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# Research Opportunities in Internal Control Quality and Quality Assurance

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## INTRODUCTION

In a sense, I began developing this presentation in 1993 when I first taught auditing and internal control for M.B.A.s at INSEAD (European Institute of Administration). In designing the course, I envisioned myself as the CEO of a multinational corporation (as many M.B.A.s view themselves), and asked how would I know whether I was getting the right information for decision making, that my assets were being protected, and that my people were complying with laws, regulations, and company policy—all on a worldwide basis?

As I pondered these questions, it came to me that an answer to all of them is *internal control*. This revelation changed my thinking about internal control, changed the tone of the M.B.A. course, and also changed my teaching for accounting majors.<sup>1</sup> I now believe that knowledge about internal control is an essential element that affects the welfare of management, corporate directors, shareholders, trading partners of an entity, auditors, and society at large—yet it is relatively unexplored by researchers. All major research methods are applicable, we have conceptual documents to guide our inquiries, and internal control quality is regulated directly or indirectly in many countries. In short, there is an outstanding opportunity for research in internal control for accounting and auditing professors, and for Ph.D. students. There are substantial barriers, of course, and we must all work to overcome them.

The rest of this paper explores research opportunities in internal control quality assurance beginning with a definition of internal control and the demand for internal control quality and quality assurance. This is followed by a discussion of barriers to research, and concludes with research questions and trends for the future.

## DEMAND FOR INTERNAL CONTROL QUALITY AND QUALITY ASSURANCE

Because I am most familiar with them and because other groups around the world have conceptually similar definitions, I will use the Committee of Sponsoring Organizations of the Treadway

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<sup>1</sup> The AICPA's Special Committee on Assurance Services (the Elliott Committee) beginning in 1994 further enhanced my thinking. In particular, it focused on independent improvement of the relevance and reliability of information for decision making and the effects of information technology on internal control and financial reporting (AICPA 1996).

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Commission definition of internal control (COSO 1992) supplemented by that of Criteria of Control (CoCo, CICA 1995).<sup>2</sup> COSO defines internal control as:

a *process*, effected by an entity's board of directors, management and other personnel designed to provide *reasonable assurance* regarding the achievement of objectives in the following categories:

- *effectiveness* and *efficiency* of operations
- *reliability* of financial information
- *compliance* with the applicable laws and regulations (COSO 1992) (emphasis added)

The COSO definition implicitly assumes a constant external environment. The Canadians' CoCo adds the risk of failure to maintain the organization's capacity to identify and exploit opportunities, and resilience or capacity to respond or adapt to unexpected risks and opportunities. Thus, CoCo assumes the external environment may change, and defines "good" internal control to include adaptability of the process to a changing external environment.

The COSO/CoCo definitions have three distinguishing features. First, they are *broad*, much broader than traditional definitions of internal "accounting" control that are limited to reliability of accounting data and protection of tangible assets. By including the efficiency and effectiveness of operations, compliance with laws and regulations, and responsiveness to external changes, the COSO/CoCo definitions can be interpreted to cover all of management's functions except choosing objectives, strategies to achieve objectives, and follow up of surprises identified. Second, the COSO/CoCo definitions are about *process*, rather than about a static state. This means that internal control cannot be directly observed or verified. Third, internal control is about *risk*, or threats that an entity will not achieve its objectives. All decision makers want to optimize their risk/expected reward trade-off, thus leading to demand for internal control quality and quality assurance.

