

## **LARGE AUDIT FIRM CLIENTELES: 1981 TO 1997**

Jong-Hag Choi

*Hongkong University of Science and Technology*

Rajib Doogar

Ananda Ganguly

*University of Illinois at Urbana-Champaign*

First Draft: November 1999.

Revised: March 2000.

This version: December 13, 2000

We thank Rashad Abdel-Khalik, George Deltas, Rob Easley, Van Johnson, Linda Myers, Dave Ricchiute and Cathy Shakespeare and brown-bag participants at the University of Illinois at Urbana-Champaign.

## **LARGE AUDIT FIRM CLIENTELES: 1981 TO 1997**

### **Abstract**

The 1980s and 1990s witnessed major shifts in the US audit environment. The early part of this period, up to end of the 1980s saw a significant increase in audit litigation activity and auditors' liability exposures. Since the early 1990s, a number of changes in the organizational and legal environment of auditing such as allowing auditors to incorporate (AICPA 1992) and the Private Securities Litigation Reform Act (1995) have served to mitigate the burdens of unlimited joint and several liability. These changes have countervailing implications for the composition of Big Six clienteles. We examine Big Six clienteles and client characteristics during the 1981-1997 period. We find that continuing clients of the Big-Six audit firms during these years were on average larger and had healthier financial characteristics than either new Big Six clients or clients that left Big-Six auditors for non-Big-Six auditors. New clients were, on average, healthier than departing clients and, in a three-year window around the year of auditor change, grew significantly faster than departing clients. Departing clients, on the other hand, suffered significantly larger profitability drops and debt increases in the year preceding separation than continuing clients. Lastly, the differences between continuing and departing clients increased with passage of time while differences between continuing and new clients remained relatively stable. Thus, over the last two decades of turmoil in legal liability regimes, the Big Six firms seem to have tended to acquire rapidly growing clients while losing smaller, slower-growing, less-profitable clients. This information is extremely important for us in understanding the nature of the U.S. audit market emerging out of this period of enhanced debate about auditor legal liability and changes in the legal liability environment.

## 1. Introduction

This study examines financial characteristics of publicly traded Big-Six and non-Big-Six audit clients over the period 1981-1997. We examine differences between continuing, new, and departing Big-Six clients and test whether these differences have increased over time. Changes in large audit firm client characteristics during this period are worth examining because the decades of the 1980s and 1990s saw an explosion in auditors' litigation liability and significant changes both in the rules governing audit firm organization and auditor liability.<sup>1</sup> Increases in litigation frequency (and the magnitudes of the losses claimed in these lawsuits) and measures such as reform of the liability laws and auditor incorporation are likely to have countervailing effects on the composition of large audit firm clienteles. Increases in litigation costs would tend to reduce larger (and deep-pocketed) auditors' incentives to audit risky clients while liability reforms such as replacing auditors' joint and several liability with proportional liability and permitting auditor incorporation would tend to increase those auditors' willingness to audit risky clients. The 1989 mergers which reduced the erstwhile Big Eight firms to the Big Six also resulted in the creation of larger players with deeper pockets. The net effect of these environmental changes remains ambiguous, as the following paragraphs explain.

In 1992, the AICPA changed its rules to permit member firms to form limited liability partnerships or to incorporate.<sup>2</sup> Dye (1995) presents a model in which incorporation, as permitted for instance under the 1992 AICPA decision to allow auditors to form general corporations, results in an increase in the number of active auditors in the market since wealthy auditors can enter the market more readily (i.e without putting their entire wealth at risk). With the option to incorporate, wealthy auditors choose to incorporate and remove some of their wealth from the firm so the quality of their audits falls. However, since wealthy audit firms may choose to exit the audit market unless offered the protection of limited liability, Dye argues that "removing the unlimited liability barrier increases competition in the market (relative to what it would be if unlimited liability were retained)." Intuitively, for large audit firms like the Big Six, limiting auditor liability should allow them to better shelter their partners' wealth making them more amenable to continue auditing risky clients. By implication, once incorporation is permitted by the AICPA, large audit firms should be able to more aggressively market their

services to risky clients (wealthy auditors are more likely to remain active and to compete more vigorously).

In 1995, the Private Securities Litigation Reform Act introduced proportional liability for auditors under tort law, severely limiting the applicability of joint and several liability on auditors. The passage of the Securities Reform Act was strongly supported by the profession since a major consequence of this reform was to generally eliminate the auditor's joint and several liability both under the 1933 and 1934 Securities Acts and under tort law in those instances where the auditor did not knowingly violate securities laws or was not demonstrably negligent (King and Schwartz 1997).

On the other hand, there is not much evidence of a drop in litigation costs, even though, as suggested by the Antle et. al. evidence, the absolute number of lawsuits against auditors may have fallen recently. KPMG Peat Marwick, for instance, reported resigning from 50-100 clients annually, as compared to 0-20 resignations ten years ago. Other Big-Six auditors report similar statistics (Berton, 1995).<sup>3</sup> The amounts paid by auditors to settle lawsuits have also grown as the market values of their clients have increased. Thus, notwithstanding all the legal and organizational reforms that might induce large auditors to provide services to risky clients, the increasing sizes of the settlements by themselves would lead large firms to curtail services to risky clients. Given the dominance of the Big Six firms in the audit market and the importance of auditing in the economy in general, it is important to understand how their clienteles have changed during the period in which significant changes have occurred in their environment. Have large audit firms increased or curtailed the supply of audit services to risky clients?

Prior research has examined characteristics of clients switching auditors and identified differences between clienteles of Big-Six and non-Big-Six auditors (Francis and Wilson 1988, Johnson and Lys 1990, DeFond 1992, Krishnan 1994, DeFond and Subramanyam 1998). The switching literature focuses on differences in characteristics between clients that switch auditors and control samples of clients that do not switch auditors. All these studies focus on the small sub-set of clients switching auditors or whose auditors have resigned. Our work differs from the switching literature in that we provide a broad picture of key financial characteristics of a more

complete set of publicly-traded Big Six audit firm clients and document the evolution of these characteristics over time.

Since the Big Six firms already dominate the large-client segment of the market for audits of publicly traded clients (Doogar and Easley 1998, Shu 2000), the growth in Big Six clients, if any, must almost necessarily come from adding smaller clients. During the last two decades there has in fact been a small but steady increase in Big-Six market shares of about 0.7 percent per annum (Hogan and Jeter, 1998). While these are likely to be small clients for the reasons discussed above, little is known about their *quality*. We therefore investigate the following questions: Did the addition of these clients dilute the quality of Big-Six audit clienteles? Did incoming and departing Big Six clients differ in ways that resulted in changes in risk exposure for the firms? We provide evidence from key client financial characteristics of the publicly-traded portion of Big-Six audit clienteles during 1981-1997.

We find evidence that Big Six continuing and new clients are superior to non-Big-Six and departing Big-Six clients during this period. The differences appear to increase over time. Since ratio distributions differ across industries, we also conduct industry-adjusted tests. We examine both *levels* of financial variables and *changes* since prior research shows that both levels and changes in financial condition are associated with auditor resignations (Krishnan and Krishnan 1997, Raghunandan and Rama 1999, Wells and Louder 1997). Our choices of financial characteristics pertaining to liquidity, solvency and debt-service capability are motivated by prior research suggesting that auditor litigation (and therefore auditor risk) is associated with significant declines in client value and/or deterioration in the client's financial condition (Stice 1991, Pratt and Stice 1994). Further, we compare client sub-groups using industry-adjusted figures since prior research suggests that client financial characteristics vary by industry (Gupta and Huefner 1972, Gombola and Ketz 1983, Ketz et. al. 1990) and audit firms' clienteles exhibit varying industry-specific concentration (Eichenseher and Danos 1981, Danos and Eichenseher 1982 and 1986, Craswell et. al. 1995, Hogan and Jeter 1999).

We find Big Six clients are larger, more profitable and more liquid than non-Big-Six clients. Sub-sample analysis of Big Six clienteles shows the following patterns. First, continuing clients are healthier than departing clients in both levels of, and changes in, financial

characteristics. Second, continuing clients are healthier than new clients in levels. New clients grow faster than continuing clients in the year of auditor change but are otherwise not very different in changes. Third, differences between Big Six and non-Big-Six and continuing and departing clients grow over time while differences between continuing and new clients do not. Industry-adjusted tests confirm these findings and also reveal that new clients are healthier than departing clients.

Francis and Reynolds (2000) study risk-based client screening by large audit firms and conclude that the evidence is “inconsistent with an increase in risk-based screening”. Our results, by contrast, indicate that during the 1981-1997 period, Big Six firms appear to drop or lose clients who show low growth and profitability and add clients who show faster growth and profitability improvements, leading in all to an increase in the quality of their clientele. After 1990, the differences between continuing and departing clients (and to a lesser extent, differences between continuing and new clients) grow more pronounced with time. This suggests that the overall effects of the change in the organizational form and auditor liability do not appear to have materially increased the extent to which large firms audit financially weaker (and riskier) clients.

The rest of the paper is organized as follows: Section 2 outlines the research methods, Section 3 discusses results and Section 4 provides a summary and conclusions.

