction which is important here is that the type of debt is important but the quantity is less so. Two firms with different investments may both have a comparable quantity of debt in their capital structures. However, one of the firms may have low specificity assets which will be represented by unsecured debt while another may have more specific assets represented by secured debt. In other words, the "noise" induced by a leverage per se variable would be expected to be large. The measures on these and the other variables are described below. The experimental variables were measured as follows:

Hypothesis

H1 Takeover Rating (RATING). A rating was obtained of the extent to which each takeover represented a horizontal takeover. This was done by preparing a list of the takeovers in the sample and requesting experts to provide a seven point scaled rating of whether the takeovers

involved a horizontal (defined as two firms being in a common industry) as distinct from a vertical (defined as the two firms being in related industries) or conglomerate integration (defined as two firms being in unrelated industries). This proceeded by requesting a senior analyst in an investment house to initially provide the rating (without, of course, the hypothesis or even the general purpose of the research being disclosed). He rated all the takeovers that he was familiar with, then discussed those as well as the others with colleague analysts that had experience with the other takeovers in the sample. The smaller the rating, the more horizontal the takeover and the more likely a switch of auditor.

H1 Absolute differences in the secured leverage ratios between the acquiror and target (DIFSD). The secured leverage ratio was measured from company annual reports as the ratio of total mortgages and debentures to total shareholders' equity in the year prior to the takeover. The smaller the absolute differences in the ratios, the more likely a switch of auditor.

H2 The variable differences between the target's and acquiror's auditors share of audit fees in the target's industry (DIFSHARE) was used as a proxy of auditor expertise in the target's production-investment opportunity sets. The Australian Stock Exchange industry classifications were used to identify the target's industry and available audit fee data [Trout and Wells (1984, 1985)] were used to measure an auditor's share of audit fees in that industry in the year prior to the takeover. The larger the DIFSHARE (i.e. the larger the target auditor's share relative to the acquiror auditor's share), the less likely a switch of auditor.

H3 Acquiror's control obtained over the target (AMTACQ). The AMTACQ was obtained from the Centre for Independent Studies (CIS) Takeover

Data Base and was measured as the percentage of the issued shares acquired as at the closing date of the takeover offer. The greater the AMTACQ, the more likely a switch of auditor.

H4 Target resistance to takeover (RECOMM). RECOMM was also obtained from the CIS Takeover Data Base and was defined by the target management's recommendation on accepting the takeover offer (= 1 if recommended acceptance or no recommendation, 0 if rejected). The smaller RECOMM, the more likely a switch of auditor.

The dependent variable (SWIT) was measured using a categorical variable (SWIT = 0 if there is a switch to the acquiror's auditor in any of the two years following the takeover offer, = 1 if there is no switch).

3.2 Sample Selection and Research Method

The takeovers occurring between January 1978 through to June 1985 were initially selected from the CIS Takeover Database. The final sample of 72 takeovers included those for which data on all the variables were available. The annual reports of the acquirors and targets for the financial year ended immediately preceeding the takeover were examined to identify the incumbent auditors. This step was repeated for each of the two years following the takeover offer date in order to identify those takeovers where the acquiror's auditor replaced the target's auditor in the two year period.[6]

[6] It is a statutory requirement in Australia (s285(3)(b) Companies Act 1981) that an acquiror company indicate whether the auditor of any subsidiary (target) is not the same as the auditor of the acquiror.

4. RESULTS

4.1 Univariate tests

Table 1 reports descriptive results for all variables for the "Switching", "Non Switching" and "Total" samples.

TABLE 1 HERE

The univariate 't' tests on hypothesis H1 are reported in Table 2. The results are ambiguous in their support for hypothesis H1. Whilst the differences in the secured debt of acquirors and targets are smaller (as predicted) in the switching firms, the ratings are higher in switching firms (not as predicted). As a result further tests were performed to check the reliability of the ratings by the experts. Under the same instructions as the experts, two graduate students with access to considerable "source" material independently rated the takeovers and their ratings correlated with the experts. The Pearson Product Moment correlations are .737 (experts/student rater 1) and .679 (experts/student rater 2) which are highly significant. In view of these correlations, which are high by comparison with other studies of expert judgment (see Libby 1981, chapter 3), we conclude that this unexpected result is not due to unreliability in measurement procedures.