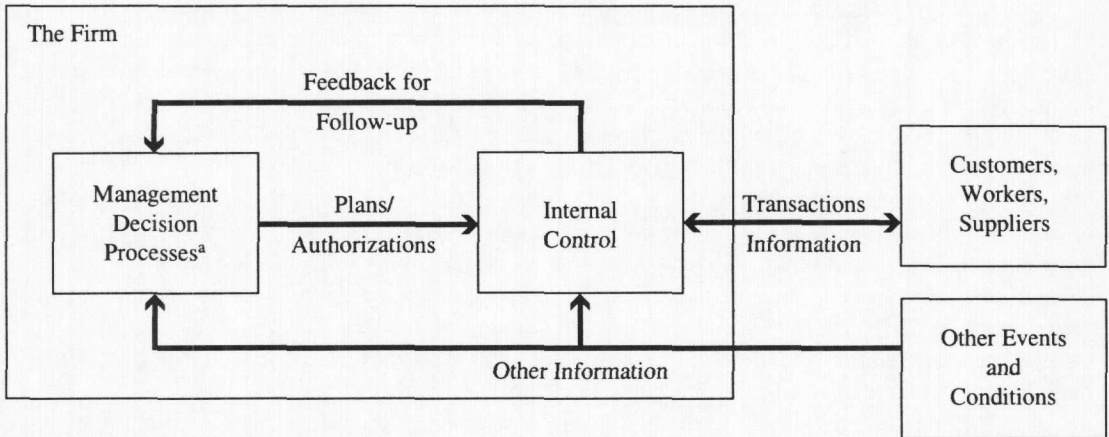
To illustrate the breadth of internal control, Figure 1 shows management's activities divided into two groups: *management decision processes* and *internal control*. Management decision processes determine a multiperiod business strategy, operating plans for the current period (e.g., budgets), and follow-up actions on deviations from expected (planned) outcomes. Strategy and plans are implemented through business processes (part of internal control for efficiency and effectiveness). Business processes interact with actual events, transactions, and conditions—all authorized, sensed, and/or monitored by internal control for possible follow-up by management. Clearly, an effective internal control process is essential for managing much of the information to support management decision processes and to protect assets.

The title of this paper includes the words "internal control quality" as well as "quality assurance." This implies an interest in the quality of internal control *per se* and a decision-maker's level of confidence that high-quality internal control is in place, thus providing "reasonable assurance" that objectives will be achieved. A natural question is, "Who demands internal control quality assurance?" Phrased another way, who would "pay" to know (or be able to credibly disclose) the risk that:

- Employees or managers could misappropriate the firm's assets?
- The firm could fail in the marketplace because
  - strategies become obsolete,
  - business processes become ineffective/inefficient, or
  - poor information is used for internal decision making?
- Customers, suppliers, and workers could lose from a long-term alliance with the firm?
- Information the firm routinely provides to outsiders is unreliable?

<sup>2</sup> The developments discussed in this paper are consistent with similar developments in other countries (see Maijoor 2000).

**FIGURE 1**  
**Management Decision Processes and Internal Control**



<sup>a</sup> Strategic and operating planning and follow-up of exceptions.

There are numerous parties who create demand for answers to these questions. First, management would like to know the answers to inform itself, and to credibly inform others that management is carrying out its fiduciary and legal responsibilities. Second, audit committees and outside directors exercising oversight responsibilities would be comforted by such assurance and might use assurance reports as evidence that they have carried out their oversight responsibilities. On the transactions side, suppliers, customers, and workers would like assurance about the quality of internal control because it affects their future welfare in dealing with the entity. Finally, investors and creditors, prospective investors, and regulators charged with regulating businesses would like such assurance as a means of reducing information surprise and asset loss.

All of these parties have an interest in internal control quality and wish to be assured that a high-quality internal control process is in place, but they differ in their demand for details. This is because they differ in their abilities to act upon knowledge of particular deficiencies and risk exposures. Thus, reports on internal control take on different meanings for different groups, and require consideration of trade-offs as discussed in the next section.

A related question about the demand for internal control quality assurance is "can internal and outside auditors (and auditing researchers) prosper from meeting the demand(s) for internal control quality assurance?" Auditors and auditing scholars are familiar with the assessment of audit risk conditional upon internal control quality. However, what about the value of internal control quality assurance to management, suppliers, customers, and workers? For example, would a supplier sign a long-term contract more favorable to management if the supplier could be independently assured of the reliability of the entity's systems to share information, and viability of its processes? In addition, might stock prices or the probability of entity failure (of interest to investors and to regulators) vary based on reports of internal control quality? Researchers can attempt to provide answers.

