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Management Control Systems and Boundaries of the Firm: Why do Firms Outsource Internal Auditing Activities?

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Abstract: Internal auditing (IA) has been an important part of the internal management control system (MCS) of many firms. Nonetheless, growing numbers of firms have, in recent years, outsourced some or all of the internal audit function to third-party providers such as large public accounting firms. Articles in the professional literature suggest that these firms are focusing resources on core competencies and seeking to minimize noncore support costs. If that is generally the case, then one could question why any industrial firms retain IA functions since, as some observers argue, few would regard IA as creating competitive advantages.

This study uses organizational relations from transaction cost economics (TCE) to model, describe, and explain the level of outsourcing of the IA portion of the MCS. The study uses a survey questionnaire and archival sources to obtain qualitative and quantitative data from a random sample of 600 publicly traded firms (stratified by industry) from the Compustat industrial files (33 percent overall, 14 percent usable response rate). Quantitative data are analyzed using multiple regression analysis, and qualitative data are analyzed using qualitative database software (ATLAS.ti).

Composite measures of asset specificity and frequency and their interaction are significantly associated with outsourced IA as hypothesized in a regression model that explains 53 percent of the variation in outsourced IA. Other TCE variables, which measure uncertainty, do not significantly explain outsourced IA. Qualitative data reinforced the importance of asset specificity and indicated that other TCE variables may be associated with outsourcing IA, identifying opportunities for future research.

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Survey data were obtained with promises of anonymity and protection of the identity of responding firms. The authors will share data with others insofar as anonymity of the study's participants can be preserved.

INTRODUCTION

Industrial firms worldwide continue to rationalize their organizations by "right-sizing" and shedding noncore businesses and functions. KPMG (*Fortune* 1997) has estimated that as many as 88 percent of larger firms outsource at least some of their support services. Indeed, outsourcing is identified as one of the fastest-growing businesses in the world (*Fortune* 1997). Although many firms traditionally have maintained their own internal audit (IA) functions as part of the management control system (MCS), several recent surveys (Cox 1993; Schulz 1995) indicate that an increasing number of them are outsourcing IA.¹ Perhaps not coincidentally, consulting and public accounting firms have targeted provision of IA services as a profitable market opportunity (Verschoor 1992; *Fortune* 1997). From the popular and professional literature, one might expect that this trend will continue, and virtually all firms might outsource IA in the not-too-distant future. This would represent a significant shift in the economics and conduct of IA services and a change in the structure of some firms' MCS.

To our knowledge, there has been no empirical study of specific factors associated with firms' decisions to outsource or internalize IA activities. This study uses organizational theory from transaction cost economics (TCE) (Williamson 1979, 1975, 1991) to explain outsourcing of IA. TCE argues that activities of the firm either will be internalized or market-mediated, depending on relative transaction costs of conducting the activities (Williamson 1979). By modeling and measuring sources of transaction costs (including consideration of resource-based strategy [Barney 1991]), this study is able to provide significant explanation of outsourced IA.

The study uses survey data from a random sample of chief financial officers and archival data from 600 publicly traded U.S. Compustat firms (stratified by industry). There is no evidence of material response bias. Respondents tend to be larger in size than nonrespondents, but late respondents are not larger than nonrespondents. Among respondents, several TCE variables are significant as hypothesized in a regression model that explains 50.5 percent of the variation in outsourced IA (adjusted $R^2 = 0.46$). Analysis of qualitative data reinforces the importance of TCE and strategy in the decision to outsource IA, and supports the study's measurement of survey variables.

This report is organized as follows. The second section of the paper describes the relation of IA with a firm's MCS. The third section uses TCE and resource-based strategy theories to identify and hypothesize variables and interactions that are likely to explain the degree of IA outsourcing. The fourth section explains the empirical research method and describes the variables used to explore whether TCE and strategy explain outsourcing IA. The fifth section reports statistical tests of hypotheses and analysis of qualitative data. The final section provides conclusions, implications for outsourcing MCS, and opportunities for future research.

MANAGEMENT CONTROL AND INTERNAL AUDITING ACTIVITIES

The management control system (MCS) is designed to assist managers in planning and controlling the activities and personnel of the organization. The MCS is a generic term encompassing multiple control functions that are used for

¹ Examples of firms that have outsourced some or all internal audit activities include:

- *Retailers*—Saks Fifth Avenue, Montgomery Ward, Service Merchandise, Dress Barn, Wickes Lumber, CML Group (Schulz 1995)
- *Banks*—Great Western Bank (Hodgson and Purschaver 1995), First American Corporation, First Bank—Minneapolis (Verschoor 1992) and Bank of America Illinois (Cox 1993).

different and varying purposes (Abernethy and Brownell 1997; Khandwalla 1972; Merchant 1985, 1998; Simons 1990). Merchant (1985) describes how the MCS helps organizations achieve their purposes through control over results, actions, and personnel. The MCS also may comprise the financial control system, the management accounting system, and the human resources system (Merchant 1998; Horngren et al. 1997; Simons 1992). Anthony (1988) describes the MCS as three co-existing control systems, which include management control, task control (including IA), and strategic planning. It is clear that the MCS is a broad concept containing many elements and used for many purposes. For the purposes of this paper, we consider that the MCS includes various control components or sub-systems, of which IA is one. This is similar to the view taken by Horngren et al. (1997).

Organizations have designed the IA component of the MCS traditionally to focus on the adequacy of internal controls and the reliability of financial statement information. IA has evolved in recent years to provide management with assurance services and reports of performance exceptions for such items as financial accounting information, internal control systems, and operational efficiencies. More recently, firms also have asked internal auditors to analyze: the reliability of information technology; the effectiveness and efficiency of domestic and foreign business operations; the adequacy and implementation of organizational strategy; to help improve the firm's processes and operations; and to monitor customer satisfaction (Wescott 1995). Internal auditors currently also investigate and report cases of organizational fraud (Ratliff and Beckstead 1994). In other words, many internal auditors now provide more varied control information and guidance than they did as traditional overseers of only the financial control environment (*Financial Executive* 1997).²

The expanding role of IA may overlap with traditional management accounting activities in some firms to encompass more of the MCS. This "encroachment" or merging with management accounting reflects changing demands from organizations and requires different skills and knowledge than has been traditional for internal auditors. At the same time, increased competitive pressures are forcing firms to look closely at the services they maintain internally—to make sure they add value and do not duplicate other services. Many firms now confront decisions whether to develop and maintain these broader IA capabilities internally or to outsource IA services to external providers. This study suggests theoretical determinants of that choice.³

TCE AND RESOURCE-BASED STRATEGY HYPOTHESES

Most microeconomic theories of the firm regard the firm as an abstract construct. TCE theory, however, deliberately attempts to operationalize the firm as a set of internal (bureaucratic) activities and external market (contract) relations. TCE defines the boundary of the firm as the limit of transactions governed by internal processes. Any transactions that occur via markets are by definition external to the firm. Furthermore, TCE attempts to predict which activities are internalized and which are transacted via market exchanges.

TCE hypothesizes that firms seek to minimize costs of operations, which

² IA in banks, however, typically still emphasizes analysis of financial controls (Gibbs and Courtemance 1994).

³ It is possible that choices of other MCS components influence outsourcing IA. Firms may employ a portfolio of complementary or substitutable MCS components—including IA (e.g., Khandwalla 1972). The literature, however, usually investigates single aspects of MCS (e.g., bonus remuneration in Govindarajan and Gupta [1985]; relative performance evaluation in Maher [1987]; capital budgeting in Miller and O'Leary [1997]). Recent interest in the balanced scorecard reflects a portfolio approach to MCS (Kaplan and Norton 1996). At this point, however, MCS portfolio choice is poorly understood.

include transaction costs—the “costs of running the system” (Arrow 1969). Examples of these transaction costs include the costs of information search, writing and enforcing contracts, scheduling activities, and monitoring performance. This study relies on TCE because it, unlike most economic theories of the firm, specifically describes and predicts the boundaries of the firm based on decisions to minimize costs of conducting activities. That is, TCE identifies cost drivers that determine which activities will be *governed* by management activities (internalized) and which will be *governed* by market transactions (outsourced). The internalize/outsourced decision is referred to as the choice of *governance structure* in the TCE literature.⁴

TCE assumes individuals are boundedly rational and opportunistic. This implies that (1) contracts cannot be complete because all contingencies cannot be foreseen, and (2) individuals will exploit contract ambiguities to their advantage—even going so far as to misrepresent contract performance. The effect of these limitations to contracting is to add, in varying degrees, to opportunity costs of conducting activities. TCE argues that four attributes of activities determine transaction costs.⁵ These are:

- Asset specificity—the degree to which the assets needed to perform the activity are not transferable to other activities
- Environmental uncertainty—expected variation in the demand for activities
- Behavioral uncertainty—the inability to monitor activities
- Frequency—the volume or rate at which activities are conducted.