## **2. Method**

We compare both levels and year-to-year changes in selected financial characteristics across four client subgroups for each year in our sample. The ratios used are: Current and Quick Ratios, Net Profit Margin, EBIT deflated by Total Assets, Cash Flow to Debt, Debt to Total Assets, and size measured by both Total Assets and Sales. Eight of the ten items are standard risk and financial health measures and have been used in prior research. In addition, we included Total Assets as a measure of client size and Cash Flow to Debt as a proxy for “distance from bankruptcy. The four client subgroups are: continuing, new and departing Big Six clients and continuing non-Big Six clients.

Our sample consists of all companies included in the 1999 (All-inclusive) Compustat database for which auditor information and our ten required data items were available for at least two consecutive years. Four contrasts are drawn: (1) between Big Six and non-Big-Six firms; (2)

between continuing and new Big-Six clients; (3) between continuing and departing Big-Six clients; and (4) between new and departing Big-Six clients. Table 1 provides a list of the measures of client financial characteristics used in the study.

[Insert Table 1 about here.]

Table 2 shows, for each year from 1981-1997, the distribution of clients classified by the change in auditor affiliation from the previous year. For each year shown in column 1, columns 2 and 5 of Table 2 show the number of clients who did not change auditor type (Big-Six or non-Big-Six) from the previous year. The “continuing” category includes in column 2 (column 5) all firms switching from one Big-Six (non-Big-Six) auditor to another Big-Six (non-Big-Six) auditor. Columns 3 and 4 show the number of new and departing Big-Six clients. For instance, 5779 clients are audited by Big-Six in both 1996 and 1997, 85 clients are audited by non-Big-Six in 1996 but switch to Big-Six auditors in 1997, 78 clients are audited by Big-Six in 1996 but switch to non-Big-Six auditors in 1997, and 1068 clients are audited by non-Big-Six in both 1996 and 1997. The main point of Table 2 is to show the increasing dominance of the Big Six over time in our sample, making it more likely that further increases in their market shares will come from smaller clients.

[Insert Table 2 about here.]

Eight of our ten financial health measures have large outliers. Table 3 shows a sample distribution of two variables (net profit margin and debt-to-total-assets ratios) with and without trimming of the top and bottom 2.5% of the observations. The *levels* of the ratios in 1996, and *changes* in 1996 (i.e., percent changes from 1995 to 1996) and in 1995 (percent changes from 1994 to 1995) are shown. Panel A shows that the mean and median net profit margins differ enormously and the variance is sufficiently large to render any comparison tests on means meaningless due to lack of power. The distribution of the net profit margin is highly negatively skewed with a mean of -38.7 (variance 3899) while median is .02. Trimming the sample returns a mean of -.23 (variance 0.79), much closer to the median of .02. Moreover the skewness and kurtosis are significantly reduced. Analogous observations hold for the *change* in net profit margin for 1996 ( $NPMC_t$ ) and 1995 ( $NPMC_{t-1}$ ) shown in Panel A and for the debt to total equity measures shown in Panel B. In general, trimming the most extreme 5% (2.5% from each end) of the sample produces a more reasonable distribution of values for all variable-year combinations

measured by the convergence of the mean and median and a reduction in absolute values of the variance, skewness and kurtosis measures.

[Insert Table 3 about here]

Table 4 offers some additional evidence on the consequences of trimming. Since trimming of the most extreme observations might a) eliminate more observations from the Big-Six clientele than from the non-Big-Six clientele or from the new and departing Big-Six client segments, or b) induce biases favoring the rejection of the null hypothesis of no differences between client groups, we compared the distribution of trimmed and untrimmed observations. Panels A and B in Table 4 report the distribution for the net profit margin and debt to total asset measures for 1996. A close scrutiny of both panels reveals the following eight comparisons: (1) More low-profit continuing non-Big-Six clients were dropped than continuing Big-Six (4% vs. 2%), biasing our results *against* a finding of Big-Six clientele superiority; (2) more low-profit new Big-Six clients were dropped than departing Big-Six (5% vs. 2%), again biasing our results *against* the Big Six client superiority hypothesis; (3) more high-profit continuing non-Big-Six were dropped than continuing Big-Six (3% vs. 2%), biasing our results *in favor of* Big-Six client superiority; (4) there was no appreciable difference in the percentages of high-profit new and departing Big-Six clients that were dropped (each 1%); (5) more low-leverage continuing non-Big-Six clients were dropped than low-leverage continuing Big-Six clients (4% vs 2%), biasing our results *in favor of* Big-Six client superiority; (6) more low-leverage new Big-Six clients were dropped than departing Big-Six clients (2% vs. 1%), biasing our results *against* a finding of Big Six client superiority; (7) more highly-leveraged continuing non-Big-Six clients were dropped as compared to continuing Big-Six (6% vs. 2%), biasing our results *against* a finding of Big Six client superiority; and lastly, (8) more highly-leveraged departing Big-Six clients were dropped as compared to new Big-Six clients (7% vs. 2%), biasing the results *against* a finding of risk or financial-health based superiority of Big-Six clients. Thus, in six of the above eight comparisons, we find that our trimming procedure biased any test of Big-Six client superiority either in the opposite direction or towards retention of the null hypothesis of no difference. Trimming the outliers for other variables and years produced results similar to panels A and B.

In sum, while the individual comparisons obviously yielded different results in each case, there was no systematic bias in favor of a finding of Big-Six client superiority.<sup>4</sup>

[Insert Table 4 about here.]

### **3. Results**

#### *3.1 Benchmarking the sample: Contrasting Big-Six vs. non-Big-Six clients*

Table 5 reports the means of eight financial characteristics of Big-Six and non-Big-Six clients for the period 1981-1997.<sup>5,6</sup> For each year and financial characteristic, t tests are performed comparing means. The last column, labeled '# of significant differences' shows the number of years that Big-Six clients have significantly higher or lower ratios than non-Big-Six clients. The number outside (inside) the parenthesis is the number of years in which Big-Six clients have significantly higher (lower) ratios than the non-Big-Six. The results show that Big-Six clients are, on average, financially superior to non-Big-Six clients. Big-Six clients have superior net profit margins, EBIT/TA ratios, cash flows, and greater total assets and sales. Non-Big-Six clients have comparable or slightly better liquidity than Big-Six clients, but since Big-Six clients are much bigger than non-Big-Six clients (see comparisons for TA and Sales) and likely to manage liquidity better through internal pooling of floats and other cash management techniques, it is not unreasonable to expect that the smaller non-Big-Six clients would on average require marginally higher liquidity as measured by both the current and quick ratios. A casual reading of Table 5 also reveals that the difference in client financial health between Big-Six and non-Big-Six clients increases over time, suggesting that the increased market share of the Big-Six does not appear to have diluted the relative strength of its clientele. We perform formal analyses on time trends in Section 3.3.

[Insert Table 5 about here.]

#### *3.2 Comparing continuing, new and departing clients*

Table 6 reports the mean level of financial characteristics of continuing, new, and departing Big-Six clients for each financial variable. Each panel tests for differences between continuing and new, continuing and departing and new and departing sub-sample means. Significant differences in the means of new or departing client sub-samples relative to the means of the continuing sub-samples are indicated by asterisks next to the means of new or departing

clients; significant differences between the means of the new and departing sub-samples are indicated by asterisks next to the mean of the 'new - departing' client difference. The last column of Table 6 (second page) shows, in a format similar to that used earlier for Table 5, the number of significant differences between the two groups compared in the respective tests for each financial variable. For tests of differences between continuing and new - or continuing and departing - clients, the counts outside (inside) the parenthesis indicate the number of years the continuing group had higher (lower) ratios or measures. For tests of differences between the new and departing group, the counts outside (inside) the parenthesis indicate the number of years the new group had higher (lower) ratios or measures. A difference of five or more in the two counts indicates that one group of clients is statistically significantly different from another.

[Insert Table 6 about here.]

The counts in the last column of Table 6 show that (1) continuing clients are larger (have higher TA, Sales), more profitable (have higher net profit margin, EBIT/TA) and better positioned to service debt (higher CF/Debt) than new clients; (2) continuing clients are better than departing clients on all eight variables; and (3) new clients are better than departing clients on seven of the eight variables except the quick ratio.<sup>7</sup> Trimming matters here: when we perform the same tests with full (untrimmed) samples, the results are generally in the same direction, but we find fewer significant differences between new and departing clients.

In addition to levels, auditors may use trends or changes in financial characteristics in client selection or acceptance decisions as well. We examine both levels and changes in financial characteristics in a six-year interval starting two years before and ending three years after the year of analysis. We report in Table 7 only the results of tests of mean changes during a five year window around the year of auditor change. Results from comparisons of two-year before (from year t-3 to year t-2) and two-and-three-year-after changes are similar to or weaker than those reported here and are omitted for brevity.

[Insert Table 7 about here.]