### **BARRIERS TO INTERNAL CONTROL QUALITY REPORTING**

Assuming that there is potential value to providing internal control quality assurance, what are the barriers that must be overcome? I believe that there are several principal barriers to practice, as well as additional barriers to research.

### Practice Barriers

Barriers to practice include the lack of (1) adequate criteria for measuring internal control quality, (2) adequate methods for auditing a process, and (3) a reporting regime to accommodate differing users and uses while protecting the interests of management, the entity as a whole, and the auditor.

At present, the AICPA provides for examination-level reporting on the compliance of internal control *over financial reporting* with criteria established in COSO. But these reporting criteria are limited to control over financial reporting, and do not cover efficiency and effectiveness, compliance with laws and regulations, or adapting to change (AICPA 1993). The limited scope may explain why there has been limited demand for public reporting on internal control.

Part of the criteria problem is the multiple ways to achieve a given internal quality control objective. For example, management may design controls over actions of employees and others, design controls measuring and monitoring results of those actions (and taking follow-up actions accordingly), or control the firm's personnel or its "culture," by hiring trustworthy and competent employees (see Merchant 1998). Auditors familiar with traditional internal control over actions may under-appreciate the benefits and risks of alternatives. Thus, it may be difficult for an outsider to measure and evaluate internal control quality on a consistent basis.

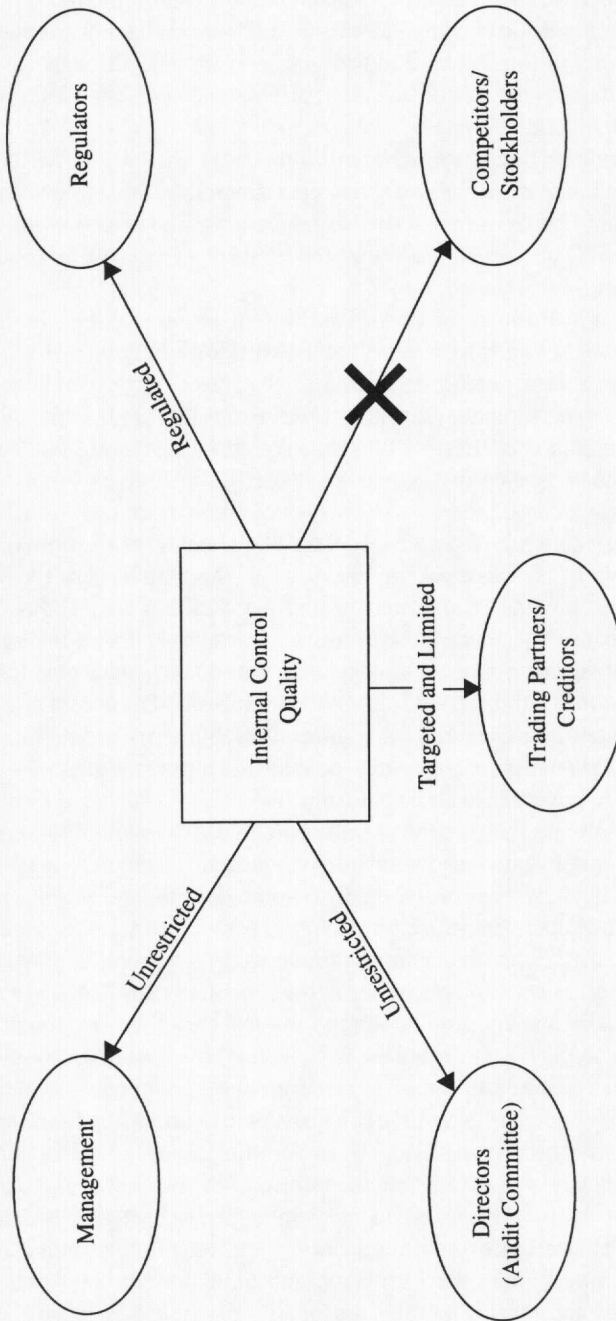
In addition to the inability to state unequivocally what is good internal control, there are questions about the appropriate types of evidence to obtain in auditing internal control. Auditing a *process* over a period of time is more difficult than auditing a state or condition at a point in time, and most financial statement auditors and standards setters are not familiar with auditing procedures for a continuous process. While process auditing of internal control over financial-reporting design and operation is relatively familiar to auditors, comprehensive assurance also requires expertise in the other domains of internal control such as operational efficiency and effectiveness.<sup>3</sup>