TCE is a venerable economic theory that has found a number of business applications. TCE has been used to explain transfer-pricing policies (Spicer and Ballew 1983; Spicer 1988; Colbert and Spicer 1995), make-or-buy decisions (Walker and Weber 1984), outsourcing warehouse functions (Maltz 1994), vertical integration (Monteverde and Teece 1982; Levy 1985; Walker 1988; Gatignon and Anderson 1988), and forward integration of distribution channels (John and Weitz 1988). These governance structure decisions are similar to make-or-buy decisions, and variations in TCE attributes have explained the degree of observed internalized or outsourced activities in these studies. Most of these earlier studies have found that *asset specificity* contributes most significantly to explaining observed governance structures. This replicated finding supports the descriptive validity of asset specificity as a major determinant of the outsourcing decision. Indeed by 1991, Williamson (1991, 80–83) attributed most of the explanatory power of TCE to asset specificity. *Uncertainty* and *frequency* variables (measured with survey or archival data) have had mixed results as main effects in explaining governance structures (e.g., John and Weitz 1988; Maltz 1994), but, as we argue below, these variables may be explanatory when interacting with asset specificity.

The present study hypothesizes that firms elect to either internalize or outsource some or all IA activities depending on the levels of the four types of TCE attributes of transaction costs, and their interactions. Note that hypotheses, which follow, are stated consistently with TCE predictions.

Asset Specificity

Assets are *specific* if they are unique to certain activities. In some firms, specific IA assets may be required to conduct IA activities. These specific assets

⁴ Note that TCE assumes basic factor costs to be competitively priced—only the transaction costs of acquiring and using them may differ across governance structures.

⁵ Note that Williamson (1975, 1979) indicates three dimensions of transaction costs—asset specificity, frequency, and *uncertainty*—but also identifies two distinct types of uncertainty relating to external conditions and human behavior, which John and Weitz (1988) label as environmental and behavioral uncertainty.

include human expertise and knowledge of sources of competitive advantage, proprietary information, or firm-specific technology (Williamson 1991; Edwards 1997). Resource-based-strategy theory (Barney 1991; Grant 1991; Amit and Shoemaker 1993) supports the importance of firm-specific assets as the basis for building sustainable advantages.⁶

To sustain competitive advantage, an activity or resource must (1) enable efficiency and effectiveness, (2) be unique, and (3) be difficult to imitate. Resource-based-strategy theory argues that firms respond to competitive pressures by focusing scarce resources on sources of competitive advantage. If a particular value-chain or support activity does not generate a competitive advantage, firms may outsource that activity to refine their focus. In the extreme, a firm may become a virtual organization that internalizes only the part(s) of the value chain that generate(s) competitive advantage and outsources everything else. If IA is intended to reinforce the firm's competitive strategy by building firm-specific knowledge, training personnel, or protecting proprietary knowledge, the firm will tend to internalize IA. Conversely, firms will outsource IA that does not build and maintain competitive strategy.

Though an IA activity itself (e.g., conducting an operational audit) may not be a core competency or the source of a competitive advantage, knowledge of and expertise in true core competencies may be necessary to conduct IA activities—or they may be revealed to outsiders as part of contracted activity. Outsourcing IA could allow a third party (e.g., competitors) to gain and apply strategic knowledge and expertise competitively, to the detriment of the firm. Perhaps no level of contracting or market forces could fully protect the firm. If required knowledge or expertise are highly specific, the firm would be unwilling to outsource IA activity and, thus, the knowledge required to do it. Externally contracted IA activities requiring highly specific assets or resources would have higher transaction costs than if they were internalized. Furthermore, IA may provide valuable training for new managers in the specifics of the firm, and this training may not be substituted easily and could not be outsourced without revealing core knowledge. On the other hand, IA knowledge and expertise that are generally applicable to many firms may be efficiently supplied by external IA providers, with little risk of exploitation of clients' special circumstances. Thus, levels of expertise, training, and use of proprietary knowledge may be indicative of the asset specificity of IA.

H1: Firms internalize IA resources and activities that require firm-specific investments (e.g., expertise, training, and knowledge) and support the firm's strategy. Conversely, firms outsource IA resources and activities that are more generally applicable.

Other TCE Variables and Their Interactions with Asset Specificity

Most researchers who have employed TCE look for main effects from each of the TCE attributes to explain governance structures (e.g., Levy 1985; John and Weitz 1988; Maltz 1994). Several, however, have interpreted TCE to indicate significant interactions between selective pairs of TCE variables as well (e.g., Gatignon and Anderson 1988; Pilling et al. 1994). Williamson's (1975, 1979) original theoretical work does describe asset specificity interactions with other

⁶ Theories of *product* strategy offered by Miles and Snow (1978), which is similar to Porter (1980), proposes that firms select product strategies (defender, prospector, analyzer, and reactor). Because IA may reinforce any of the viable product strategies—once selected—we do not expect differences in outsourcing because of differences in product strategy. Maltz (1994) argued that Defenders will outsource services because they are assumed to be available more cheaply (out-of-pocket) externally, but his data did not support this proposition. We also classified firms using survey items (Snow and Hambrick 1980) according to product strategy, but the resulting variables also do not add explanation of the IA outsourcing decision in this study.

TCE variables that create stronger conditions for internalizing or outsourcing activities than created individually by the variables. Each additional variable and its interaction with asset specificity are discussed below.

Environmental Uncertainty and its Interaction with Asset Specificity

Environmental uncertainty refers to the stability and predictability of IA activities that are a consequence of business conditions (e.g., adaptations by organizations and volatility of business activities). To the extent that firms can predict and schedule IA activities, costs of contracting should be low, and firms may outsource IA at low transaction costs. "Spot" prices for standardized (low asset specificity) IA activities may be somewhat higher than negotiated, long-term prices, but spot prices for idiosyncratic (high asset specificity) IA can be expected to be much higher. Similar to Gatignon and Anderson (1988), we argue that simultaneously high levels of both environmental uncertainty, which would necessitate spot contracting for outsourced services, and asset specificity, which would make the service less likely to be generally available externally, increases motivation to internalize IA. Conversely, simultaneously low levels of both variables would motivate firms to outsource IA.

H2a: Firms that experience high levels of environmental uncertainty will internalize IA. Conversely, firms that experience low levels of environmental uncertainty will outsource IA.

H2b: Environmental uncertainty and asset specificity interact to affect outsourcing IA.

Behavioral Uncertainty and its Interaction with Asset Specificity

Behavioral uncertainty reflects difficulties of monitoring contract performance and controlling the human tendency toward opportunism. Behavioral uncertainty combines agency theory contracting conditions of unobservable effort, imperfect monitoring, divergent preferences, and disutility of effort with opportunism. Internal auditors, for example, may claim to have completed certain audit activities, but whether and how well they did may not be ascertained from the completed task. That is, IA outcomes (good or bad) may be due to auditors' efforts and skill, uncontrolled events, or all three. Ordinarily, behavioral uncertainty is not a problem for standardized (low asset specificity) transactions because suppliers usually compete in competitive markets, which regulate opportunistic behavior. However, idiosyncratic transactions (high asset specificity) are most at risk because of the small number of qualified suppliers. Williamson (1975) identifies this problematic condition as "information impactedness"—an exchange condition of high behavioral uncertainty (unobservability coupled with ubiquitous opportunism) and high asset specificity. As Williamson (1979, 241) elaborates, "whereas recurrent spot contracting is feasible for standardized transactions...such contracting has seriously defective investment incentives where idiosyncratic activities are involved...absent the hazards of opportunism, the difficulties would vanish."

If the quality of idiosyncratic IA cannot be observed easily, the firm is even more likely to internalize IA. Conversely, simultaneously low levels of both variables would lead to outsourcing IA.

H3a: Firms that experience high levels of behavioral uncertainty will internalize IA. Conversely, firms that experience low levels of behavioral uncertainty will outsource IA.

H3b: Behavioral uncertainty and asset specificity interact to affect outsourcing IA.

Frequency and its Interaction with Asset Specificity

Frequent IA activities can create benefits from economies of scale of governance costs (i.e., repetition permits recovery of setup costs). Williamson (1975) argues that large setup costs are especially likely with high levels of asset specificity (e.g., high training costs). More frequent activity will allow recovery of these setup costs. Thus, frequent activities that require specific assets (e.g., proprietary knowledge) will be even more likely candidates for internalization. Conversely, both occasional and frequent standardized activities that may be generally applicable are more likely to be outsourced since external providers can benefit from larger economies of scale. Though frequency may independently affect outsourcing IA, it is also likely that activities that are both frequent and specific will be internalized to gain both economies of scale and minimize costs of leakage of key knowledge.

H4a: Firms that use IA services frequently will internalize IA. Conversely, firms that use IA services infrequently will outsource IA.

H4b: Frequency and asset specificity interact to affect outsourcing IA.

METHODS

This section describes the research design and measurement decisions made to test the study's hypotheses.

Research Design and Sample

We first consulted several Big 5 providers of outsourced-IA services, who indicated those firms with more than 100 employees are more likely to demand IA services than smaller firms are. We conservatively increased this design criterion to 500 employees to increase the probability that sampled firms would use IA services.⁷ To avoid sampling and sponsorship bias, we neither sought organizational sponsorship nor specifically solicited members of any IA organization. Seeking generalizability, we surveyed a random sample of 600 publicly traded firms with more than 500 employees (stratified by industry) from the Compustat industrial files.