TABLE 2 HERE

The test of hypothesis H2 was restricted to 7 takeovers where the auditors of the acquiror and target were not the same. Only the takeovers in 1984 and 1985 could be used in the test because the audit fee data required for the test were only available for the years 1983 and 1984 preceeding these takeovers. The results of tests comparing the share of audit fees in a target's industry do not support hypothesis H2. In the one takeover where the target's auditor was retained, the acquiror's auditor had a larger share of audit fees in the target's industry (i.e. DIFSHARE was negative). In the other six takeovers where the target's auditor was switched to that of the acquiror's, the target's auditor had a larger share of audit fees in the target's industry (DIFSHARE was positive, mean = .30, standard deviation = .28). In 5 of these 6 takeovers, the acquiror's auditor had no share of audit fees in the target's industry.

A test was performed on Table 3 to determine whether acquirors with the same auditor as their targets (SAMAUD = 1 if the same, 0 if not the same) were less likely to switch the targets' auditors.

TABLE 3 HERE

The results imply, as expected, that in those takeovers where the acquirors and targets have the same auditor pre the takeover, the acquiror is less likely to switch the target's auditor.

A test of hypothesis H3 was made by comparing the AMTACQ variable (acquiror's control obtained over the target) for the switching and non switching takeovers. The analysis indicated that there are no significant

differences between the groups (t = .240, p = .405, one-tailed),[7] implying that percentage of control obtained in a takeover is not associated with the practice of switching the target's auditor. This is perhaps not surprising given that 65 of the 72 takeovers were 100% takeovers.[8]

A test of hypothesis H4 was made using the contingency Table 4 that relates the resistance by the target's management to the takeover to the practice of switching.

TABLE 4 HERE

Applying conventional significance levels to this test would indicate that there is no significant difference between the groups on the management recommendation variable.

[7] Mann-Whitney test significant at p = 0.590 (one-tailed).

[8] A more powerful test of this hypothesis requires identification of a larger sample of takeovers where the percentage of control acquired is less than 90%. In Australia, once a company acquires 90% of the shares it is obliged by law to take up the remaining 10%.

4.2 Multivariate Analysis

OLS regression estimates[9] are reported in Table 5 for the sample of 72 takeovers.[10]

TABLE 5 HERE

The extent to which the variables tested are independent is reflected in the correlation matrix in Table 6. There appear to be no problems with first order multicollinearity and the results are consistent with the univariate results reported earlier, although the significance of the absolute difference in secured debt (DIFSD) has increased and the recommendations of acceptance (RECOMM) are higher in switching firms (but not in the direction predicted).

TABLE 6 HERE

[9] The DIFSHARE variable is omitted because observations were restricted to 7 takeovers only.

[10] Noreen (1988) argues that for small samples (50 to 100) OLS performs at least as well as probit; hence the OLS estimates are reported. Virtually identical results were obtained for a probit analysis. The multiple regression was also run with cases deleted where the auditor of the target and the bidder were the same prior to the takeover (i.e. the regression had only four independent variables). Very similar t statistics on the regression coefficients were obtained; however the adjusted R square dropped from 0.375 to 0.035. Natural log and square root transformations on the dependent variable and the independent variables DIFSD and AMTACQ made no material difference to the results.

5. ALTERNATIVE EXPLANATIONS

There is limited support from the results for the hypotheses developed in this paper. With respect to our major tests, contrary to our predictions we find the RATING variable to be significantly higher in switching firms while, consistent with our predictions, the secured debt of acquirors and targets is smaller. With respect to RECOMM we also find recommendations of acceptance are higher in switching firms but not in the direction predicted. In this section we offer some potential explanations for the ambiguous results.[11]

5.1 Modelling the Takeover Process *per se*

In a very general sense, our predictions and experimental design are inhibited by the fact that the literature offers little to explain why particular takeovers occur (other than the sterile observation that they are "positive net present value investments") nor how they are initiated (in particular, whether the auditor has any role in the search for targets). Therefore we have no way of determining whether the takeovers in our sample occurred for reasons related to, say, inefficiencies in the management of the target or synergies in the operations of the two parties, or whether auditors have acted as "specialist acquisition advisers" in some cases.

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[11] In order to gain additional insights into factors which might be driving these apparently anomalous results, six firms in the sample (for the 1984 and 1985 takeover years) were contacted. In each case the firm was asked to describe factors important in the switch/retention decision. Apart from description of certain "firm specific" events which influenced the particular decision, no further generalizable explanations could be established.

5.2 Managerial and Auditor Inefficiencies

One possibility exists that auditor choice following a takeover is confounded by the appointment of an inefficient incumbent target auditor prior to the takeover. This is possible where inefficient managers of the target choose an auditor lacking the required competence and/or independence. Moreover, such auditors may attenuate managerial inefficiency through poor advice. Takeovers motivated by replacement of less efficient managers by more efficient managers could be expected to result in less efficient auditors being replaced by more efficient auditors in conjunction with management changes.