The conclusions from Table 7 are similar to those from Table 6, namely that Big-Six firms' continuing clients are larger, more profitable and financially more stable than any other sub-group of clients. New Big-Six clients are mostly smaller and faster growing. On the other

hand, departing Big-Six clients are smaller yet, and neither grow as rapidly nor are as profitable as new (or continuing) clients. Table 7 shows that new clients grow faster than other groups at least two years before the auditor change and continue to grow faster up to one year after the change. In other words, rapid growth in a three year window around the time of auditor-switching appears to be the salient characteristic of new audit firm clients while low growth and profitability seem to be the salient characteristics of departing clients. This pattern is consistent with large audit firms who have already acquired a dominant market share searching for new business in the subset of smaller clients that shows greatest promise of growth while dropping clients whose growth has slowed or declined.

### *3.3 Investigating Time Trends*

To examine whether, over time, financial characteristics of Big-Six clients diverge from those of non-Big-Six clients we regress the t-statistic for the means-difference test between Big-Six and non-Big-Six reported in Table 5 on time. Since the distributions of financial measures are non-stationary, regressing the t-value is a good way to control for inter-temporal differences in distribution.<sup>8</sup> Panel A of Table 8 shows results using a dummy variable for time (taking the value 0 before 1990, and 1 otherwise) while Panel B shows the results when time is specified as a continuous variable.<sup>9</sup> Under both methods, the results suggest that Big Six clienteles are stronger in the 1990s than they were before: five out of eight variables show significant results in panel A. The results in Panel B are similar to Panel A.

[Insert Tables 8 & 9 about here.]

Table 9 reports the results of the regression of t-values from the tests comparing the means of continuing, new, and departing client sub-samples on time. The results from both continuous and binary specifications of the time variable are broadly consistent and we do not report the binary specification. Panel A shows that there does not appear to be any change in the differences between continuing and new clients. This is consistent with the hypothesis that over this period criteria for accepting new clients did not become stricter relative to those for retaining continuing clients. By contrast, Panel B shows that departing clients are increasingly worse than continuing clients and suggests tightening of the 'continuance threshold' on existing clients. Panel

C confirms the combined conclusion of Panels A and B, showing the higher standards (primarily on issues of liquidity, see quick ratio and debt/TA) that are used by Big-Six firms in recent years.

### 3.4 Industry Adjusted Analyses.

Financial ratios vary across industries in definite patterns that depend on economic characteristics of the industry and the timer period under study (Ketz et. al. 1990). Table 10 reports mean differences in levels between continuing, new and departing clients after adjusting for client industry membership. This is done by subtracting from each variable the mean value of that variable for the entire 2-digit SIC code and testing for differences between client sub-samples.<sup>10</sup> The results confirm the findings in Table 6; in fact, a bit more sharply. Continuing firms are clearly larger, more profitable and more financially stable than new or departing clients and new clients are still the fastest growing sub-sample and better than departing clients. Thus we can conclude that industry adjustment does not make a difference to our inferences. Results along the lines of Table 7 were also obtained using the industry-adjusted data, and are omitted in the interests of brevity.

[Insert Table 10 about here.]

In sum, our results indicate that continuing clients and new client subgroups of Big Six clienteles are each superior to the group of departing Big Six clients and that these differences have continued to increase with time. Second, we find that the principal difference between new and departing Big Six clients is that new clients are growing faster than departing clients. Growth appears to explain Big Six client realignments to a significant extent.

## 4. Conclusions.

This paper presents empirical evidence on financial characteristics of Big-Six and non-Big-Six audit firm clienteles. We also partition Big-Six-affiliated clients into three sub-samples: *continuing* Big-Six clients employ Big-Six auditors in both the current and immediately preceding financial year, *new* clients switch to Big-Six firms from non-Big Six firms and *departing* clients switch from Big-Six to non-Big-Six firms. Big-Six clients are healthier than non-Big-Six clients. Differences between Big-Six and non-Big-Six client characteristics increase over time. Sub-sample comparisons reveal that continuing Big-Six clients are on average financially healthier than either new or departing clients, but new clients' sales and total assets

grow faster than continuing clients while departing clients' growth and profitability is lower than continuing and new clients. Moreover, differences between continuing and new clients does not change over time while differences between continuing and departing clients increase.

The evidence suggests that the relative financial strength of clients audited by the Big Six firms has persisted and improved over time. Overall, based on the evidence up to 1998, the permission to incorporate and the Private Securities Litigation Reform Act do not seem to have resulted in a noticeable extension of Big Six audit firm clienteles to financially weaker clients. In our sample, the profitability and growth of smaller clients appears to be the principal factor differentiating new and departing Big-Six clients. While we do not explicitly incorporate diversification motives that may underlie audit firms' client acceptance decisions, we find that even without adjusting for risk-reduction through diversification (Simunic and Stein 1990), Big Six clienteles have become increasingly stronger over time. Thus it is unlikely that incorporating the effects of risk reduction due to portfolio effects would lead to a reversal of our principal finding that, in the period from 1990 to 1997, litigation and liability reforms (providing incentives to large auditors to audit more risky clients), and greater Big Six absolute market shares (necessitating wider market exposure) have not resulted in the clienteles of Big Six firms growing financially weaker or riskier.

## References

- Andersen, Arthur, Coopers & Lybrand, Deloitte & Touche, Ernest & Young, LPMG Peat Marwick, and Price Waterhouse. 1992. The Liability Crisis in the United States: Impact on the Accounting Profession. *Statement of Position*. August 6.
- Craswell, A., J. Francis, and S. Taylor. 1995. Auditor Brand Name Reputation and Industry Specializations. *Journal of Accounting and Economic*. December (20) 297-322.
- Danos, P. and J.W. Eichenseher, 1982, Audit industry dynamics: factors affecting changes in client-industry market shares, *Journal of Accounting Research* 20, 604-616.
- Danos, P. and J.W. Eichenseher, 1986, Long-term trends toward seller concentration in the U.S. audit market, *The Accounting Review* 61, 633-650.
- DeFond, M.L. 1992. The Association Between Changes in Client Firm Agency Costs and Auditor Switching. *Auditing: A Journal of Practice and Theory*. Fall (11) 16-31.
- DeFond, M.L. and K.R. Subramanyam. 1998. Auditor changes and discretionary accruals. *Journal of Accounting and Economics*. (25:4) 35-67.
- Doogar, R. 2000. Audit firm scope and auditor independence. Manuscript, University of Illinois.
- Doogar R. and R.F. Easley. 1998. Concentration without differentiation: A new look at the determinants of audit market concentration. *Journal of Accounting and Economics*. June (25:3) 217-234.
- Doogar, R., R.F. Easley and D.N. Ricchute. 2000. Switching costs, leverage and audit firm mergers. Manuscript, University of Illinois.
- Dye, R.A. 1993. Auditing standards, legal liability and auditor wealth. *Journal of Political Economy*. October (101:5) 887-914.
- Dye, R.A. 1995. Incorporation and the audit market. *Journal of Accounting and Economics*. February (19:1) 75-114.
- Felix, William L. 1998. Discussion of "Evidence on Risk-Based Client Screening by Big-Six Accounting Firms. *Proceedings of the 13th Symposium on Auditing Research, University of Illinois at Urbana-Champaign*.
- Eichenseher, J. and P. Danos, 1981, The analysis of industry-specific auditor concentration: towards an explanatory model, *The Accounting Review* 56, 479-492.
- Francis, J.R., E.L. Maydew and H.C. Sparks. 1999. The role of Big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice and Theory*. Fall (18:2) 17-34.
- Francis, J.R., and J.K. Reynolds. 2000. Do Large Accounting Firms Screen Out Risky Clients? *Manuscript, University of Missouri-Columbia*.
- Francis, J.R., and E.R. Wilson. 1988. Auditor Changes: A Joint Test of Theories Relating to Agency Costs and Auditor Differentiation. *The Accounting Review*. July (63) 663-682.
- Gombola, M.J and J.E. Ketz. 1983. A note on cash low and classification patterns of financial ratios. *The Accounting Review*. January (:1) 105-114.
- Gupta, M.C. and R.J. Huefner. 1972. A cluster analysis study of financial ratios and industry characteristics. *Journal of Accounting Research*. Spring (10:1) 77-95.
- Hogan, C.E. and D. Jeter. 1999. Industry specialization by auditors. *Auditing: A Journal of Theory and Practice*. Spring (18:1) 1-17.
- Johnson, W.B. and T. Lys. 1990. The market for audit services: Evidence from Voluntary Auditor Changes. *Journal of Accounting and Economics*. January (12:1) 281-308.
- Ketz, J.E., R.K. Doogar and D.E. Jensen. 1990. *A cross-industry analysis of financial ratios*. Quorum Books, N.Y.
- Krishnan, J. 1994. Auditor switching and conservatism. *The Accounting Review*. January (69:1) 200-215.
- Krishnan, J. and J. Krishnan. 1997. Litigation Risk and Auditor Resignations. *The Accounting Review*. October (72:4) 539-560.