Sampling from Compustat does restrict the analysis to larger firms in the U.S. economy, but these firms are more likely to demand IA services. Consequently, the sampling plan should not exclude many types of firms that make IA sourcing decisions. Thus, sample selection or sponsorship biases are not likely.

To enable analysis of nonrespondents and inclusion of archival-proxy variables, the study also requires sample firms to have sales, assets, and either R&D or advertising expense in the most recent year available prior to the start of the study—1995.

Research Method

Readily available archival data are insufficient to support tests of the foregoing hypotheses. In particular, there are no publicly available databases that describe firms' internalized or outsourced IA activities—the dependent variable in question. Though some independent variables can be proxied by accounting

⁷ Note that sampled firms which reported no use of IA averaged 8,000 employees (std. dev = 40,185), whereas firms that reported use of IA averaged 21,100 employees (std. dev. = 41,420). This difference is significant at $p = 0.05$. Other differences are discussed in footnote 8.

measures or ratios available on Compustat, only persons with management responsibility for IA within the firms would know most of the hypothesized variables. Accordingly, we sought data from chief financial officers (CFOs), who generally are responsible for supervising or contracting for IA services. During the summer of 1997 CFOs of the sample firms were surveyed by name regarding their firms' 1996 IA activities. In some firms that employ internal auditors, a director of internal auditing (or someone with a similar title) has primary responsibility for IA and reports to either the CFO, the chief executive of the firm, or the Board of Directors. If relevant, CFOs were asked to pass the survey to the person directly responsible for IA.

The design and administration of the survey mirrors the "total design approach" advocated by Dillman (1978). Knowledgeable academics (from fields of marketing and auditing—several also experienced with TCE research) and seven representative CFOs and directors of IA reviewed and critiqued initial versions of the survey for content and clarity of the questions. After several revisions, the final survey was mailed to the CFOs of the 600 sample firms. The survey cover letter promised anonymity and described the objectives of the study. The letter also described IA activities and stressed the importance of understanding why firms may choose to outsource or internalize IA. The first page of the survey reiterated the objectives of the study and the types of activities that may be included under the umbrella term, IA. As an inducement to reply, respondents were promised summarized results of the study (respondents were asked to include a business card). In a few cases, questionnaires were returned because the addressee was no longer with the company. Most of these firms were resurveyed in the next mailing after obtaining the name of the current CFO.

Three survey mailings and one postcard reminder after the first mailing resulted in 198 responses (33 percent overall response rate). The frequency distribution of respondents is not significantly different from those sampled. The Chi-square statistic is 0.478 (probability of no difference > 0.999). Representatives of 12 firms responded but chose not to participate. Fifty-five responded that they used no internal audit services as defined by the study.⁸ The remaining 131 firms, or 22 percent, used some internal audit services and provide the responses analyzed in this paper. Of the 131 firms who responded that they use internal audit services, 44 of them outsource a portion of their internal audit function, three firms outsource the entire function, 83 of them do not outsource any of the function and one firm did not indicate whether they outsource. Eighty-three firms (14 percent of the original sample of 600) returned complete questionnaire data.⁹

Responding firms are significantly larger than nonrespondents on several financial variables that the study modifies for potential use as archival proxies for TCE variables.¹⁰ Nonrespondents, however, are roughly similar to the third quartile of respondents and are only marginally different from late respondents on these archival variables. There are no significant differences between early and late respondents. The response rate and the descriptive statistics support a conservative

⁸ Firms that reported no use of IA services were significantly smaller (total assets, $p = 0.04$; employees, $p = 0.05$; sales, $p = 0.07$) but spent relatively more on R&D (R&D/Sales, $p = 0.008$) than firms that reported use of IA. One may speculate that non-IA firms are likely to be more entrepreneurial and focused on finding growth opportunities than on installing complex management controls such as IA.

⁹ We conservatively chose to use only complete responses rather than to either impute missing values or restrict the scope of the analysis to only observed variables. This conservatism cost the study 48 responding firms.

¹⁰ These proxies include: standard deviation of sales—to proxy environmental uncertainty; sales, total assets and number of employees—to proxy frequency, R&D; and advertising expenses divided by sales—to proxy realized product strategy.

conclusion that the sample obtained is representative of somewhat larger Compustat firms, and the results may not generalize to the entire Compustat population of firms with more than 500 employees. Larger firms, however, may have been more likely to both use IA and face this outsourcing decision. They also may have more interest and resources to devote to responding to the survey. Thus, there is minimal evidence to imply nonresponse bias that would adversely affect this study.

Variable Measures

Each respondent was asked to complete a survey that includes multiple measures of each variable. Additionally, each had the opportunity to reply to an open-ended question regarding IA-sourcing decisions. As appropriate, the individual survey items are combined to form hypothesized summary measures. The efficacy of variable construction is tested using confirmatory factor analysis and coefficient-alpha. Items that did not load appropriately as hypothesized are dropped from the variable measures. Inter-item correlation for each estimated construct is positive and significant. The summary of variable measures and associated statistics are in Table 1. Questions from the complete questionnaire are in the Appendix.

It was necessary to measure the dependent variables in the same instrument that measures many of the independent variables. That they are measured using the same instrument may induce some observed correlation between dependent and independent variables. The present study reduces the threat of common-method variance (e.g., Bagozzi and Yi 1991) by using multiple forms and methods of measurement. The dependent variable measures are four different, factual, numerical quantities, while the independent variable measures are multi-item Likert-type scales or are obtained from the Compustat database.

Internalized or Outsourced IA

The dependent variable, outsourced IA, is the proportion of outsourced IA hours to total IA hours (as in John and Weitz 1988):¹¹

$$\text{Proportion of outsourced IA hours} = \frac{\text{Number of outsourced IA hours (Q4)}}{\text{total IA hours (Q4 + Q2)}}.$$

Asset Specificity

The primary assets associated with IA that may not be transferable among firms are internal auditors' knowledge of and expertise with products, processes, customers, and sub-units of the firm. The survey contains seven questions to measure this perspective of asset specificity. One of these questions (an item asking whether the external provider had IA staff specifically dedicated to the firm) was discarded because of generally negative correlation with other measures. Respondents answered two questions regarding the relative amounts of IA time spent on general tasks (i.e., 1 = financial audits) or specialized tasks (i.e., 5 = operational audits) that are either internalized (Q30) or outsourced (Q9). Values are coded appropriately as zeros if respondents either outsourced all or no IA. These question responses are differenced so that a higher score reflects more

¹¹ Those that did use IA services in 1996 gave their total number of man-hours of IA effort, whether they outsourced any IA (0,1), their man-hours of outsourced IA, percentage of their IA effort that was outsourced, and the number of their outsourced and internalized IA reports and specific IA tasks. In addition to the reported measure and the discrete, yes-no measure of IA outsourcing, these responses yield two alternative dependent variables:

- (a) Proportion of outsourced engagements = Number of outsourced IA engagements/total IA engagements
- (b) Proportion of IA effort provided by external parties = Percentage outsourced effort. The results of all multivariate analyses are similar regardless of the form of dependent variable used.

TABLE 1
Reliability Measures and Factor Loadings for Variables with Multiple Items^a

	<u>Variance</u>	<u>Alpha</u>	<u>Factor 1</u>
Items for "AS" Asset Specificity	0.84	0.98	
Q30-Q9 (financial audits or special projects: internal -outsourced)			0.805
Q12-Q24 (proprietary information: internal—outsourced)			0.859
Q31.1a-b (ensure compliance: internal—outsourced)			0.932
Q31.2a-b (feedback on exceptions: internal—outsourced)			0.951
Q31.3a-b (interaction with management: internal— outsourced)			0.956
Q31.4a-b (achieve strategic plans: internal— outsourced)			0.940
Q31.5a-b (identify opportunities for improvement: internal—outsourced)			0.965
Q31.6a-b (identify market opportunities: internal— outsourced)			0.893
Q31.7a-b (success in getting certification: internal— outsourced)			0.911
Items for "ENV" Environmental Uncertainty	0.40	0.50	
Q16 (variation in business activity)			0.627
Q18 (predictability of IA needs)			0.648
Q21A (changes in organization)			0.639
Q22A (turnover in auditee personnel)			0.609
Items for "BEH" Behavioral Uncertainty	0.65	0.45	
Q10 (evaluate outsourced contract performance)			0.804
Q17 (evaluate outsourced quality relative to internal)			0.804
Items for "FREQ" Frequency	0.73	0.92	
Number of reports (Q6, outsourced + Q25, internal)			0.842
Number of engagements (Q7 + Q8, outsourced + Q26 + Q27, internal)			0.929
Number of auditees (Q14)			0.856
Number of employees (Compustat variable)			0.894
Net sales (Compustat variable)			0.894
Total assets (Compustat variable)			0.671

^a Data for 83 firms (14 percent of total sample) that provided complete responses.

internalized IA for firm-specific tasks (Q30 - Q9). Respondents also answered two questions regarding the time either spent by internalized IA (Q24) or outsourced IA (Q12) working with proprietary information. These question responses also are differenced so that a higher score indicates more internalized IA using proprietary information (Q24 - Q12).