Finally, due to a variety of reasons, a regime for reporting internal control quality to outsiders has not been developed. This is due in part to the difficulty of communicating details of internal control quality to outsiders, and in part to the inability of outsiders to act upon knowledge of specific internal control deficiencies. For example, most investors are passive and merely buy, sell, or hold a security, so they can't take corrective actions with management. Furthermore, informing one outsider may mean that other outsiders are also informed of a deficiency that might cause the reporting entity to lose competitive advantage so that such disclosure has indirect and direct costs with little possible benefit.

These reporting difficulties might be resolved. For example, one can envision a partitioned reporting regime in which comprehensive reports on internal control do not go to outsiders. Rather, distribution of such reports is limited to management, audit committee members, and other directors. This would allow those with the ability to act on control weaknesses to be informed about any weaknesses. Other, more limited, aspects of internal control could be communicated to trading partners such as employees, suppliers, and key customers who form an alliance with the entity. These reports could assure the outsiders about elements of critical interest to them, but would not be available to competitors. Such reporting would also limit the auditor's liability, because the reports would not be for general distribution. Still, third-party users such as investors and prospective investors could take some comfort in knowing that any important known internal control weaknesses (even those less than "material" at the moment), have been reported to the audit committee for possible follow-up actions. Figure 2 diagrams possible reporting on internal control quality, the nature and breadth of measurement criteria, and limits of reporting to primary parties inside and outside the entity.

<sup>3</sup> There is some progress on process auditing by CPAs. The AICPA and CICA have developed a new product called SysTRUST to allow auditor association with assertions about computer systems design and operation (see Boritz et al. 1999). In particular, the auditor is able to attest that (1) the system was available for processing throughout the period, (2) access to the system was protected, (3) processing was complete, active, timely, and authorized, and (4) the system can be updated as conditions change (i.e., the process is "maintainable").

**FIGURE 2**  
**Reporting on Internal Control**





## Research Barriers

Scholars face at least five obstacles to internal control quality research and publication. Perhaps the biggest is our own limited knowledge (as auditing researchers) of business strategy and organization design, management processes, risk, and risk measurement. In addition, like audit practitioners, many of us lack knowledge of internal control alternatives and conceptual knowledge about process verification. These limitations in our background might be overcome through study of risk and strategy, through reading about internal control alternatives, and perhaps by borrowing process verification techniques from other disciplines.

A second major research barrier is the inherent complexity of the internal control process. Internal control is extremely broad by definition and is operationalized in complex, dynamic organizations that differ substantially across time, across organizations, and across cultures. Due to this inherent complexity, it is difficult to capture measures of internal control process quality in an experiment, an archival study, or even a survey.

A third barrier to research on internal control is lack of access to data, organizations, and personnel. An empirical researcher must have access to the working laboratory within organizations. Internal control researchers' access need is the same as that faced by researchers in managerial accounting—we need access to multiple organizations or segments that are in some way comparable. Yet, incentives for corporations to cooperate with professors on research are unclear. While there may be social good from such studies over time, what are the incentives for management of a particular corporation to provide researchers who will make their findings public (in contrast to consultants whose findings remain private) access to their personnel, organization, or its records?

We might enlist the help of professional organizations to facilitate access for internal control researchers. The organizations include The Institute of Internal Auditors, the AICPA, Fédération des Experts Comptables Européens, The Financial Executives Institute, and The Institute of Management Accounting. Through their members, these organizations can provide access to corporate data and participants for some studies, although the roles of the members differ across entities and across cultures. Their roles are substantial and central for some entities, but weak and perfunctory in others. Also, stock exchanges, and associations of securities dealers and corporate directors may be of help for topics involving corporate governance and disclosure issues.