- Lys, T. 1993. The evolution of lawsuits against auditors: Determinants, consequences, and solutions. *Journal of Economics and Management Strategy*; Fall (2:3) 427-33.
- Pratt, J., and D.D. Stice. 1994. The Effects of Client Characteristics on Auditor Litigation Risk Judgements, Required Audit Evidence, and Recommended Audit Fees. *The Accounting Review*. October (69:4) 639-656.
- Raghunandan, K., and D.V. Rama. 1999. Auditor Resignations and the Market for Audit Services. *Auditing: A Journal of Theory and Practice*. Spring (18:1) 124-134.
- Simunic, D. and Stein M.T. 1990. Audit risk in a client portfolio context. *Contemporary Accounting Research*. (6:2) 329-343.
- Schwartz, K.B. and B.S. Soo. 1995. An Analysis of Form 8-K Disclosures of Auditor Changes by Firms Approaching Bankruptcy. *Auditing: A Journal of Theory and Practice*. Spring (14:1) 125-136.
- Schwartz, K.B. and B.S. Soo. 1996. Evidence of Regulatory Noncompliance with SEC Disclosure Rules on Auditor Changes. *The Accounting Review*. October (71:4) 555-572.
- Shu, S.Z. 2000. Auditor Resignations: Clientele Effects and Legal Liability. *Journal of Accounting and Economics*. April (29:2) 173-206
- Stice, J. 1991. Using Financial and Market Information to Identify Pre-Engagement Factors Associated with Lawsuits against Auditors. *The Accounting Review*. July (66) 516-533.
- Treaster. 1999. Ernst & Young Says It Will Pay Millions To Settle a Dispute. *New York Times* (Dec 18).
- Wells, D.W. and M.L. Loudder. 1997. The Market Effects of Auditor Resignations. *Auditing: A Journal of Practice and Theory*. Spring (16:1) 138-144.

## Endnotes

<sup>1</sup> Shu (2000) reports Big-Six litigation related expenses rising from 2.6% of total revenue in 1983 to 12% in 1993. Antle et. al (1997) report that from 1990 to 1996, the number of claims and suits filed against the Big Six dropped from 203 to 109. However, the magnitudes of claims and settlements has grown with the growth in the economy (and the huge escalation in market values) during the long bull market of the 1990s. On December 17, 1999, Ernst & Young LLP agreed to pay \$335 million to resolve litigation by shareholders of Cendant Corporation. Second only to the settlement of savings and loan related litigation, the settlement was said to be largest ever by an accounting firm. The firm was quoted as saying the settlement was not "an admission of any wrongdoing ... simply a recognition that in the litigious environment in which we operate today settlements are an unfortunate reality and sometimes the only realistic option." (Treater 1999). Litigation liability may have led to increasing consolidation in the industry as well: Lys (1993:432) suggests that mergers between large firms may have been motivated by the desire to better pool litigation risks.

<sup>2</sup> Early in the 1990s, the Big Six firms expressed concern that excessive liability would force them to withdraw from audits of risky clients, retarding capital-raising by innovative young firms and possibly undermining capital market efficiency (Andersen et al, 1992).

<sup>3</sup> Shu (2000) points out that many of these resignations could be due not only to the changed legal climate, but also to changed audit technology and expansion of non-audit services. However, using a summary measure of ex ante litigation risk she finds a significant positive relation between the increase in a client's auditor litigation risk and the likelihood that the auditor will drop the client. This effect holds after controlling for alternative explanations, and indicates that the Big-Six have been resigning risky audits (rather than engaging in alternative strategies such as increasing fees).

<sup>4</sup> While this is one indicator of the robustness of our results, the tests reported in the paper were also conducted with the untrimmed data, and the results were qualitatively similar to those reported in the paper. However, as might be expected given the higher variances, the test statistics are non-significant at conventional levels in most cases for the untrimmed data. Finally, non-parametric (Wilcoxon) tests confirm the pattern of results as those reported in the Tables and the pattern of differences is stronger. As noted in the text, the variance of the financial ratio distributions is large and there are some significant outliers. Since non-parametric tests are less influenced by a few outliers, the stronger results from these tests suggests that our findings are not driven by trimming-induced bias. We did not have time to prepare Tables reporting detailed results of the non-parametric tests in time to get this document out to conference participants but will address this in future versions of the paper.

<sup>5</sup> Two of our ten variables described in Table 1, 'Receivables to Total Assets (RTA)' and 'Sales to Total Assets (STA)' offer no explanatory power in any of our tests and, for brevity, we omit those results.

<sup>6</sup> Results of median comparisons are qualitatively similar and are not reported for brevity.

<sup>7</sup> New clients continue to grow faster than continuing clients but continuing clients are still larger and more profitable even three years after the hiring of the Big-Six auditor. The two-and-three-years-after differences between categories are qualitatively similar to the first-year-after differences.

<sup>8</sup> For example, in the depression of the mid-80s, most firms show poorer financial health while after the mid-90s most firms show healthier financial conditions due to a booming economy. Using the t-statistic from the means tests rather than raw financial ratios eliminates confounding effects of such fluctuations.

<sup>9</sup> We use 1990 as the cutoff point for the time dummy since the evolution of the Big-Six White Paper (Andersen 1992) suggests that the Big Six were aware of the risk implications for their practice by 1991 at the latest and probably much earlier. We also repeat the same tests with 1989 and 1991 as cutoff points but the results are qualitatively similar. Felix (1998) reports "casual conversation with a risk-management partner at one Big-Six firm" to suggest that 1990 or 1991 is the earliest that such practices were used and that 1993 might be a better cutoff point. Since the cutoff is not unambiguous, we use a continuous time specification as well.

<sup>10</sup> Table 10 reports means for continuing, new, and departing clients. However, the mean comparison tests among continuing, new, and departing clients are performed within industry-matched samples.

**Table 1**  
Variable Definitions

Measures of client financial characteristics used in the study. Numbers within parentheses in the right-hand column indicate the data item or combination of data items used in the study to measure the attribute listed in the left-hand column. Definitions of the relevant data items may be found in the *Compustat User's Guide*. All data used in this study is from the 1998 edition of the *Compustat* database.

<b>Attribute (Acronym)</b>	<b>Measure (Compustat Data Item Number)</b>
Current Ratio (CR)	Current Assets (14) ÷ Current Liabilities (5)
Quick Ratio (QR)	Quick Assets (1+2) ÷ Current Liabilities (5)
Net Profit Margin (NPM)	Net Income(172) ÷ Sales(12)
Earnings Before Interest and Tax to Total Assets (EBITA)	Earnings Before Interest and Tax (170+15) ÷ Total Assets (6)
Receivables to Total Asset (RTA)	Accounts Receivable (2) ÷ Total Assets (6)
Sales to Total Asset (STA)	Sales (12) ÷ Total Assets (6)
Cash Flow to Total Liability (CFTL)	Cash Flow (123+125) ÷ Total Liabilities (181)
Total Liability to Total Assets (TLTA)	Total Liabilities (181) ÷ Total Assets (6)
Total Asset (TA)	Total Assets (6)
Sales (SALES)	Sales (12)

Table 2

Audit firm clientele sizes by year and relationship with auditor.

For the period 1981 to 1997, clients are classified as *continuing* Big Six, *new* Big Six, *departing* Big Six or *continuing non-Big-Six* based on their auditor affiliation in the year shown in column 1 and the immediately preceding year as explained in the notes below. Clients consist of all Compustat (1998 tape) firms for which data on auditor identity and the ten variables listed in Table 1 are available for at least two consecutive years. In 1997 the Big Six audit firms were: Arthur Andersen, Coopers and Lybrand, Deloitte and Touche, Ernst and Young, KPMG Peat Marwick and Price Waterhouse. During the period 1981 to 1997, the number of large audit firms went from eight to six.<sup>@</sup> Clients of the constituent firms of the present Big Six firms have been treated as clients of the respective merged firms.

Year (1)	Continuing <sup>1</sup> Big Six (2)	New <sup>2</sup> Big Six (3)	Departing <sup>3</sup> Big Six (4)	Continuing <sup>1</sup> non-Big-Six (5)	Total (6)
1981	3357	72	38	1160	4627
1982	3375	81	43	1129	4628
1983	3832	76	32	1157	5097
1984	3885	81	48	1160	5174
1985	3908	73	59	1162	5202
1986	4139	154	58	1142	5493
1987	4377	189	65	1086	5717
1988	4405	80	58	1034	5577
1989	4310	104	60	959	5433
1990	4329	114	74	893	5410
1991	4472	64	65	891	5492
1992	4523	61	81	886	5551
1993	4839	58	64	956	5917
1994	5062	65	82	997	6206
1995	5240	73	71	1039	6423
1996	5858	86	81	1092	7117
1997	5779	85	78	1068	7010

<sup>@</sup> Ernst and Whinney merged with Arthur Young to form Arthur Young (May 5, 1989). Deloitte Haskins and Sells merged with Touche Ross to create Deloitte and Touche (August 11, 1989).

<sup>1</sup> Continuing Big Six (resp. non-Big-Six) clients are clients who retained a Big Six (resp. non-Big-Six) auditor in both the year in column 1 and the immediately preceding year.

<sup>2</sup> New Big Six clients are clients who retained a Big Six auditor in the year shown in column 1 and a non-Big-Six auditor in the immediately preceding year.

<sup>3</sup> Departing Big Six clients are clients who retained a *non-Big-Six* auditor in the year shown in column 1 and a Big Six auditor in the immediately preceding year.