A third set of two questions (Q28 and Q29) measures whether IA is used as training to provide employees with firm-specific knowledge. The first question (Q28) asks whether respondents use IA primarily as training for other positions (after Williamson [1979]). The second question (Q29) asks for the time employees typically spend in the IA department before being rotated to another department (after John and Weitz [1988]), who used a single training item). These items were

negatively correlated with a number of the other asset specificity items and were dropped.

The survey also measures seven items (Q31.1–7) that describe the perceived strategic roles of IA. Each of the seven items measures the importance for either internal (part a) or outsourced (part b) types of IA activities for supporting elements of the firm's strategy. Each item is differenced (part a – part b) to measure the relative importance of internalized IA's contribution to the firm's strategy. Increasing values measure increased importance of internalized IA to the firm's strategic needs.

Factor analysis of the nine differenced asset-specificity items shows that all items load significantly on a single, one-dimensional factor that explains 84 percent of the items' variance (coefficient alpha = 0.975). However, this factor is not significantly correlated with two archival measures, R&D and advertising intensity, which have been used in earlier studies to proxy for asset specificity and product strategy.¹² Though there is no evidence of convergent validity (e.g., Nunnally 1978), this variable, which we label "asset specificity," has very high reliability. Developed for this study and reviewed by numerous experts, it also has high content and face validity. Therefore, we measure asset specificity by averaging the nine difference scores, as follows:

$$\begin{aligned} \text{Asset Specificity (AS)} &= [(Q30 - Q9) + (Q24 - Q12) + (Q31.1a - Q31.1b) \\ &\quad + (Q31.2a - Q31.2b) + (Q31.3a - Q31.3b) + (Q31.4a - Q31.4b) \\ &\quad + (Q31.5a - Q31.5b) + (Q31.6a - Q31.6b) + (Q31.7a - Q31.7b)] \div 9. \end{aligned}$$

Environmental Uncertainty

The survey contains five questions, adapted from those used by John and Weitz (1988), to measure environmental uncertainty. One of these is discarded because its responses are negatively correlated with most of the other questions. The survey measures environmental uncertainty by (1) the variation in business activities across auditees (Q16), (2) predictability of demand for IA (Q18), (3) changes in business structure (Q21a), and (4) turnover of auditee personnel (Q22a). Factor analysis shows that these four items load into a single variable that explains 40 percent of the items' variance and is one-dimensional (coefficient alpha = 0.50). The four question responses are averaged to form the variable:

$$\text{Environmental Uncertainty (ENV)} = (Q16 + Q18 + Q21a + Q22a) \div 4.$$

The low coefficient alpha achieved for environmental uncertainty could be due to a poor translation to an IA context of John and Weitz's (1988) items, which were designed to reflect sales uncertainty and for them resulted in a more reliable measure (their coefficient alpha = 0.73). Note that Maltz (1994) was unable to measure uncertainty reliably and omitted this variable from his analysis. We also proxy environmental uncertainty by the archival measure, three-year variance in sales (Levy 1985; Ittner and Larcker 1997), but find that the archival measure is less successful in explaining outsourced IA than our survey measure. Therefore, we keep the survey measure even though its measured reliability is below usual expectations (Nunnally 1978; Van de Ven and Ferry 1980, 79).

¹² Gatignon and Anderson (1988) use R&D intensity to measure "proprietary content," which they argue is a measure of asset specificity. Ittner and Larcker (1997) assumed that firms that are high in R&D and/or advertising intensity are more like Prospectors than Defenders. We also use R&D and advertising intensity as archival proxies of either asset specificity or product strategy, but find they add no explanation of outsourced IA.

Behavioral Uncertainty

Behavioral uncertainty reflects the difficulty of measuring IA performance. The survey asks how difficult it is to determine whether external providers of IA adhered to contractual agreements (Q10) and to evaluate the quality of outsourced IA relative to internalized IA (Q17). Factor analysis shows that these items form a single, one-dimensional variable that explains 65 percent of the items' variance (coefficient alpha = 0.45). Averaging the two questions forms this variable:

$$\text{Behavioral Uncertainty (BEH)} = (Q10 + Q17) \div 2.$$

We have no archival proxy for behavioral uncertainty and note that John and Weitz (1988) used only a single item, which was unique to their study, to measure this construct. Thus, we retain our survey variable though it, too, appears to be less reliable than desired.

Frequency

Because larger organizations may have more activities supported by IA, overall demand for IA services may be a function of the size of the organization, for which we use archival measures of sales revenue, total assets, and number of employees. Indicators of IA frequency additionally are measured in the survey by the number of reported auditees or organizational subunits requiring a separate IA activity (Q14) and the total numbers of annual outsourced and internalized IA reports (Q6 + Q25) and audit and nonaudit IA engagements (Q7 + Q8 + Q26 + Q27). Factor analysis shows that all six measures load into a single, one-dimensional factor that explains 73 percent of the variance in items (coefficient alpha = 0.92). Because the measure of frequency is composed of items with greatly different scales we add the archival and survey measures weighted by factor scores.

$$\text{Frequency (FREQ)} = 0.895 \times \text{Sales} + 0.672 \times \text{Total assets} + 0.894 \times \text{Employees} + 0.857 \times \text{Auditees} + 0.842 \times \text{Reports} + 0.929 \times \text{Engagements}.$$

Open-Ended Question

The last page of the questionnaire gave respondents an opportunity to describe reasons for and the types of IA activities that have been or will be candidates for outsourcing. Fifty-four firms provided qualitative comments on IA sourcing; two of these used the space to graciously decline to answer the questionnaire, but still provided comments. These qualitative responses were coded independently by two researchers. Initial inter-rater reliability was 80.4 percent. Most differences were due to researchers' multiple counting of comments. Double counting was eliminated and differences of interpretation were reconciled by mutual agreement. Each respondent's comments were first coded for the complete passage that described either internalized or outsourced IA. Note that since many firms mentioned both, the number of comments exceeds the number of respondents to the open-ended question. Within the internal- or outsource-related comments, words and phrases are coded according to theoretical constructs. For example, "frequency" is identified by comments regarding number of auditees, number of reports/engagements, and/or size. These comments are coded and analyzed with the aid of qualitative-database software to identify possible importance of TCE variables.¹³

¹³ Qualitative-database software facilitates analyzing these responses for frequency of occurrence, associations, and consistency of factors with hypothesized determinants of IA sourcing. The software also aids discovery of unanticipated relations that may enrich theory and lead to further empirical testing. Additionally, the software allows easy retrieval of coded comments in order to assess subjectively the depth of feeling and to add context to the more objective analysis of the survey data. Importantly for readers and researchers, the software automatically creates an audit trail that leads from identified relations to coding to original transcripts or other data. Thus, reliability of analyses is enhanced. The software used was ATLAS.ti. See the ATLAS.ti web site, (<http://www.atlasti.de>), for the most recent information and Weitzman and Miles (1995) for comparisons of several commercial programs.

Industry

There may be nonhypothesized industry effects that influence the outsourcing of IA activities that are distinct from other measured variables. Firms were classified by one-digit SIC codes.

RESULTS

The analysis of results begins with statistical tests of the study's hypotheses. This section then analyzes responses to the open-ended question, which provide insights to relations between TCE and the outsourcing decision.

Statistical Tests of Hypotheses

Table 2 has descriptive statistics and univariate tests of differences in means between firms with complete sets of data, contrasted by whether they do or do not outsource any IA.¹⁴ There are several significant differences ($p < 0.01$). All mean levels of the dependent variables for outsourcing firms are significantly greater than zero. Firms that do not outsource any IA report significantly higher asset specificity. They also report significantly more behavioral uncertainty. These univariate results are as predicted. Firms that outsource IA on average report more environmental uncertainty, but the archival proxy of environmental uncertainty does not support this finding. This result appears to contradict expectations based on TCE. There are no other univariate, statistically significant differences between the types of firms, including industry representation.

Correlation coefficients for pairs of variables are in Table 3. No pairs of independent variables are correlated highly enough to cause concern with multicollinearity. However, several correlations might be high enough to cause computational errors and the appearance of multicollinearity and inefficient regression coefficient estimates. Asset specificity is positively correlated with behavioral uncertainty ($r = 0.449$). Note that all correlations higher than 0.40 are significant at $p < 0.001$.

OLS regression analysis is used to test hypotheses and explain the proportion of outsourced IA hours.¹⁵ The base model is as follows:

$$Y_i = b_0 + b_1 X_{1i} + b_2 X_{2i} + b_3 X_{3i} + b_4 X_{4i} + b_5 X_{1i} X_{2i} + b_6 X_{1i} X_{3i} + b_7 X_{1i} X_{4i} + e_i,$$

where

- Y_i = Proportion of outsourced IA hours for firm i
- X_{1i} = Asset specificity (AS) for firm i (b_1 tests $H1$)
- X_{2i} = Environmental uncertainty (ENV) for firm i (b_2 tests H_{2a})
- X_{3i} = Behavioral uncertainty for firm i (b_3 tests H_{3a})
- X_{4i} = Frequency (FREQ) for firm i (b_4 tests H_{4a})
- $X_{1i} X_{2i}$ = Multiplicative interaction of AS and ENV for firm i (b_5 tests H_{2b})
- $X_{1i} X_{3i}$ = Multiplicative interaction of AS and BEH for firm i (b_6 tests H_{3b})
- $X_{1i} X_{4i}$ = Multiplicative interaction of AS and FREQ for firm i (b_7 tests H_{4b})

TCE main effects are expected to have negative coefficients in a multivariate model that explains the proportion of outsourced IA. Interactions of variables at higher levels also are expected to be associated with less outsourced IA. This regression model explains 53 percent of the variance in outsourced IA (adjusted $R_2 = 0.49$) and provides significant support for several TCE explanations of IA

¹⁴ Reported multivariate tests use a continuous dependent variable and provide more powerful contrasts.