A fourth barrier to research in internal control is the potential generalizability of research results across companies, industries, organization and regulatory structures, and cultures. As discussed above, internal control likely reflects all of these differences to some degree, and research may likewise reflect these differences rather than generalized behavior. Thus, the researcher faces the potential prejudice of being a "case study" rather than a large sample study of generalizable behavior.

A final barrier to an internal control researcher is the potentially limited range of publication outlets because of limited reader interest in some internal control topics. For example, relatively few readers (and journal editors) will be interested in the mechanics of internal control of financial reporting. On the other hand, a broad audience of accounting scholars and others would be interested in how internal control quality and quality assurance affects management, profitability of the entity, the value of trading partners, and the cost of capital. In addition, there is broad interest in internal control over operating efficiency and effectiveness, information relevance, and risk assessment. Finally, there is currently very broad interest in corporate governance and internal control, as evidenced by the recent proliferation of communication requirements between the external and internal auditor, audit committees and other directors, and regulators. Overall, research directed toward a broad issue in internal control quality and quality assurance is more likely to have a receptive audience (and have broader publication outlets) than is one related to internal control over financial-reporting mechanics.

## TRENDS

There are at least three trends that affect the future of internal control quality and quality assurance practice and research: information technology, globalization, and regulation.

Information technology automates processes, measurement, and some internal controls as well as changing the design of organizations including formation of alliances and related process redesign and information sharing. Information technology allows automation of many internal control activities such as sensing and measuring the state of the world, summarizing measurements, identifying exceptions in parallel records, and indicating a need for human intervention in a process. Information technology automates many controls improving information reliability and is focused on misstatement prevention, rather than subsequent misstatement detection and correction.

As the cost of information-technology-based controls is reduced, the inherent reliability of automated systems can approach one at very low cost. This changes everything in the information quality assurance business. It implies that internal control research should be directed more toward information relevance and toward internal control process design and implementation rather than auditing of results of control application.

Globalization implies outsourcing of non-core processes with many alternatives to be considered, including alternative organizations, and rapid change within an organization. Entities can fail quickly in such an environment. Rapid change, in turn, implies increased need for internal control processes to measure continuously exposure to risk under a variety of changing circumstances. Thus, the CoCo criterion on maintaining resilience or capacity to respond or adapt to unexpected risks and opportunities will take on increased importance in the future. This ability to measure risk and respond to change is increasingly important to management as is assurance to others that the ability is being maintained.

Finally, there was a trend in the latter part of the 20th century toward regulation in some countries, but others are experiencing deregulation while still others are being re-regulated. For researchers, this means we should consider the impact of regulation on internal control, but not depend upon it for our analyses. By this I mean that we should consider the demand for internal control quality and quality assurance both with and without regulation, and with regulations of various types such as regulation of actions vs. regulation of reporting of actions or processes. Regulation focuses attention of management because of requirements to demonstrate compliance, but management and the entity have demands for internal control quality and quality assurance even in the absence of regulation because of the need to maintain its profitability, viability, and reputation for ethical behavior.

## CONCLUSIONS

We've discussed the importance of pursuing broad internal control quality and quality assurance research topics of wide practical and scholarly interest. All major research methods apply, and none have been overused to date. Some topics are best addressed analytically, some using experiments, some with field study, some with archival data, and some with simulation. Furthermore, cross-cultural and cross-regulatory regime studies are especially appropriate because of the substantive differences in practices around the world. The choices are ours, and little can be ruled out. However, we must do a good job in presenting our ideas to those who can provide access to personnel and data, and to those in the scholarly review process.

I believe that we should rethink what we know about internal control quality and quality assurance. For the future, the potential benefits of internal control and knowledge about internal control will go up—the question is whether the trade-off will be favorable for us as assurance and internal control scholars. There are considerable regulatory and practice barriers to overcome for practitioners, and considerable research barriers for researchers to overcome, but we have a great opportunity to improve our relative position in the business school and in society.

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