**Table 3**  
Sample Variable Distributions

1996 full-sample and trimmed-sample variable distributions for net profit margin and debt to total asset ratios for the sample shown in Table 2. The full sample includes all 7117 clients. The trimmed sample in Panels consists of the 95% of these 7117 clients left after eliminating the top 2.5% and the bottom 2.5% of the observations for each attribute (panel A: net profit margin, panel B: debt to total asset ratio).

**Panel A: 1996 Net Profit Margin (NPM) and Net Profit Margin Change (NPMC)**

	NPM		NPMC		NPMC <sub>t-1</sub>	
	Full	Trimmed	Full	Trimmed	Full	Trimmed
Mean	-3.21	-.23	-.69	-.23	330.60	-.10
Median	.02	.02	.01	.01	.03	.03
Variance	3898.88	.79	558.34	3.76	138000000	3.86
Skewness	-38.70	-5.02	7.56	-1.97	42.51	-1.54
Kurtosis	177.00	32.63	805.06	11.90	1943.22	12.21
Minimum	-3097	-8.37	-616.86	-11.90	-11363.8	-12.14
25 %	-.09	-.08	-.58	-.52	-.49	-.44
75 %	.07	.07	.54	.49	.63	.58
Maximum	71.14	.27	1047.69	6.34	612585	7.63

**Panel B: 1996 Debt/ Total Asset Ratio (DTA) and Debt/ Total Asset Ratio Change (DTAC)**

	DTA		DTAC		DTAC <sub>t-1</sub>	
	Full	Trimmed	Full	Trimmed	Full	Trimmed
Mean	.67	.54	.26	.09	.15	.01
Median	.53	.53	.01	.01	-.01	-.01
Variance	26.83	.07	8.92	.20	4.39	.13
Skewness	77.30	.54	57.98	2.09	25.32	1.24
Kurtosis	6262.45	3.30	4331.16	9.80	871.24	7.10
Minimum	.00	.08	-1	-.72	-1	-.81
25 %	.33	.34	-.10	-.09	-.15	-.14
75 %	.71	.70	.19	.17	.11	.10
Maximum	422.23	1.48	233.59	2.49	92.11	1.74

**Table 4**  
Distribution of Dropped Observations

Distribution of clients eliminated by trimming the upper and lower 2.5% of the full sample of 7117 clients based on 1996 values of sample attributes (panel A: net profit margin, panel B: debt to total asset ratio), classified as *continuing* Big Six, *new* and *departing* Big Six and *continuing non-Big-Six* as explained in Table 2 and the notes thereto.

**Panel A: 1996 Net Profit Margin (NPM)**

	<b>Continuing Big Six</b>	<b>New Big Six</b>	<b>Departing Big Six</b>	<b>Continuing non-Big-Six</b>	<b>Total</b>
Total Observations	5858	86	81	1092	7117
# in Lower 2.5%	123	4	2	49	178
% of Total Observations	2%	5%	2%	4%	2.5%
Mean of Lower 2.5%	-118.20*	-19.43	-18.48	-73.81	-102.64
# in Upper 2.5%	139	1	1	36	177
% of Total Observations	2%	1%	1%	3%	2.5%
Mean of Upper 2.5%	3.96	.76	.47	6.94	4.53

**Panel B: 1996 Debt/ Total Asset Ratio (DTA)**

	<b>Continuing Big Six</b>	<b>New Big Six</b>	<b>Departing Big Six</b>	<b>Continuing non-Big-Six</b>	<b>Total</b>
Total Observations	5858	86	81	1092	7117
# in Lower 2.5%	134	2	1	41	178
% of Total Observations	2 %	2 %	1 %	4 %	2.5 %
Mean of Lower 2.5%	.05	.04	.07	.04	.05
# in Upper 2.5%	107	2	6	63	178
% of Total Observations	2 %	2 %	7 %	6 %	2.5 %
Mean of Upper 2.5%	3.07	1.99	14.88	4.97	4.13

\* This small mean is mainly due to one outlier: the minimum value of the observation (-3097).

**Table 5**  
Mean financial characteristics of Big Six and non-Big-Six clients.

Means of financial characteristics by year for the trimmed sample of clients of Big Six and non-Big Six firms for the period 1981-1997. The trimmed sample for each variable was obtained by excluding the most extreme 2.5% of observations on that variable. The number of firms in the Big Six (resp. non-Big-Six) sample for each year is the sum of columns 2 and 3 (resp. columns 4 and 5) of Table 2. Measures of financial characteristics are as defined in Table 1. t-values are for the test of differences in means of two independent samples.

		81	82	83	84	85	86	87	88	89
Current Ratio	Big Six	2.21	2.31	2.41	2.28	2.32	2.35	2.33	2.21	2.15
	Non-Big-Six	2.27	2.46	2.46	2.41	2.33	2.38	2.35	2.29	2.25
	t-value	-1.25	-2.804***	-1.9566*	-2.3963**	-0.20	-0.46	-0.21	-1.24	-1.6885*
Quick Ratio	Big Six	1.29	1.40	1.55	1.43	1.48	1.54	1.55	1.44	1.40
	Non-Big-Six	1.40	1.57	1.66	1.58	1.52	1.59	1.59	1.56	1.51
	t-value	-3.469***	-4.111***	-2.2650**	-3.483***	-0.87	-0.95	-0.82	-2.3667**	-2.2646**
Net Profit Margin	Big Six	0.03	-0.02	-0.02	-0.03	-0.07	-0.12	-0.09	-0.08	-0.06
	Non-Big-Six	0.00	-0.12	-0.11	-0.13	-0.17	-0.28	-0.25	-0.23	-0.20
	t-value	6.3080***	9.1230***	8.6927***	8.6132***	7.2861***	7.9753***	9.2179***	8.7798***	8.8234***
EBIT/TA	Big Six	0.11	0.07	0.07	0.07	0.04	0.03	0.04	0.04	0.04
	Non-Big-Six	0.08	0.04	0.03	0.02	-0.02	-0.04	-0.03	-0.04	-0.03
	t-value	10.1434**	8.6023***	9.4351***	9.4275***	8.8421***	9.2753***	10.6390**	10.9085**	10.3056**
CF/Debt	Big Six	0.21	0.17	0.17	0.14	0.11	0.09	0.10	0.12	0.12
	Non-Big-Six	0.17	0.09	0.09	0.07	0.02	-0.02	-0.02	-0.02	0.01
	t-value	5.2596***	7.8434***	7.9597***	6.1553***	6.9821***	8.7845***	9.5173***	10.4242**	8.2834***
Debt/TA	Big Six	0.53	0.53	0.51	0.53	0.54	0.55	0.55	0.57	0.58
	Non-Big-Six	0.52	0.53	0.51	0.52	0.54	0.55	0.57	0.58	0.58
	t-value	1.02	0.41	0.56	1.9355*	-0.52	-0.18	-1.8454*	-0.92	0.46
TA	Big Six	355.54	373.01	431.10	434.24	471.88	471.17	500.97	510.16	577.55
	Non-Big-Six	63.41	66.17	74.75	83.65	96.40	100.11	82.24	93.58	83.66
	t-value	12.8219**	12.6373**	12.6351**	12.3885**	12.1936**	11.5218**	11.8504**	11.4588**	11.5349**
Sales	Big Six	452.55	441.72	448.66	463.80	475.47	452.47	480.57	496.18	551.48
	Non-Big-Six	81.50	81.55	83.98	86.51	81.57	81.57	68.30	84.86	83.56
	t-value	13.3444**	12.9908**	13.1476**	13.3903**	12.8786**	12.8786**	13.1054**	12.5191**	12.2025**

**Table 5 (continued...)**  
Mean financial characteristics of Big Six and non-Big-Six clients.

Means of financial characteristics by year for the trimmed sample of clients of Big Six and non-Big Six firms for the period 1981-1997. The trimmed sample for each variable was obtained by excluding the most extreme 2.5% of observations on that variable. The number of firms in the Big Six (resp. non-Big-Six) sample for each year is the sum of columns 2 and 3 (resp. columns 4 and 5) of Table 2. Measures of financial characteristics are as defined in Table 1. t-values are for the test of differences in means of two independent samples.