¹⁵ Alternate forms of the dependent variable also were tested. Proportion of outsourced engagements or efforts also were tested with linear regression. A dichotomous dependent variable (outsourced IA, no outsourced IA) was explained with Probit and OLS analyses. In all cases, similar results were obtained.

TABLE 2
Descriptive Statistics and Univariate Tests^a

	<u>n</u>	<u>Mean</u>	<u>Std. Error</u>	<u>Min.</u>	<u>Max.</u>
Panel A: Outsource at Least Some Internal Auditing					
Dependent Variables					
Prop. outsourced IA hours	24	0.10*	0.020	0.004	0.363
Prop. outsourced IA engagements	24	0.15*	0.019	0.001	0.312
Prop. outsourced IA effort	24	0.11*	0.019	0.001	0.350
Asset Specificity	24	0.44*	0.143	-0.78	2.222
Environmental Uncertainty					
Environ. uncertainty (ENV)	24	2.99*	0.164	1.25	5.00
Std. Dev. of past 3 years' sales	24	45,072	44,507	6.445	106873
Behavioral Uncertainty (BEH)	24	2.81*	0.187	1.50	5.00
Frequency (FREQ)	24	-0.04	0.084	-0.425	1.355
Product Strategy Proxies					
Defenders (DEF)	24	0.167	0.078	0	1
Prospectors (PROSP)	24	0.542	0.104	0	1
R&D/sales (RD)	24	0.033	0.008	0.00	0.14
Advertising/sales (ADV)	24	0.015	0.045	0.00	0.20
Industry Classifications					
SIC 4 (Mfg)	20				
Other	4				
Panel B: Do Not Outsource Any Internal Auditing					
Dependent Variables					
Prop. outsourced IA hours	59	0			
Prop. outsourced IA engagements	59	0			
Prop. outsourced IA effort	59	0			
Asset Specificity	59	3.98*	0.056	2.333	4.556
Environmental Uncertainty					
Environ. uncertainty (ENV)	59	2.34*	0.088	1.00	4.50
Std. Dev. of past 3 years' sales	59	18,851	13,694	6.593	770,760
Behavioral Uncertainty (BEH)	59	3.75*	0.119	2.00	5.00
Frequency (FREQ)	59	-0.05	0.105	-0.448	3.879
Product Strategy Proxies					
Defenders (DEF)	59	0.271	0.058	0	1
Prospectors (PROSP)	59	0.508	0.065	0	1
R&D/sales (RD)	59	0.023	0.004	0.00	0.14
Advertising/sales (ADV)	59	0.011	0.045	0.00	0.23
Industry Classifications					
SIC 4 (Mfg)	40				
Other	19				

* Difference in means between Panels A and B is significant at $p < 0.01$.

^a Data from 83 respondents with complete data.

TABLE 3
Variable Correlations^a

	Prop IA	AS	ENV	BEH	FREQ	DEF	PROSP	ADV	RD
Prop IA	1.00								
AS	-0.705*	1.00							
ENV	0.232	-0.353	1.00						
BEH	-0.272	0.449*	-0.154	1.00					
FREQ	-0.055	0.030	0.103	0.082	1.00				
DEF	-0.105	0.110	-0.084	-0.099	0.086	1.00			
PROSP	0.056	-0.022	-0.013	0.049	-0.078	-0.584*	1.00		
ADV	-0.065	0.040	-0.034	0.051	0.032	0.031	0.089	1.00	
RD	0.118	-0.131	0.095	-0.010	-0.103	-0.134	0.168	-0.120	1.00

* Statistically significant at $p < 0.001$.

^a Data from 83 sample firms with complete data.

Prop IA = Proportion of outsourced IA
 AS = Asset specificity
 ENV = Environmental uncertainty
 BEH = Behavioral uncertainty
 FREQ = Frequency
 DEF = Defender
 PROSP = Prospector
 ADV = Advertising/Sales
 RD = R&D/Sales

outsourcing.¹⁶ Note that though specification tests do not indicate significant multicollinearity, several variance inflation factors were high enough to indicate mean-adjusting the data to lessen the impact of computational errors induced by correlations among variables (Judd and McClelland 1989). Base-model regression results using mean-adjusted data are in Table 4. The graph of the interaction terms, which plots the first derivatives of the estimated base model with respect to ENV, BEH, and FREQ, is shown in Figure 1.

H1: Firms with high asset specificity (AS) of IA tend to internalize IA. The composite measure of asset specificity is significantly and negatively associated with outsourced IA, as predicted ($p = 0.0001$). This asset specificity variable drives most of the explanation of the TCE model. This support for H1 is consistent with Williamson's (1991) expectation that asset specificity is usually the most important determinant of transaction costs. This finding also replicates most of the extant empirical tests of TCE and extends the finding to explain outsourcing of IA.

H2a: Firms with high environmental uncertainty (ENV) tend to internalize IA. Differences in reported environmental uncertainty do not explain outsourcing of IA significantly (H2; $p = 0.466$). As noted in the discussion of descriptive statistics, some firms that report significantly higher levels of environmental uncertainty do outsource IA, which may decrease the significance of this variable. Furthermore, the relatively unreliable survey measure, ENV, used in this study may have too much measurement error to be useful. Unfortunately, using an archival

¹⁶ Specification tests rejected the hypothesis that residuals are normally distributed (residuals are positively skewed), but did not find evidence of multicollinearity or significant heteroskedasticity. Square- or cube-root transformations of the data eliminated skewness and increased R^2 to 75 percent or 83 percent, respectively, with no qualitative change in reported results.

TABLE 4
Results of Multiple Regression Analysis
Dependent Variable: Proportion of Outsourced Hours of Internal Audit Effort^a
Base Model: All Firms

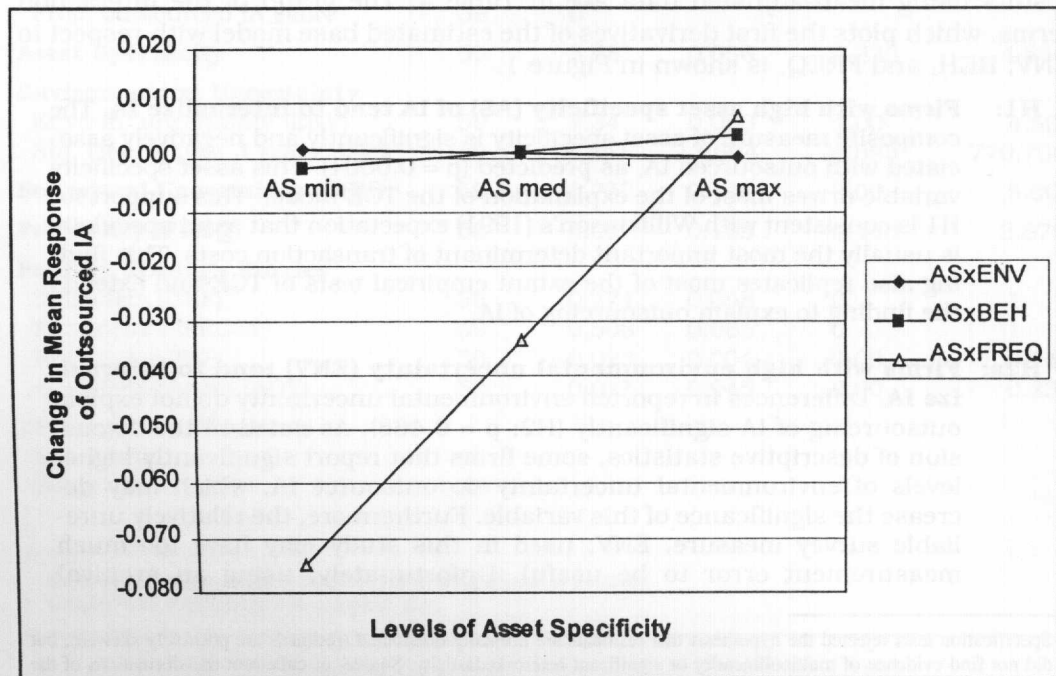
Independent Variables ^b	Predicted Sign	Coefficient	Std. Error	T-Value	p-Value ^c
Intercept		0.286	0.006	4.318	0.0001
Asset Specificity (AS)	-	-0.029	0.004	-6.662	0.0001
Environmental uncertainty (ENV)	-	0.0007	0.008	0.085	0.466
Behavioral uncertainty (BEH)	-	0.002	0.006	0.394	0.347
Frequency (FREQ)	-	-0.017	0.010	-1.653	0.051
AS × ENV		-0.0002	0.004	-0.046	0.963
AS × BEH		0.001	0.004	0.328	0.743
AS × FREQ		0.015	0.007	2.090	0.040
R ²		0.53			
Adj. R ²		0.49			
F-Value		12.045, p = 0.0001			
Df—Model		8			
Df—Error		75			

^a Outsourced Hours/Total Hours or Q4/(Q2 + Q4). Note that similar results are obtained with alternative forms of dependent variable (ratio of outsourced IA engagements to total engagements, proportion of outsourced IA effort, or 0/1—no outsourcing/outsourcing—using Probit and OLS analysis).