If vertical and conglomerate takeovers are more likely to be motivated by replacement of less efficient managers than horizontal takeovers, then this could contribute to the higher switching activity in the vertical and conglomerate takeovers than in the horizontal takeovers. The RECOMM variable used in this study is potentially noisy in this regard because it does not distinguish hostility to a takeover from opposition to elicit a higher price from the acquiror. However, better proxies which attempt to capture the effect of this explanation are not obvious. For example, a variable measuring management changes following takeovers does not discriminate takeovers motivated by replacement of less efficient managers from those motivated by removal of efficient but superfluous managers, e.g. in horizontal takeovers where economies of scale considerations are important.

Our significant result for RECOMM, in the opposite direction to that predicted, could be due in part to noise in distinguishing hostility to a takeover from opposition by management to elicit a higher price from the

acquiror. If management of the target resists the takeover to elicit a higher and "acceptable" price or recommends acceptance where the bid is "correctly" priced, then the auditor and management of the target are more likely to be retained.

5.3 Auditors as Acquisition Specialists

Also possible is that the definition of auditor competence with respect to production-investment opportunity sets used in the study is too restrictive. If, as has been argued, auditor choice is endogenous to a contracting equilibrium in the firm, acquirors who are involved with, or plan to be involved with acquisitions, may value skills of auditors with respect to the takeover process and subsequent events. In this respect it would be expected that large, geographically dispersed auditors would be suited to acquirors' demands for this skill. In addition to corporate services departments to advise on aspects of takeover operations, these auditor firms have "industry" experts in place irrespective of the type of client firm acquired in the takeover. As with description and measurement of "value" in the takeover process in general, empirical proxies which capture this auditor takeover skill are difficult to design. For example, one possibility is to proxy the takeover skill of the auditor by identifying auditors of multi-acquirors. However, the presumption in operation of this variable, that takeover skill is associated with frequent takeover operators, may be confounded by the skill being acquired in a series of "once only" acquisitions or the auditor being associated with a number of target firms.

5.4 Motivations for Vertical and Horizontal Integration

Our results indicate (different from our predictions) that if a takeover is motivated by horizontal integration of acquiror and target then the auditor of the target is likely to be retained while for vertical integrations the target's auditor is switched. A potential explanation for this result is that horizontal acquisitions may represent acquisitions of growth options while vertical integrations may be acquisitions of assets-in-place. The reason is that in a horizontal acquisition acquirors are staying within their current line of business but are attempting to acquire options on investments. In a vertical acquisition assets-in-place are acquired (either upstream or downstream) to avoid hold out problems. Consistent with contracting efficiency described in Section 1, the proposition emerges that auditors of firms with growth options could reduce contracting costs by efficient monitoring of the exercise of the options and would therefore be retained following a takeover. A difficulty in making a strong prediction is that the acquiror's auditor could have been through the same process, albeit with some lag, of the acquiror exercising options so that the differential expertise between the acquiror's and target's auditor in this respect is negligible. In a vertical integration where assets-in-place are acquired, the auditor may be switched because of the advantages which might result in auditor uniformity when transfer pricing between divisions is involved.

To test this proposition we correlated the ratio of the book value of assets to the market value of the firm[12] (a proxy for growth options) with

[12] The market value of the firm was proxied by the sum of the book value of debt, book value of preference shares and market value of equity.

RATING. If the relationships suggested above hold, a negative correlation would be expected. A Pearson correlation applied to 68 firms in the sample, resulted in a test statistic of -0.065, indicating that no relationship exists.

5.5 Proxy Variables

One potential explanation for the ambiguous results could rest with the proxy variables selected for differences in the expertise of the target's and acquiror's auditors. To investigate this possibility further, tests were performed classifying the auditors into size groups. Differentiating auditors according to their size[13] is an attempt to capture heterogeneity in the supply of some audit product attributes particularly auditor reputation for independence and their geographical proximity to clients. The Top 15 audit firms were ranked (based on audit fees earned) 15 down to 1 and firms outside the Top 15 were ranked 0.[14]

Using this auditor size variable, it was hypothesized that the smaller the differences in the rank of the auditor of the acquiror and the auditor of the target, the more audit product attributes the auditors have in common and the more likely a switch of auditor to the auditor of the acquiror. A 't'-test on

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13 Size classifications have been used in other switching studies (eg., Healy and Lys 1986, Francis and Wilson 1988).