		90	91	92	93	94	95	96	97	# of significant differences
Current Ratio	Big Six	2.08	2.23	2.39	2.45	2.24	2.34	2.47	2.41	
	Non-Big-Six	2.08	2.27	2.31	2.52	2.29	2.31	2.45	2.36	
	t-value	0.00	-0.44	1.05	-0.90	-0.87	0.56	0.31	0.67	0 (4)
Quick Ratio	Big Six	1.33	1.49	1.62	1.69	1.49	1.60	1.76	1.59	
	Non-Big-Six	1.39	1.56	1.58	1.73	1.57	1.54	1.58	1.51	
	t-value	-1.29	-1.16	0.74	-0.66	-1.62	0.96	1.25	1.6689*	1 (6)
Net Profit Margin	Big Six	0.06	-0.08	-0.11	-0.12	-0.08	-0.07	-0.15	-0.18	
	Non-Big-Six	-0.21	-0.21	-0.32	-0.30	-0.31	-0.31	-0.40	-0.42	
	t-value	10.0104**	7.7028***	8.5810***	7.8707***	11.6123**	12.8936**	9.8375***	8.1966***	17 (0)
EBIT/TA	Big Six	0.03	0.03	0.03	0.02	0.03	0.03	0.02	0.00	
	Non-Big-Six	-0.04	-0.03	-0.04	-0.05	-0.06	-0.06	-0.07	-0.10	
	t-value	10.8782**	10.0953**	10.3541**	10.1759**	14.1928**	14.0078**	13.0212**	13.0119**	17 (0)
CF/Debt	Big Six	0.11	0.11	0.12	0.10	0.12	0.13	0.08	0.03	
	Non-Big-Six	-0.01	0.01	-0.04	-0.08	-0.08	-0.05	-0.14	-0.16	
	t-value	8.5748***	6.8850***	8.8937***	9.9541***	12.0029**	11.3996**	11.5398**	8.9769***	17 (0)
Debt/TA	Big Six	0.59	0.56	0.54	0.52	0.53	0.54	0.52	0.54	
	Non-Big-Six	0.58	0.56	0.53	0.51	0.52	0.52	0.52	0.54	
	t-value	0.21	0.31	0.49	1.07	1.6746*	1.11	0.39	-0.01	2 (1)
TA	Big Six	616.80	625.93	539.31	541.75	659.08	704.81	692.47	767.47	
	Non-Big-Six	54.87	48.83	59.82	57.49	65.80	51.80	66.54	86.47	
	t-value	11.9164**	11.8705**	11.5292**	11.8683**	12.3335**	12.6305**	12.8887**	12.8568**	17 (0)
Sales	Big Six	587.20	585.53	553.80	579.53	622.59	669.84	872.85	710.46	
	Non-Big-Six	77.25	62.72	69.10	67.37	256.25	72.24	89.59	83.55	
	t-value	11.9581**	12.3630**	11.9396**	12.3905**	13.5535**	13.4715**	11.7214**	13.4598**	17 (0)

Table 6

Mean financial characteristics of continuing, new and departing Big Six clients.

Means of financial characteristics, by year, of the trimmed sample of continuing, new and departing Big Six audit clients for the period 1981-1997. The trimmed sample for each variable was obtained by excluding the most extreme 2.5% of observations on that variable.

Continuing, new and departing clients are as defined in Table 2. Measures of financial characteristics are as defined in Table 1. Significant differences are indicated as: significant at 10% = \*, at 5% = \*\* and at 1% = \*\*\*.

		81	82	83	84	85	86	87	88	89
Current Ratio	Continuing	2.21	2.30	2.40	2.29	2.32	2.35	2.33	2.22	2.16
	New	2.40	2.62*	2.71	1.87**	2.14	2.34	2.50	1.63***	1.75**
	Departing	1.80**	2.09	1.82*	1.86*	1.99	1.51***	1.99	2.08	1.94
	New-Departing	0.6*	0.53	0.89*	0.01	0.15	0.83***	0.51*	-0.45	-0.19
Quick Ratio	Continuing	1.29	1.39	1.55	1.43	1.48	1.54	1.54	1.45	1.40
	New	1.25	1.81***	1.85*	1.26	1.27	1.57	1.83**	0.95***	1.04**
	Departing	1.00*	1.30	1.26	1.15	1.38	0.91***	1.33	1.44	1.29
	New-Departing	0.25	0.51*	0.59	0.11	-0.11	0.66**	0.50*	-0.49**	-0.25
Net Profit Margin	Continuing	0.03	-0.02	-0.02	-0.03	-0.07	-0.11	-0.08	-0.08	-0.06
	New	-0.01***	-0.09**	-0.12***	-0.36***	-0.17**	-0.22**	-0.15*	-0.14	-0.20**
	Departing	-0.07***	-0.28***	-0.21***	-0.31***	-0.38***	-0.68***	-0.33***	-0.45***	-0.32**
	New-Departing	0.06	0.19**	0.09	-0.05	0.21**	0.46***	0.18**	0.31***	0.12
EBIT/TA	Continuing	0.11	0.08	0.07	0.07	0.04	0.03	0.04	0.04	0.04
	New	0.09*	0.01***	0.01***	-0.06***	0.02	-0.05***	0.00***	-0.03***	-0.04**
	Departing	0.01***	0.00***	-0.05***	-0.02***	-0.16***	-0.14***	-0.10***	-0.15***	-0.11**
	New-Departing	0.08***	0.01	0.06	-0.04	0.18***	0.09**	0.10***	0.12***	0.07**
CF/Debt	Continuing	0.21	0.17	0.17	0.15	0.11	0.10	0.11	0.12	0.13
	New	0.17	0.10**	0.08**	-0.09***	-0.01***	-0.05***	0.02***	0.17	-0.06**
	Departing	-0.01***	-0.05***	-0.07***	-0.08***	-0.26***	-0.25***	-0.11***	-0.14***	-0.07**
	New-Departing	0.18***	0.15**	0.15*	-0.01	0.25***	0.20***	0.13**	0.31**	0.01
Debt/TA	Continuing	0.53	0.53	0.51	0.53	0.54	0.55	0.55	0.57	0.58
	New	0.50	0.53	0.49	0.63***	0.62***	0.57	0.54	0.60	0.64**
	Departing	0.55	0.56	0.59*	0.65***	0.67***	0.67***	0.64**	0.59	0.57**
	New-Departing	-0.05	-0.03	-0.10*	-0.02	-0.05	-0.10**	-0.10**	0.01	0.07
TA	Continuing	362.28	380.89	438.25	442.40	479.51	482.52	513.26	516.21	581.37
	New	50.20***	47.01***	76.49***	45.72***	53.69***	170.09***	218.12***	164.47***	418.42
	Departing	41.46**	34.54***	14.05**	43.62***	24.97**	117.65**	11.09***	128.08**	11.46**
	New-Departing	8.74	12.47	62.44	2.10	28.72	52.44	207.03*	36.39	406.96***
Sales	Continuing	460.94	450.38	455.03	472.59	482.25	463.72	490.86	502.78	558.17
	New	73.28***	58.95***	109.10***	44.86***	98.37***	151.21***	234.37***	108.98***	171.46**
	Departing	52.23**	46.36***	18.42**	24.41***	27.82***	105.21***	12.63***	43.82***	10.14**
	New-Departing	21.05	12.59	90.68	20.45	70.55*	46.00	221.74**	62.16	161.32***

Table 6 (continued...)

Means of financial characteristics of continuing, new and departing Big Six clients.

Means of financial characteristics, by year, of the trimmed sample of continuing, new and departing Big Six audit clients for the period 1981-1997. The trimmed sample for each variable was obtained by excluding the most extreme 2.5% of observations on that variable.

Continuing, new and departing clients are as defined in Table 2. Measures of financial characteristics are as defined in Table 1. Significant differences are indicated as: significant at 10% = \*, at 5% = \*\* and at 1% = \*\*\*.

		90	91	92	93	94	95	96	97	# of significant differences
Current Ratio	Continuing	2.08	2.24	2.39	2.45	2.24	2.34	2.48	2.40	
	New	2.08	2.08	2.17	2.30	2.37	2.41	2.02**	2.74	4 (1)
	Departing	1.43***	1.92	1.68***	1.93**	2.13	1.96*	1.56***	2.33	9 (0)
	New-Departing	0.65***	0.16	0.49*	0.37	0.24	0.45	0.46	0.41	6 (0)
Quick Ratio	Continuing	1.32	1.49	1.63	1.69	1.49	1.60	1.76	1.58	
	New	1.45	1.43	1.46	1.68	1.70	1.66	1.54	1.92**	2 (4)
	Departing	0.95***	1.11*	1.15**	1.21**	1.25	1.18**	1.10***	1.49	8 (0)
	New-Departing	0.50**	0.32	0.31	0.47	0.45*	0.48*	0.44**	0.43	7 (1)
Net Profit Margin	Continuing	-0.06	-0.08	-1.11	-0.11	-0.08	-0.06	-0.14	-0.18	
	New	-0.12	-0.26***	-0.32***	-0.29**	-0.44***	-0.39***	-0.41***	-0.28	14 (0)
	Departing	-0.38***	-0.35***	-0.45***	-0.25*	-0.34***	-0.54***	-0.59***	-0.53***	17 (0)
	New-Departing	0.26***	0.09	0.13	-0.04	-0.10	0.15	0.18	0.25	6 (0)
EBIT/TA	Continuing	0.03	0.03	0.03	0.02	-0.04	0.04	0.02	0.00	
	New	0.01	0.01	-0.07***	-0.06***	-0.09***	-0.05***	-0.08***	-0.06**	14 (0)
	Departing	-0.13***	-0.10***	-0.17***	-0.13***	-0.08***	-0.13***	-0.17***	-0.24***	17 (0)
	New-Departing	0.14***	0.11***	0.10**	0.07	-0.01	0.08*	0.09*	0.18***	12 (0)
CF/Debt	Continuing	0.12	0.11	0.12	0.10	0.12	0.13	0.08	0.03	
	New	0.05**	0.03*	-0.11***	-0.20***	-0.12***	-0.14***	-0.06**	-0.12**	15 (0)
	Departing	-0.26***	-0.16***	-0.25***	-0.16***	-0.10***	-0.14***	-0.37***	-0.36***	17 (0)
	New-Departing	0.31***	0.19**	0.14	-0.04	-0.02	0.00	0.31***	0.24*	11 (0)
Debt/TA	Continuing	0.58	0.56	0.54	0.52	0.53	0.53	0.52	0.54	
	New	0.62	0.57	0.53	0.52	0.49	0.52	0.53	0.50	0 (3)
	Departing	0.71***	0.66**	0.62***	0.61***	0.57	0.58	0.58***	0.58	0 (11)
	New-Departing	-0.09*	-0.09	-0.09	-0.09	-0.08*	-0.06	-0.05***	-0.08	0 (6)
TA	Continuing	625.95	632.42	546.35	547.36	664.80	712.50	700.33	777.26	
	New	261.35***	176.48**	37.92***	83.38***	210.00**	134.31***	166.07***	104.38***	16 (0)
	Departing	16.80***	12.27***	91.58***	36.63***	18.70***	24.40***	138.38***	77.96***	17 (0)
	New-Departing	244.55**	164.21***	-53.66	46.75	191.30*	109.91	27.69	96.42	5 (0)
Sales	Continuing	597.52	589.11	560.71	555.17	627.61	677.69	883.19	719.44	
	New	201.38***	344.51	46.35***	83.27***	217.34**	107.58***	153.76***	98.13***	16 (0)
	Departing	18.28***	13.20***	57.99***	29.21***	22.54***	24.09***	118.01***	47.64***	17 (0)
	New-Departing	183.10**	331.31**	-11.64	54.06**	194.80*	83.49	35.75	50.49	7 (0)