^b All variables are mean adjusted to reduce effects of multicollinearity.

^c One-tailed tests for main effects.

FIGURE 1
Graph of Base-Model Interactions



measure, the standard deviation of sales for the previous three years, as a proxy for environmental uncertainty (Levy 1985; Ittner and Larcker 1997) is not a meaningful improvement ($p = 0.388$); the model using this proxy is not reported. Hypothesis 2a is not supported in this base model using either survey or archival measures.

H2b: Environmental uncertainty (ENV) and asset specificity (AS) interact to affect outsourcing IA. The predicted interaction of environmental uncertainty and asset specificity is not significant in this model ($p = 0.855$). Noise in ENV could be a contributing cause. The graph of the slope of the estimated function with respect to ENV in Figure 1 shows virtually no effect of changes in either ENV or AS. Hypothesis 2b is not supported.

H3a: Firms with high behavioral uncertainty (BEH) tend to internalize IA. Behavioral uncertainty did not explain outsourcing of IA in this model (H3; $p = 0.347$). Once again, the survey measure used in this study, BEH, did not exhibit sufficient reliability, and the noise in the measure may be a cause of the lack of explanation. Hypothesis 3a is not supported.

H3b: Behavioral uncertainty (BEH) and asset specificity (AS) interact to affect outsourcing IA. The interaction of behavioral uncertainty (BEH) and asset specificity (AS) is not significant. The graph of the slope of the estimated function with respect to BEH in Figure 1 shows virtually no effect of changes in either ENV or AS. Hypothesis 3b is not supported.

H4a: Firms with more frequent (FREQ) IA tend to internalize IA. The composite measure of frequency of IA activity, FREQ, significantly explains the proportion of outsourced IA (H4; $p = 0.051$) as predicted. TCE theory hypothesizes that those firms that use IA frequently will benefit from the economies of scale enjoyed by internalizing the activity. Hypothesis 4 is supported in this base model.

H4b: Frequency (FREQ) and asset specificity (AS) interact to affect outsourcing IA. The interaction of frequency (FREQ) and asset specificity (AS) is significant ($p = 0.040$). The graph of the slope of the estimated function with respect to FREQ in Figure 1 shows marked effects of changes in both FREQ and AS, consistent with TCE predictions. At the minimum level of AS, a unit change in FREQ is associated with reduced outsourcing of IA (a 7.5 percent reduction in outsourcing), as predicted. A negative change in outsourcing IA per unit of FREQ (a 3.3 percent reduction) also is associated with median levels of AS, again as predicted. However, at the maximum level of AS, a unit change in FREQ is associated with a small positive change in outsourcing IA (approximately a 1 percent increase). A few exceptional firms (i.e., outliers) may drive this last result (see below). Hypothesis 4b is partially supported in the base model.

Other Results and Sensitivity Analyses

Additional tests that modify the base model allow an assessment of the stability of the base-model results. These include tests of the effects of outliers, industry membership, insignificant variables, and sample restrictions. From these additional analyses, one may conclude that the original base model is a stable representation of the survey and archival data.

Eliminating Outliers

Further tests of the base model identified several influential observations (e.g., outliers).¹⁷ Deleting 16 outliers improves R^2 to 97 percent (adjusted $R^2 = 0.96$) and enhances previously significant variables (AS, FREQ, and their interaction). Furthermore, the coefficients of behavioral uncertainty ($p = 0.0001$) and the interaction of asset specificity and behavioral uncertainty ($p = 0.0001$) become significant in hypothesized directions. Eliminating the outliers also makes the coefficient of the interaction of asset specificity and environmental uncertainty marginally significant ($p = 0.101$). Minimum levels of asset specificity appear to drive the interactions—in all cases at minimum levels of AS, firms change to internalize more IA. At the median or maximum levels of AS, changes in IA with respect to a unit change in FREQ, ENV, or BEH are zero or not materially different from zero. This result indicates further support for the interaction hypotheses, but caution should be used when interpreting the results involving behavioral or environmental uncertainty. Overall these two measures are unreliable, so these results may be restricted to the “purified” data.

Including Industry Effects

One industry, SIC 6 (wholesalers), when added to the base model as a (0,1) indicator variable, is significantly associated with higher levels of outsourced IA ($p = 0.0001$), but there are only three firms in this industry represented in the sample.

Analyzing Manufacturing Firms

Restricting the base model to only the 60 manufacturing firms changes the results for the base model slightly. The level of explanation of outsourced IA is slightly lower than for all sample firms ($R^2 = 0.515$). Asset specificity is still significant as predicted ($p = 0.0005$). Frequency is marginally significant as predicted ($p = 0.103$). The significance of the interaction of asset specificity and frequency is somewhat less but still significant as predicted ($p = 0.075$). Unlike the previous results for all sample firms, the interaction of asset specificity and behavioral uncertainty also is significant as predicted ($p = 0.036$).

Pruning Insignificant Variables

The base model could be “pruned” to eliminate insignificant variables. Regressing the proportion of outsourced IA on only asset specificity, frequency, and their interaction results in a model that explains 52.8 percent of the variation of the dependent variable (adjusted $R^2 = 0.51$). All coefficients of the retained variables are significant in the predicted direction.

Increasing the Sample

Knowing that asset specificity, frequency, and their interaction are the significant variables in the base model, one could, on a *post hoc* basis, expand the sample of firms to include all those for which we have complete data to construct AS and FREQ. This results in a sample of 99 firms (increased from 83). A pruned model using the expanded data explains 55 percent of the variation in the proportion of outsourced IA (adjusted $R^2 = 0.54$). As before, all coefficients of the model's variables are significant as predicted.

¹⁷ To check for outliers, we used three statistics (Judd and McClelland 1989): the lever (h), r-student, and Cook's d. In an iterative manner, we removed any observations that had a lever (h) greater than 1 or an r-student greater than 4, 3.5, and finally, 3. We also reviewed Cook's d for any unusually large values, but this criterion did not indicate the need for deletions. Ultimately, we deleted 16 observations for this test.

Analysis of Qualitative Data

Many of the responses to the open-ended request for further explanation are thoughtful and shed light on determinants of firms' IA-sourcing decisions. The comments are summarized in Table 5, which cross-classifies responses by internalized vs. outsourced IA (some or all), the hypothesized determinants of IA sourcing decisions, and observed interactions between TCE factors.

By far, the most comments (77) concern asset specificity, which reinforce the major findings of this and other empirical studies that use TCE. Firms that internalize IA cite building and maintaining firm-specific knowledge (ten) and use of IA for management training (nine) as reasons for internalizing IA. No firms that outsource IA cite either of these factors. One outsourcing firm expresses confidence that nondisclosure agreements signed by IA providers would protect its proprietary information. Other firms that outsource IA cite 34 examples of their outsourcing that rely on providers' general knowledge and expertise (ten), information technology expertise (11), and knowledge of foreign culture and language (13). In contrast, users of internal IA cite the same generally applicable activities a total of only four times to justify internalizing IA. One unexpected result is that a large majority of firms internalize financial/audit/tax IA services (six explicitly and all but two others by implication), which are expected to be likely candidates for outsourcing due to their general nature. However, nine of these firms also use IA for management training, which they feel is critically important to the organization. Other firms cite quality of service, protection of proprietary information, and the like as reasons to internalize financially oriented IA. A representative explanation for internalizing these IA services while outsourcing others is:

"X" has outsourced its IT [information technology] internal audit function at the beginning of 1996 because it was having trouble retaining qualified staff. An additional benefit has been the cost savings. All of the financial audits remain internalized because of a belief that we can provide a better service than having it outsourced. We feel our IT outsourcing program has been very successful. (1:35, 328-341, 26).¹⁸

Quite a few firms (24) cite behavioral uncertainty or the ability to control it as a basis for sourcing IA. Fifteen internalize IA for such reasons as strengthening organizational control (7) and ensuring quality of service (6). Nine firms outsource IA because they are able to contract adequately or are confident in the ability and reliability of their external providers. This suggests improvements in contracting practices or reliance on market pressures to regulate the behavior of external providers, which may be consistent with TCE but are not investigated directly in this study. Thus, behavioral uncertainty may be a significant factor, but in some cases may be more economically controlled by markets or contracts than by internal organization as suggested by TCE. Few firms (7) apparently base IA sourcing on environmental uncertainty, which reinforces this study's statistical finding of no effects. Frequency of IA activities is rarely cited (3) as the basis for IA sourcing, and these firms internalize IA. This is a bit surprising because of the strong statistical support found for frequency as an explanation for outsourcing IA. Perhaps frequency is "transparent" to those inside an organization and is only apparent cross-sectionally or over time.

