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Discussant's Response to A Decision Theory View of Auditing

James K. Loebbecke

Touche Ross & Co.

Compliments are in order for Bill Felix on a fine paper. It covers the subject well and reflects elements of both tact and wisdom. Tact is evident in that it presents a model which expresses decision criteria in terms of a *payoff* matrix instead of a *loss* function. This is a distinction which, I can assure you, is particularly appealing to practicing independent public accountants. Wisdom is reflected in that it discusses several of the broader aspects of using a decision model in auditing as well as the technical characteristics of the model itself.

Within the past two years I have become increasingly involved in the challenging problem of "modeling the audit." It would seem so nice to have the complete audit model—the ultimate audit tool. My research has disclosed models which are variously described as probabilistic, stochastic, analytical and simulation models.*

My intent today is not to debate the technical details of Bill Felix' model or any of these others. Rather, I would like to consider some questions about audit models in general: are they feasible, are they desirable, and how should they be implemented?

Feasibility

Audit models are clearly feasible. This statement lies partially in the definition of audit models. Consistent with Bill's paper (which presents *a* model, not *the* model) the classical statistical inference model now common in auditing is an audit model. Other models are more complex, but none of their authors show an absence of conviction about their ultimate feasibility. Further indication of feasibility is suggested by successful applications of models in other fields. Examples of such models can be found in engineering, medicine and other sciences. Problems of computation and volumes of data previously deemed overwhelming have been successfully solved with computer assistance. This tool is causing a significant change in auditing and is the key to further advanced techniques.

* See the following examples:

- William R. Kinney, Jr., "A Decision Theory Approach to the Sampling Problem in Auditing," University of Iowa Working Paper Series No. 74-4, March, 1974.
- John Neter and Seongjae Yu, "A Stochastic Model of the Internal Control System," University of Illinois at Urbana-Champaign Faculty Working Paper No. 106, April 1973.
- Barry E. Cushing, "A Mathematical Approach to the Analysis and Design of Internal Control Systems," *The Accounting Review*, January 1974, pp. 24-41.
- James K. Loebbecke and David Burns, "Computer Simulation of Internal Control Systems," unpublished paper.

Desirability

Accepting their feasibility, we must ask whether audit models, in the broadest sense, are desirable. The answer to this question is *yes*. Bill's paper presents several advantages to be derived from using risk or decision models in auditing:

- Control of risk through precise definition
- Expression of decision criteria in more meaningful terms
- A vehicle to motivate better response to changes in the audit environment
- A framework for improved communication both between auditors and with those affected by auditor results

I agree with these and would express their sum as a means through which the auditor can achieve *objectivity*; a factor that is of ultimate importance to all concerned with the audit process.

Generally, in auditing, the first examination for a new client is the most objective one. More time is spent on learning activities, more attention is given to the objectives of corroboratory activities, and there is a greater sense of awareness and skepticism. In subsequent examinations, however, even the best auditor is biased by the preconceptions formed by preceding efforts and findings. If we are to provide a high level of audit service on a continuing basis, we must use techniques to preserve objectivity.

However, there are some dangerous elements to consider here as well. First, since the decision model is a tool, it is liable to evoke the Law of Instruments. That is, its users may become so enamored with its internal characteristics that they either apply it in situations where it is not appropriate, or they fail to use it properly in situations which differ slightly from the norm.

Second, a characteristic of decision models is that they are designed to facilitate a decision, one way or the other, according to the best payoff *without* considering the quality, and thereby the adequacy, of the underlying audit evidence. I view auditing decision making as a two-stage process. The low order stage involves the decision of accepting or rejecting the particular proposition at hand using the evidence gathered; but this can be reached only after the high order decision is made that the evidence is adequate for that purpose.

The sum of these pitfalls is serious, but they can be overcome by proper model design, by user understanding of the concepts underlying the techniques used, and by intelligent application. We must realize that one of the major differences between advanced audit techniques and traditional techniques is a shift in quality control emphasis (and effectiveness) from the reviewer to the performer. Also, most advanced techniques deal with inference and not certitude. For these reasons, a "cookbook" approach must not be taken.

The final element of desirability is cost. Audit models will clearly require an investment in research, development of tools, and training. However, there will be resultant savings in terms of increased efficiency and reduced costs of bad decisions. I believe the tradeoff will be favorable.