**Table 7**

Summary of changes and level of client financial characteristics

Changes in client financial characteristics during the period starting two years before the auditor switch (Year T-2) and ending two years after the switch (Year T+2) and the level of financial characteristics of the sample clients in the year of auditor switch of the trimmed sample of continuing, new and departing Big Six audit clients for the period 1981-1997. The trimmed sample for each variable was obtained by excluding the most extreme 2.5% of observations on that variable. Continuing, new and departing clients are as defined in Table 2. Measures of financial characteristics are as defined in Table 1. Differences are indicated as: significant at 10% = \*, at 5% = \*\* and at 1% = \*\*\*.

Ratio	Sample	T-2 to T-1	T-1 to T	At Year T	T to T+1	T+1 to T+2
Current Ratio	Continuing-New	-.1659	-.5088	.7279	-.4994	-.0956
	Continuing-Departing	.1766	.1023	7.1120***	-.5417	-.3904
	New-Departing	1.1070	.3016	3.9377***	-.1150	-.1923
Quick Ratio	Continuing-New	-1.6558	-.6168*	-.2219	-.6795**	-.7428
	Continuing-Departing	-.0877	-.1468	7.0140***	-.7112**	-.3866
	New-Departing	.2020	.1774	3.6365***	-.1116	.1431
Net Profit Margin	Continuing-New	1.0057***	1.2160***	6.3127***	.9158***	.6164*
	Continuing-Departing	2.1978***	1.2558***	12.7277***	.3890*	.1817
	New-Departing	.7795**	.0941	4.6714***	-.2153	-.3187
EBIT/TA	Continuing-New	1.0384***	1.4617***	8.6986***	.8170**	.5238
	Continuing-Departing	1.6886***	.5776*	17.8408***	.0820	.2164
	New-Departing	.4238	-.4437**	6.1789***	-.3449	-.1542
CF/Debt	Continuing-New	.9891**	1.1097***	8.8516***	.3015	-.0456
	Continuing-Departing	.7817	1.4073***	17.7011***	-.6096**	.0732
	New-Departing	-.1313	.2105	5.1915***	-.5096**	.0731
Debt/TA	Continuing-New	-.9391*	-1.1265***	-1.1257	-1.1905***	-.9181***
	Continuing-Departing	-2.3515***	-3.0120***	-7.4716***	-1.0624*	-.2627
	New-Departing	-.8746***	-1.0494***	-7.0676***	-.0328	.2082
TA	Continuing-New	-.9973***	-2.2461***	19.8510***	-.1446	-.1034
	Continuing-Departing	1.1785***	1.3544***	28.9148***	1.4463***	.6788**
	New-Departing	1.2937***	2.0359***	4.7611***	1.0627***	.4646*
Sales	Continuing-New	-1.1223***	-2.2938***	21.1561***	-1.5352***	-.3769
	Continuing-Departing	.9130***	1.0241***	29.4454***	.7973***	.6051
	New-Departing	1.1600***	1.6765***	6.9711***	1.1946***	.5294*

Table 8

Regression analysis of the trend of differences in sub-sample financial characteristics.

Regression of the t-statistic for the means-difference test (Table 4) between Big Six and non-Big-Six clients on time. Model:  $T_{\hat{o}}^{\dagger} = a + b \cdot \text{Year}$

**Panel A: Using a dichotomous time specification:  $\text{Year} = \text{Year}_1^{\#}$**

Variable ( $T_{\hat{o}}$ )	Expected Sign of $b^{\textcircled{a}}$	a	t(a)	b	t(b)	R <sup>2</sup>
CR	+	-1.356	-4.789***	1.405	3.403***	0.436
QR	+	-1.786	-3.183***	1.773	2.168**	0.239
NPM	+	8.312	17.050***	1.276	1.795*	0.177
EBTTA	+	9.731	21.766***	2.236	3.431***	0.440
CFTL	+	7.912	14.063***	1.866	2.275**	0.257
TLTA	-	0.102	0.339	0.554	1.264	0.096
TA	+	12.116	69.019***	0.121	0.473	0.015
SALES	+	12.953	65.414***	-0.346	-1.199	0.088

**Panel B: Using a continuous time specification:  $\text{Year} = \text{Year}_2^{\text{¶}}$**

Variable ( $T_{\hat{o}}$ )	Expected Sign of $b^{\textcircled{a}}$	a	t(a)	b	t(b)	R <sup>2</sup>
CR	+	-2.072	-5.096***	0.153	3.855***	0.498
QR	+	-2.859	-3.566***	0.212	2.709**	0.329
NPM	+	7.530	10.611***	0.154	2.218**	0.247
EBTTA	+	8.300	15.328***	0.276	5.223***	0.645
CFTL	+	6.351	9.244***	0.271	4.043***	0.522
TLTA	-	0.198	0.413	0.018	0.391	0.010
TA	+	12.152	45.162***	0.002	0.089	0.001
SALES	+	13.066	42.858***	-0.031	-1.030	0.066

<sup>†</sup>  $T_{\hat{o}}$  = t-value of means-difference test statistic for Big Six and non-Big-Six client comparisons in year  $\hat{o}$ .

<sup>#</sup>  $\text{Year}_1 = 0$  before 1990, 1 otherwise.

<sup>¶</sup>  $\text{Year}_2 = \text{Year} - 1980$

<sup>ⓐ</sup> Under the alternative hypothesis that Big Six clients are financially superior.

**Table 9**  
 Regression Analyses of the Trend of Differences (Level) – Year<sub>2</sub><sup>#</sup>  
 Model:  $T_{\hat{o}}^{\dagger} = a + b \cdot \text{Year}_2$

**Panel A: Differences Between Big Six Continuing and New Clients**

Variable	Expected sign of b	a	t(a)	b	t(b)	R <sup>2</sup>
CR	+	-0.157	-0.191	0.049	0.606	0.024
QR	+	-0.259	-0.277	0.018	0.198	0.003
NPM	+	3.180	2.957***	-0.004	-0.040	0.000
EBTTA	+	3.764	4.206***	-0.017	-0.198	0.003
CFTL	+	2.968	3.715***	0.037	0.470	0.015
TLTA	-	-1.221	-1.583	0.089	1.182	0.085
TA	+	3.463	11.091***	-0.044	-1.453	0.123
SALES	+	3.567	11.673***	-0.042	-1.417	0.118

**Panel B: Differences Between Big Six Continuing and Departing Clients**

Variable	Expected sign of b	a	t(a)	b	t(b)	R <sup>2</sup>
CR	+	1.770	3.246***	0.003	0.053	0.000
QR	+	1.143	2.412**	0.051	1.096	0.074
NPM	+	4.946	5.600***	0.031	0.361	0.009
EBTTA	+	5.036	7.697***	0.173	2.703**	0.328
CFTL	+	5.565	8.022***	0.014	0.209	0.003
TLTA	-	-2.099	-3.001***	-0.038	-0.563	0.021
TA	+	2.534	14.767***	0.056	3.359***	0.429
SALES	+	2.755	15.750***	0.065	3.795***	0.490

**Panel C: Differences Between New and Departing Big Six Clients**

Variable	Expected sign of b	a	t(a)	b	t(b)	R <sup>2</sup>
CR	+	1.181	1.954*	-0.009	-0.147	0.001
QR	+	0.610	0.959	0.054	0.872	0.048
NPM	+	1.845	2.945***	-0.051	-0.835	0.044
EBTTA	+	1.890	2.574**	0.024	0.338	0.008
CFTL	+	2.405	3.592***	-0.080	-1.221	0.090
TLTA	-	-0.830	-2.085*	-0.066	-1.702*	0.160
TA	+	1.047	2.058*	0.008	0.168	0.002
SALES	+	1.139	2.720**	0.026	0.624	0.025

<sup>#</sup> Year<sub>2</sub> = Year-1980

<sup>†</sup>  $T_{\hat{o}}$  = t-value of means-difference test statistic for Big Six and non-Big-Six client comparisons in year  $\hat{o}$ .