Thirty firms report that strategic concerns influence IA sourcing. Most commonly, firms voice concerns for minimizing IA costs. However, these are closely split between

¹⁸ Quotation references indicate primary text document (1), comment sequence number (35), sequential line numbers (328-341), and firm number (26).

TABLE 5
Classification and Frequency of Qualitative Comments on IA Sourcing

Variable/Codes (indented)	Comments on IA Sourcing	
	Internalized (some or all)	Outsourced (some or all)
Asset Specificity	36	41
financial-audit-tax	6	2
firm-specific knowledge	10	0
general knowledge	1	10
information-technology	1	11
international-language-culture	2	13
operations-special-projects	5	5
proprietary information	1	0
training-time	1	0
used-for-training	9	0
Behavioral Uncertainty	15	9
auditor turnover—not training	0	3
contracting	0	1
organizational control	6	1
outsource-provider	0	1
quality-of-service	6	4
acceptance-by-line-management	2	0
top-management-support	1	0
Environmental Uncertainty	3	4
business-risk	1	2
changes-info-structure-personnel	0	1
scheduling	1	0
unpredictable-demand	0	1
variation-auditees	1	0
Frequency	3	0
number-auditees	0	0
number-reports-engagements	0	0
size	3	0
Strategy	14	16
cost-leader	0	0
cost-value	9	12
innovator	0	0
knowledge-based		
IA is a service function	0	4
IA is core strength	5	0
Interactions of TCE and Strategy	24	20
Asset Specificity × Strategy	18	13
Behavioral Uncertainty × Strategy	6	7
Environmental Uncertainty × Strategy	0	0
Frequency × Strategy	0	0

internalized (nine) and outsourced IA (12).¹⁹ A number of respondents (nine) indicate that a resource-based view of strategic decision governs their IA-sourcing decisions. Specifically, some firms (four) believe that IA is not a core competency and should be outsourced. Other respondents (five) reply that IA contributes to establishment or maintenance of knowledge-based, core competencies and should be internalized. This latter approach is consistent with arguments that "learning organizations" achieve sustainable competitive advantages by accumulating and protecting knowledge (Nonaka and Takeuchi 1995) rather than relying on product-based strategies. Based on these responses, firms using knowledge-based strategies may be more likely to internalize IA activities. A representative comment was:

The strength of our internalized internal audit function is the staffing. The staff and management are sourced primarily from within the company with a wide variety of educational backgrounds and work experience. After two to three years in internal audit they are transferred within the company, taking with them an understanding of internal controls, improved project management and communication skills, and an exposure to more organizations and business processes than most employees get throughout their career. (1:41, 377-395, 451)

The qualitative data indicate that IA sourcing is a complex decision, but there is strong qualitative support for asset specificity, behavioral uncertainty,²⁰ and strategic needs as determinants of outsourcing.

Searching the qualitative comments for nearby discussions (within five lines of text) of TCE and strategy variables yielded 40 occurrences of possibly important interactions. Thirty-one different respondents (nearly evenly split between discussions of outsourced and internalized IA) jointly discussed asset specificity and strategy, which reinforces the hypothesized similarity of asset specificity and resource-based strategy. Similarly, 13 respondents discussed behavioral uncertainty and strategy together. These findings add further empirical support to the possibility that TCE and strategic concerns interact to influence outsourcing of IA.

CONCLUSIONS AND DISCUSSION

Anecdotal evidence suggests that firms are countering economic pressures with focused strategies, and are outsourcing many service functions, including portions of their management control systems (MCS). A component of the MCS that many firms are outsourcing is internal auditing (IA). This study builds on an extensive literature, which hypothesizes that transaction costs determine optimal governance (organizational) structures for economic activity. Transaction cost economics (TCE) identifies several sources of transaction costs—asset specificity, environmental uncertainty, behavioral uncertainty, and frequency—that influence the optimal governance of activities. According to TCE, high market transaction costs are incentives to internalize economic activity. Conversely, activities with low market transaction costs may be more cheaply mediated through markets. Consequently, firms will internalize or outsource IA activities based on relative transaction costs, all other considerations held equal.

¹⁹ This neither confirms nor denies the assumption that external providers supply IA at lower cost. See footnote 6.

²⁰ Caplan and Kirschenheiter (1998) model a limited IA outsourcing decision (review of internal controls) as balancing concern for control risk (which is a condition that exacerbates behavioral uncertainty) and the cost of the audit. They find preference for outsourcing is an increasing function of control risk. They attribute this result to the relatively "deeper pockets" of external providers of IA services (especially public accounting firms) compared to internal auditors. This analytical result is consistent with some qualitative findings of this study.

Conclusions and Interpretations of Results

This study analyzed data from 600 randomly selected Compustat firms with more than 500 employees that use IA (14 percent usable response rate) to measure indicators of these transaction costs. Data were obtained from surveys returned by sampled firms and Compustat files. The study measured several TCE variables (asset specificity and frequency) very reliably using multiple sources of data. Asset specificity was found to be consistent with TCE concepts and resource-based strategy. Frequency was found to be related to archival measures of size and how often IA services were demanded. However, neither environmental nor behavioral uncertainty was measured particularly well, despite using archival proxies that have been developed in other studies.

Multiple regression explained 53 percent of the variation in outsourced IA in a base model using hypothesized main and interactive effects of TCE variables. Hypothesized TCE variables, particularly asset specificity and frequency and their multiplicative interaction, provide strong explanation of the proportion of outsourced IA. This is a stable finding across all models tested and is consistent with the prior literature. This supports concern about protecting specific assets as an important determinant in the decision to outsource IA. Furthermore, asset specificity and frequency variables interact significantly, and largely as predicted, to explain outsourcing IA. Neither environmental nor behavioral uncertainty explains outsourced IA in the base model. These results of the base model, therefore, provide mixed support for the TCE explanation of decisions to outsource IA.

It is plausible that asset specificity is a major driver of the decision to outsource IA, both from out-of-pocket and opportunity-cost perspectives. It would be very costly for an external IA provider to obtain the knowledge necessary to perform highly idiosyncratic IA tasks, whereas the firm may already possess that knowledge as the result of its ongoing management and operational activities. It could be very costly to the firm to release this highly specific, proprietary knowledge to an external party, who may accidentally or opportunistically leak the information to competitors. Though markets and enforceability of contracts may somewhat mitigate this danger, firms may be unwilling to expose themselves to this competitive-intelligence hazard caused by opportunism and "small numbers" of market participants if an internal solution is less costly.

Frequency also is a plausible driver of IA decision making, especially when frequency interacts with high asset specificity. Internalizing high-frequency IA activities allows the firm to capture economies of scale. These economies also are available to external IA providers for standardized, low-asset specificity services, but this is not the case for idiosyncratic, high-asset specificity IA. In this latter case, the firm has even more incentive to internalize IA to capture economies of scale and to protect sensitive knowledge.

Analysis of qualitative data reinforces the statistical finding of the importance of asset specificity. However, concerns related to frequency of IA services are not evident in the qualitative data, though frequency was found to be significant in the statistical analyses. On the other hand, respondents mentioned behavioral-uncertainty concerns quite often, yet that variable did not provide significant statistical explanation in the base model. Respondents rarely mentioned environmental uncertainty, which reinforces the statistical finding of no effect from this possible source of transaction cost.

The conclusion of this study is that concerns for the transaction costs caused by dimensions of *asset specificity* and *frequency*, both as main effects and interactions, influence the decision to outsource IA. If, for example, IA works heavily with firm-specific knowledge or proprietary information or helps to build that knowledge

base, the firm is more likely to internalize IA activities. Furthermore, if firms have frequent need for IA services, particularly services that are idiosyncratic to the firm, they also are more likely to internalize IA. These findings are consistent with other studies that use TCE to predict boundaries of the firm and provide a strong basis for future research on outsourcing of IA and other elements of the MCS.

We hesitate to make too many predictions for the future of IA, but it does seem that IA activities, which are more specific to the firm *and* more frequent, are candidates for internalizing, and vice-versa. One could take an IA-advocate's position and argue that if IA personnel want to stay within the firm, they should become more central to the management and day-to-day control of strategic assets and less concerned with more generalized services that easily can be outsourced. This conclusion is similar to the argument of Ratliff and Beckstead (1994), who urge internal auditors to become more involved with strategic management.

One may wish to extend this study's findings to other MCS components, such as selective staffing, which may be outsourced as firms also outsource the human resources function. This study indicates that MCS components, which deal directly with firm-specific, strategic assets and processes, particularly on a frequent basis, will be retained within the firm, and vice-versa.