14 The ranking system reflects the available data on audit fees in the period of study. Three rankings were used for different sub-periods in the study. The Chartac No. 40, rankings for 1978 were used for takeovers in 1978 - 1981. The *Who Audits Australia* rankings for 1983 were used for takeovers in 1982 and 1983. The *Who Audits Australia and New Zealand* rankings for 1984 were used for takeovers in 1984 and 1985. No other published rankings were available for the period of the study.

the differences in auditor size between the sample of switches and non-switches was not significant, (p = .157, one-tailed).[15]

Consistent with the argument for using this variable, differences in the geographical location of target and acquiror operations were also measured. The number of different Australian States in which the acquiror and target operated was proxied using disclosures made on the location of the head office of each subsidiary of the acquiror and target in the company annual reports. With this variable, it was hypothesized that the smaller the number of different States, the greater the overlap in the geographical proximity supplied by the auditors of the acquiror and the target and the more likely a switch of auditor to the auditor of the acquiror. A 't' - test on the variable between the switching and non-switching groups was not significant (p = .249, one-tailed)[16].

5.6 Other Design Problems

Some of our tests were performed on very small samples, and the sampling was from a limited time period. The extent to which these limitations affected the results of the study can only be revealed through further research.

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15 Mann-Whitney test was significant at p = .192 (one-tailed).

16 Mann-Whitney test was significant at p = .231 (one-tailed).

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Table 1

Descriptive Statistics

VARIABLES	TOTAL SAMPLE N=72					SWITCHING SAMPLE N=44					NON-SWITCHING SAMPLE N=28				
	Mean	Median	SD	Min	Max	Mean	Median	SD	Min	Max	Mean	Median	SD	Min	Max
RATING	3.583	3	2.128	1	7	3.955	4	2.199	1	7	3	2	1.905	1	7
DIFSD	0.227	0.067	0.280	0.001	1.566	0.195	0.015	0.252	0.001	1.463	0.278	0.169	0.317	0.001	1.566
RECOMM	0.875	1	0.333	0	1	0.909	1	0.291	0	1	0.821	1	0.390	0	1
SAMAUD	0.167	0	0.375	0	1	-	-	-	-	-	0.429	0	0.504	0	1
AMTACQ	97.964	100	7.205	59	100	97.800	100	7.593	59	100	98.221	100	6.676	70	100

Table 2

Univariate 't' tests (one-tailed) Hypothesis H1 for Australian takeovers 1978-1985 according to whether the acquiror switches the target's auditor to the acquiror's auditor.

Variable	Switches (n=44)	Non Switches (n=28)	t	p	Mann Whitney Probability
Difference in secured debt (DIFSD)					
Mean	0.195	0.278	1.231	.111	.100
Standard deviation	0.252	0.317			
Rating of Type of Integration (RATING)					
Mean	3.955	3.000	1.889	.031	.040
Standard deviation	2.199	1.905			

Table 3

The relation between pre takeover auditors of the acquiror and target and the switching of the target's auditor to the acquiror's auditor

		Switch	
		Yes	No
Do the acquiror and target have the same pre takeover auditor?	Yes	0	12
	No	44	16
		44	28

2 = 22.629, p = .0000

Table 4

The relation between resistance by target management to a takeover and the switching of the target's auditor to the acquiror's auditor

		Switch	
		Yes	No
Does management resist the takeover offer?	No	40	23
	Yes	4	5
		44	28

$2 = 1.202$, $p = .273$

Table 5

Coefficients of OLS regression of auditor switch (SWIT) against takeover rating (RATING), absolute differences in secured leverage (DIFSD), target management's recommendation on takeover (RECOMM), same auditor (SAMAUD) and percentage of control acquired (AMTACQ) with 't' statistics (N = 72, Squared Multiple R = 0.419, Adjusted Squared Multiple R = 0.375)

Variable	Pred. Sign	Estimated coefficient	t-stat	One-tailed Probability
constant		0.146	0.230	0.409
RATING	+	-0.049	-2.246	0.014
DIFSD	+	0.289	1.742	0.043
RECOMM	+	-0.308	-2.108	0.019
SAMAUD	+	0.746	6.068	0.000
AMTACQ	-	0.005	0.755	0.226

Table 6

Correlation Matrix

	DIFSD	RATING	RECOMM	SAMAUD
RATING	−0.049			
RECOMM	0.106	−0.035		
SAMAUD	−0.021	−0.018	0.056	
AMTACQ	0.063	0.025	0.309	0.024