<sup>@</sup> Under the alternative hypothesis that Big Six client superiority increases in later years.

Table 10

Industry adjusted means of financial characteristics of continuing, new and departing Big Six clients.

Industry-adjusted means of financial characteristics, by year, of the trimmed sample of continuing, new and departing Big Six audit clients for the period 1981-1997. The trimmed sample for each variable was obtained by excluding the most extreme 2.5% of observations on that variable. Continuing, new and departing clients are as defined in Table 2. Measures of financial characteristics are as defined in Table 1. Significant differences are indicated as: significant at 10% = \*, at 5% = \*\* and at 1% = \*\*\*.

		1981	1982	1983	1984	1985	1986	1987	1988	1989
Current Ratio	Continuing	-0.01	-0.04	-0.01	0.00	0.02	0.01	0.01	0.01	0.01
	New	0.21	0.19	0.23	-0.46***	-0.30	-0.06	0.12	-0.46***	-0.45***
	Departing	-0.38	-0.31	-0.79**	-0.50	-0.33	-0.87***	-0.45**	-0.19	-0.39*
	New-Departing	0.59*	0.50	1.02**	0.04	0.03	0.81***	0.57**	-0.27	-0.06
Quick Ratio	Continuing	-0.02	-0.03	-0.01	-0.01	0.01	0.01	0.00	0.00	0.00
	New	-0.06	0.19*	0.17	-0.26*	-0.33**	-0.03	0.18	-0.45***	-0.40***
	Departing	-0.33*	-0.17	-0.48*	-0.40	-0.08	-0.66***	-0.39*	-0.18	-0.27
	New-Departing	0.27	0.36	0.65	0.14	-0.25	0.63**	0.57**	-0.27	-0.13
Net Profit Margin	Continuing	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.02
	New	-0.03**	-0.02	-0.08***	-0.29***	-0.06*	-0.05*	0.00	0.01	-0.08**
	Departing	-0.08	-0.21***	-0.09**	-0.22***	-0.26***	-0.43***	-0.18***	-0.26***	-0.22***
	New-Departing	0.05	0.19*	0.01	-0.07	0.20*	0.38***	0.18**	0.27**	0.14
EBIT/TA	Continuing	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	New	-0.01	-0.04***	-0.05***	-0.11***	0.00	-0.05***	-0.02**	-0.03**	-0.05***
	Departing	-0.08***	-0.06***	-0.08***	-0.08***	-0.18***	-0.12***	-0.11***	-0.14***	-0.13***
	New-Departing	0.07**	0.02	0.03	-0.03	0.18***	0.07*	0.09***	0.11***	0.08**
CF/Debt	Continuing	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	New	-0.02	-0.04**	-0.07**	-0.20***	-0.09**	-0.11***	-0.04**	-0.01	-0.16***
	Departing	-0.19***	-0.19***	-0.19***	-0.20***	-0.33***	-0.28***	-0.18***	-0.21***	-0.18***
	New-Departing	0.17***	0.15**	0.12	0.00	0.24***	0.17**	0.14**	0.20**	0.02
Debt/TA	Continuing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	New	-0.03	0.01	-0.02	0.10***	0.08***	0.02	0.00	0.01	0.07***
	Departing	0.02	0.03	0.09	0.12***	0.12***	0.12***	0.09***	0.04	0.11***
	New-Departing	-0.05	-0.02	-0.11**	-0.02	-0.04	-0.10**	-0.09**	-0.03	-0.04
TA	Continuing	59.68	63.91	60.24	62.02	66.02	64.30	69.76	61.94	67.63
	New	-161.65***	-191.39***	-210.17***	-258.76***	-239.55***	-157.01***	-130.48**	-159.63*	2.15
	Departing	-198.71**	-226.18**	-222.23*	-292.17**	-291.18***	-193.29*	-301.73***	-202.67*	-306.14**
	New-Departing	37.06	34.79	12.06	33.41	51.63	36.28	171.25	43.04	308.29**
Sales	Continuing	79.72	76.56	64.87	68.84	68.82	68.84	72.14	64.90	71.79
	New	-208.27***	-215.85***	-221.33***	-265.69***	-204.51***	-176.00***	-120.99**	-229.74***	-108.06*
	Departing	-256.63**	-267.37**	-219.76*	-296.15**	-277.41***	-169.31**	-283.32***	-255.19**	-333.50***
	New-Departing	48.36	51.52	-1.57	30.46	72.90	-6.69	162.33	25.45	225.44**

Table 10 (continued...)

Industry adjusted means of financial characteristics of continuing, new and departing Big Six clients.

Industry-adjusted means of financial characteristics, by year, of the trimmed sample of continuing, new and departing Big Six audit clients for the period 1981-1997. The trimmed sample for each variable was obtained by excluding the most extreme 2.5% of observations on that variable. Continuing, new and departing clients are as defined in Table 2. Measures of financial characteristics are as defined in Table 1. Significant differences are indicated as: significant at 10% = \*, at 5% = \*\* and at 1% = \*\*\*.

		1990	1991	1992	1993	1994	1995	1996	1997	# of significant differences
Current Ratio	Continuing	0.01	0.01	0.02	0.00	-0.01	0.02	0.02	0.00	
	New	0.02	-0.31	-0.29	-0.11	0.15	0.08	-0.33*	0.23	4 (0)
	Departing	-0.60***	-0.34	-0.69***	-0.61**	-0.22	-0.56***	-0.68***	-0.12	9 (0)
	New-Departing	0.62***	0.03	0.40	0.50	0.37	0.64**	0.35	0.35	6 (0)
Quick Ratio	Continuing	0.00	0.00	0.02	0.00	-0.01	0.02	0.02	0.71	
	New	0.10	-0.22	-0.23	0.03	0.20	0.05	-0.16	0.92	4 (1)
	Departing	-0.40***	-0.43**	-0.49***	-0.59***	-0.28*	-0.51***	-0.59***	0.52	11 (0)
	New-Departing	0.50**	0.21	0.26	0.62**	0.48*	0.56**	0.43*	0.40	7 (0)
Net Profit Margin	Continuing	0.02	-0.10	0.03	0.03	0.04	0.04	0.04	0.03	
	New	-0.03	-0.15***	-0.16**	-0.17**	-0.32***	-0.25***	-0.24***	-0.06	12 (0)
	Departing	-0.28***	-0.24***	-0.29***	-0.09	-0.22***	-0.41***	-0.51***	-0.29***	15 (0)
	New-Departing	0.25***	0.09	0.13	-0.08	-0.10	0.16	0.27	0.23	6 (0)
EBIT/TA	Continuing	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.02	
	New	-0.01	0.00	-0.08***	-0.08***	-0.10***	-0.06***	-0.09***	-0.03*	13 (0)
	Departing	-0.14***	-0.12***	-0.17***	-0.13***	-0.09***	-0.15***	-0.17***	-0.21***	17 (0)
	New-Departing	0.13***	0.12***	0.09**	0.05	-0.01	0.09**	0.08*	0.18***	12 (0)
CF/Debt	Continuing	0.02	0.02	0.03	0.03	0.04	0.03	0.03	0.03	
	New	-0.04*	-0.07*	-0.19***	-0.27***	-0.20***	-0.21***	-0.13***	-0.13***	15 (0)
	Departing	-0.35***	-0.24***	-0.33***	-0.23***	-0.18***	-0.26***	-0.39***	-0.34***	17 (0)
	New-Departing	0.31***	0.17**	0.14	-0.04	-0.02	0.05	0.26**	0.21	9 (0)
Debt/TA	Continuing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	New	0.03	0.02	0.01	0.00	-0.04	-0.01	0.00	-0.03	0 (3)
	Departing	0.13***	0.10***	0.09***	0.10**	0.05	0.07**	0.14***	0.05*	0 (12)
	New-Departing	-0.10**	-0.08	-0.08	-0.10*	-0.09*	-0.08	-0.14***	-0.08*	0 (8)
TA	Continuing	80.36	78.29	70.83	69.61	89.45	88.40	88.69	103.70	
	New	-209.78**	-293.00**	-360.12***	-308.20**	-286.20**	-300.81**	-441.27***	-475.79***	16 (0)
	Departing	-431.51***	-414.90***	-304.69***	-292.73**	-463.35***	-453.59***	-494.42***	-482.35**	17 (0)
	New-Departing	221.73*	121.90	-55.43	-15.47	177.15*	152.78	53.15	6.56	3 (0)
Sales	Continuing	77.97	71.11	71.24	71.89	90.76	88.78	111.11	93.64	
	New	-261.34***	-101.27	-338.73***	-350.10***	-271.34**	-347.10***	-530.31***	-402.97***	16 (0)
	Departing	-437.05***	-369.16***	-345.01***	-324.65**	-462.26***	-454.43***	-673.21***	-383.79***	17 (0)
	New-Departing	175.71**	267.89*	6.28	-25.45	190.92*	107.33	142.90	-19.18	4 (0)