Limitations and Future Research

Several factors limit this study. The first factor concerns the quality of several measurements. It may be no coincidence that statistically significant, base-model results were found only for the reliable measures, asset specificity and frequency. No explanatory results, except with data purged of outliers, were found for either environmental or behavioral uncertainty. Environmental uncertainty was not measured reliably by survey data and did not explain outsourced IA, but neither did an archival proxy used by previous studies. Perhaps, as indicated by lack of respondents' qualitative concerns, environmental uncertainty simply does not explain outsourcing IA. For example, if IA services are not idiosyncratic to the firm, they may be readily available in the market, on relatively short notice, with little difference between spot and negotiated prices. If IA services are specific to the firm, on the other hand, they are internalized whether or not their scheduling is uncertain. Respondents often cited concerns related to behavioral uncertainty. Although this relation was supported on a sample purged of outliers, statistical analyses using the full sample of firms did not find significant effects of this variable. Perhaps this is due to the noisy survey measure, which could not be proxied by archival data. It is possible, though, that even a reliable measure of behavioral uncertainty, as conceptualized by TCE, would not explain generalized IA outsourcing because of the un-modeled effects of market reputation and improved information technology and monitoring, which make improved contracting possible. This study cannot resolve these issues without better, more reliable measures of environmental and behavioral uncertainty. These improvements are left to future research.

A second factor is the relatively small, possibly restricted sample size for a survey-based study. A 14 percent (83 of 600) usable response rate, even though a large proportion of responding firms (9 percent of the total sample or an additional 55) reported no IA use, may not be convincing to some readers. The obtained sample is similar to larger Compustat firms, and these also are more likely to demand IA services. Sampling bias, therefore, should not be a major concern for this study. Larger sample sizes, however, would allow more thorough

investigation of industry effects, which could be important cross-sectional factors. This investigation could extend the reach of TCE explanations of outsourcing IA and other MCS elements.

Alternatively, researchers may look to in-depth field studies of known IA-users for richer explanations of conditions leading to decisions to internalize or outsource IA and other MCS activities. Future studies also could fruitfully develop a portfolio approach to describing how firms set the boundary of the firm and govern all elements of the MCS simultaneously. For example, firms may turn to, in Merchant's (1985) terminology, personnel controls to control highly specific activities when risks of opportunistic behavior by external parties are also high. Field studies may discover other unanticipated interactions of transaction costs, strategy, and MCS features.

There may be interesting research opportunities examining MCS, including IA, in entrepreneurial, high-growth firms, which in our sample seem not to use IA at all. Perhaps these firms do not emphasize MCS in any form, or in their formative years use other MCS features that substitute for IA until a certain level of maturity is reached. Additionally, researchers could investigate the role of internalized or outsourced IA for audits involving information technology or foreign operations where language and culture are different from other operations. It appears from our qualitative data that these IA activities may be outsourced even if they involve assets that are specific to the firm. Establishing the relation between highly technical but generalizable knowledge (e.g., IT and foreign culture) and firm-specific knowledge would be most interesting.

Future research may consider adding contingency theory considerations to TCE. For example, the relatedness of asset specificity and resource-based strategy hints at the possible importance of broader contingency considerations than have been considered to date. Many earlier studies have used contingency theory to test factors associated with MCS choices. This theory rests on concepts of organizational "fit" that usually have defied precise definition and measurement. Alternative operationalizations of fit include correlation, interaction, and systems fit (Van de Ven and Drazin 1985; Selto et al. 1995).²¹ Unfortunately, contingency approaches have not explained firms' choices of MCS components consistently (e.g., Simons 1987, 1990). The notion of fit, however, retains broad intuitive appeal; improvements in specifying fit could lead to additional understanding of MCS choices. Agency theory also has been used to model MCS choice and may be extended to consider sources of transaction costs. For example, much current work, such as Caplan and Kirshenheiter (1998) is rooted in Demski and Feltham (1978), but so far empirical tests of agency predictions for the significance of MCS components are relatively rare (e.g., Maher 1987).

²¹ Chenhall and Langfield-Smith (1998) applied cluster analysis to identify portfolios of management techniques and controls that they associated with performance and strategy—a hybrid of interaction and systems approaches to fit.

APPENDIX

Survey Questions

1. Did your company use internal audit services (either in-house or outsourced)?
2. In fiscal 1996, approximately how many in-house man-hours were devoted to internal auditing?
3. In fiscal 1996, did you use any outsourced internal audit services? (if not, skip to 14)
4. In fiscal 1996, approximately how many man-hours of internal audit effort were provided by outside service providers? (If unknown, please estimate by dividing total outsourced billings by the estimated internal audit hourly rate.)
5. In fiscal 1996, approximately what percentage of your total internal audit effort was provided by outside service providers?
6. (6-13 for outsourced IA only) In fiscal 1996, how many internal audit reports were issued by the outside service providers for your company?
7. In fiscal 1996, how many audit engagements did the outside service providers perform for your company?
8. In fiscal 1996, how many engagements other than audits (e.g., special projects, fraud analysis) did the outside service providers perform for your company?
9. In fiscal 1996, to approximately what proportion of major activities were the outsourced internal audit hours devoted?
10. In fiscal 1996, how difficult was it to determine if the provider of outsourced internal audit services performed according to contractual obligations?
11. Why have you outsourced part or all of the internal audit function? (circle all that apply)
12. In fiscal 1996, how much time did the outside provider of internal audit services spend working with information proprietary to your company?
13. Which of the following best describes the relation you had with your primary outside internal audit provider during fiscal 1996?
14. (14-22 for all IA) Approximately how many auditees does your organization have in total? Think of an auditee as a sub-unit or department which requires a separate plan, a separate audit, or a separate audit report.
15. How often is each auditee reviewed? In other words, what is the rotational schedule of auditees? (please fill in percentages so that they total 100 percent)
16. In fiscal 1996, how much variation in business activities was there among auditees?
17. Whether you outsource internal audit activities or not, which statement best describes your view of evaluating the quality of outsourced internal audit activities in your company?
18. In fiscal 1996, how predictable was the need for internal audit services?
19. In fiscal 1996, how much time was required for a newly-hired, internal auditor staff member with experience in the industry to perform unsupervised work?
20. (a) In fiscal 1996, was there changing information technology within organization?
20. (b) In fiscal 1996, how did the changes in information technology in 20(a) affect the completion of internal audit services for your company?
20. (c) How did the changes in information technology in 20(a) impact the quality of internal audit services for your company?
21. (a) In fiscal 1996, were there changes in the business organization (such as acquisitions, divestitures, reorganizations) of your company?
21. (b) How did the changes in the business organization in 21(a) impact the completion of internal audit services for your company?
21. (c) How did the changes in the business organization in 21(a) impact the quality of internal audit services for your company?
22. (a) In fiscal 1996, were there changes (turnover) in auditee personnel within your company?
22. (b) How did the changes (turnover) in auditee personnel in 22(a) impact the completion of internal audit services for your company?

22. (c) How did the changes (turnover) in auditee personnel in 22(a) impact the quality of internal audit services for your company?
23. In fiscal 1996, did you use any in-house internal audit services?
24. (24-30 for in-house only) In fiscal 1996, how much time did in-house internal audit personnel spend working with information proprietary to your company?
25. In fiscal 1996, how many internal audit reports were issued by the in-house internal audit department?
26. In fiscal 1996, how many audit engagements were performed by the in-house internal audit department?
27. In fiscal 1996, how many engagements other than audits (e.g., special projects, fraud analysis) were performed by the in-house internal audit department?
28. In fiscal 1996, was the in-house internal audit department used as a training program for other positions?
29. How long, on average, does an employee spend in the in-house internal audit department before being rotated to another position within the company?
30. In fiscal 1996, what was the approximate amount of time your in-house internal audit department spent on the following activities?
31. Please indicate your agreement or disagreement with the following statements. If you had both in-house and outsourced internal audit services during 1996, please complete both columns below. Otherwise complete only the appropriate column.

Internal audit activities help maintain firm credibility by ensuring auditee compliance with corporate policies and procedures.

Internal audit activities provide feedback and report on auditee exceptions.

Internal audit activities require a high degree of interaction with management.

Internal audit activities assist management in achieving strategic plans.

Internal audit activities draw management attention to potential opportunities for process improvements.

Internal audit activities increase market opportunities.

Internal audit activities increase the success of certification programs such as ISO 9000.

32. Listed below are three primary strategies utilized by some organizations. Identify the strategy most consistent with your corporate mission. Please note that none of the types listed is inherently good or bad. Please circle the one that best describes your firm's dominant strategy.

Our firm attempts to locate and maintain a secure niche in a relatively stable product or service area. We offer a more limited range of products or services than our competitors and try to protect our domain by offering higher quality, superior service, lower prices, and so forth. We may not be at the forefront of developments in the industry—instead we concentrate on doing the best job possible in a limited area.

Our firm typically operates within a broad product-market domain that undergoes periodic redefinition. We value being "first-in" in new products and market areas even if not all of these efforts prove to be highly profitable. We respond rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, we may not maintain market strength in all of the areas we enter.

We attempt to maintain a stable, limited line of products or services, while at the same time moving out quickly to follow a carefully selected set of the more promising new developments in the industry. We are seldom "first-in" with new products or services. However, by carefully monitoring the actions of major competitors in areas compatible with our stable product market base, we can frequently be "second-in" with a more cost-efficient product or service.

Other (please describe)

Open-ended: We are very interested in gaining a general understanding of your views on the reasons your firm chose one type of sourcing over another and the particular task(s) that are involved. Please describe the internal audit tasks or activities that are outsourced and why they were outsourced, and those that remain in-house and why they remain in-house. We are also very interested in any other comments you may have about the sourcing of internal audit services.

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