Implementation

Designing a model is one thing; implementing it in practice is another.

Implementation of advanced auditing techniques involves two groups: users and audit management. The users, who are generally staff auditors, must be given conceptual and practical training and tools to facilitate application mechanics. Firm management must be convinced that use of the techniques will improve audit quality without unduly increasing audit cost. Neither group can be approached with the same "language," nor can they be approached with the language used in developing the technique.

The language of higher level mathematics is used in model development. When model concepts are taught, a sorting out process must occur so that overly complex aspects are presented in terms of ideas rather than mathematical terms, and so that any mathematical terms used are within the user's comfort level. Application tools, of course, must utilize the proper techniques, but in a transparent manner, such as can be provided with computer programs.

It is likely that model users will be quite receptive. Advanced audit techniques make auditing more enjoyable, and, fairly fresh from school, most users are preconditioned to use them. Firm management may not be so receptive, and if approached through use of even a minimal amount of mathematical jargon, may reject the idea completely.

The proper approach, in my opinion, is to show audit management that the advanced audit model or technique is simply a refinement of one or more elements of the intuitive model he has been using all along. Bill Felix' paper is completely consistent with this view, as is expressed in his presentation of an intuitive model extracted from SAP 54. I performed this same exercise at the time the SAP was published as a means of determining how it should be interpreted. The result was a model entitled "An Outline of the Basic Audit Process" which contains twelve basic steps and involves five basic decision processes (see Appendix).

Audit management knows both the importance and the difficulties involved in making these basic decisions properly. Audit managers realize that their behavior is affected by these difficulties in the very direct sense that they "over-audit" to compensate for the risks that they cannot otherwise deal with. If audit managers can be presented with techniques that clarify this process they will accept them. But clarification means clear to *them*, not just clear to the proposer.

Appendix

An Outline of the Basic Audit Process

- Step 1** Determine the nature of the client's business and industry. Primary resources are:
- A. Firm's industry expertise
 - B. Historical data
 - C. Overall organization and procedures
 - D. Current financial data
- Step 2** Obtain description of system of internal control.
- Step 3** Make DECISION I: *Is the entity auditable?*

The two parts to this decision are:

- A. Does there appear to be an adequate system to produce evidence to be examined?
- B. Does management appear to be honest and willing to present the necessary evidence?

If answer is YES—proceed to Step 4.

If answer to Question A is NO—advise that a disclaimer will be rendered.

If answer to Question B is NO—withdraw from engagement.

Step 4 Design preliminary plan of substantive audit procedures for auditing financial statements based on:

- A. Nature of industry and company as reflected in description of system.
- B. Practical circumstances relating to timing and scope.

Step 5 Make DECISION II: *Does the preliminary plan of substantive audit procedures indicate that the auditor is relying on internal control to produce accurate year-end financial data?*

(Examples of circumstances when reliance is implied:

- Substantive tests, e.g., confirmation of receivables, inventory observations, etc., are performed prior to year-end.
- Detailed documentation is examined on a test basis.
- Inventory observations are not performed at all locations.
- Only certain units are visited in a multi-unit company.
- There is an emphasis on tests of an analytical nature.)

If the answer is YES—proceed to Step 6.

If the answer is NO—proceed to Step 9.

Step 6 Identify the specific controls being relied upon and the degree of compliance assumed by the audit plan.

Step 7 Perform compliance tests of controls to be relied upon.

Step 8 Make DECISION III: *Is the actual degree of compliance comparable to assumed degree?*

If answer is YES—proceed to Step 9.

If answer is NO—update description of system of internal control, revise preliminary plan of substantive procedures, *and then* proceed to Step 9.

Step 9 Perform planned or revised substantive auditing procedures.

Step 10 Make DECISION IV: *Do results of substantive procedures corroborate the auditor's understanding of the system of internal control?*

If answer is YES—proceed to Step 11.

If answer is NO—update description of system, further revise substantive procedures and perform them, *and then* proceed to Step 11.

Step 11 Make DECISION V: *Does the evidence gathered by our procedures constitute adequate competent evidential matter in support of an opinion?*

If answer is YES—proceed to Step 12.

If answer is NO—design and perform additional necessary procedures, *and then* proceed to Step 12.

Step 12 Issue report containing opinion arrived at in Step 11.