

Here are some examples of behavioral researchable issues in auditing:

- the effect of the risk-materiality paradigm on audit decision making (also, other possible paradigms).
- auditor behavior in (1) internal control evaluation, (2) inherent risk assessment, (3) materiality assessment, and (4) detection risk assessment for those procedures that are not inherently quantifiable (statistical sampling and multiple regression analysis).
- the auditor's choices in program design.
- the auditor's effectiveness in appraising evidence (including both accidental and deliberate errors).
- the auditor's integration of evidence to form an audit opinion, including the negotiation process at the end of the audit.
- the effects on auditors of using decision aids. Do they improve audit decisions? Do auditors abandon judgment and independence to the models?
- whether behavioral tools will actually enrich the auditor's job or deprofessionalize it (both in reality and in perception).
- optimization of the auditor-machine interface.
- the structure of decision making in an automated (and decision-automated) environment.
- the introduction of technology into the audit process: how it can be best facilitated, accepted, and properly used.

These are broad questions that could each be broken into many researchable issues.

In summary, I have attempted to describe some of the broad trends affecting the practice of auditing over the next decade, infer the major changes to auditing practice, and identify relevant researchable issues of a behavioral type that are consistent with these trends.

Practitioners are well aware of these trends and will welcome the results of behavioral research that help move the profession of auditing into the 1990's.

LIMITS TO INFORMATION

Shyam Sunder*
Graduate School of Management
University of Minnesota

Recent accounting literature is marked by broad acceptance of the view that financial accounting is designed to provide information to various decision makers. Consequently, comparative analyses of financial accounting systems are focused on their properties such as fineness, cost and usefulness to the decision makers. Subject to the consideration of the cost of operating it, the notion that the financial accounting system can provide unlimited amounts of information has gone largely unchallenged. The purpose of this essay is to argue that there are three forces which place strict limits on the amount of information that can be effectively communicated through the financial statements. These limits are imposed by the logical, economic, and legal environment of financial accounting. I shall also argue that an understanding and recognition of these limits may help the Financial Accounting Standards Board to distinguish aspects of financial accounting where issuance of additional rules and standards may already be an ineffective means of increasing the information content of financial statements.

To invoke an analogy from the communications theory, capacity of a channel to carry information is limited by its design characteristics. Once the technological limit has been reached, more information cannot be transmitted through the channel by merely altering the procedures for using the channel. Alterations in accounting procedures intended to transmit more information through financial statements may not be effective if the logical, economic and legal nature of the environment already constrains the capacity of the system. I shall argue that when such constraints are binding, additional accounting rules and standards are not likely to achieve the desired objective of improving their information content unless more fundamental changes are brought about in the environment itself. My purpose is not to argue for such fundamental changes, only to delineate the nature of the limits to information that financial statements can carry.

*I am grateful to my colleagues, especially Jack Gray, and participants at the Convocation for helpful comments on an earlier draft of this paper.

To use another analogy, if the use of high fidelity music in a watch assembly room is found to improve the efficiency of workers, this finding hardly justifies extending the music to the forge shop. Far from soothing the eardrums of workers, it will only add a few more decibels to the existing level of din in that environment. So with finer classifications of the accounting data, just as there is a limit to the fineness of musical notes that can be effectively communicated in a noisy forge shop, there is also a limit to the fineness of information that can be effectively communicated through financial statements in the existing economic, legal and organizational environment.

Calls for improving the information content of financial statements include demands for greater detail, uniformity and finer classification of data. In addition, certain existing practices are sought to be changed on the grounds that they do not measure the underlying economic reality adequately. I discuss the limitations of financial accounting as a carrier of information under three headings; the problems of uniformity, accounting equilibrium and the robustness or defensibility of an accounting system with respect to partisan attack in the legal proceedings. I shall exclude from discussion another limitation of accounting statements best described under the caption "information overload." The exclusion does not imply that I consider the issue to be unimportant. On the contrary, this important consideration has been discussed so widely that, if included in this note, it will tend to overshadow some other considerations that I intend to emphasize.

1. *Uniformity and Diversity*

First, let us consider the logical problem of uniformity in financial accounting. Uniformity of accounting procedures across firms and industries is widely recognized as a desirable objective of the rule-making process in accounting. Diversity of accounting procedures business firms are allowed to use has long been the focus of complaints against the present accounting standards. Calls for reform in the accounting system have rarely failed to mention this diversity as the major defect to be rectified. Few observers of the accounting scene are opposed to uniformity of the accounting procedure per se.

Yet serious problems arise when attempts are made to devise uniform procedures in accounting. Accounting rules are sought which reflect the economic reality as far as possible. If the circumstances of an economic transaction are different, the accounting rules should provide for an appropriately different treatment of the

transaction. The desire for uniformity is not an argument for covering up the differences among transactions. It is a demand for equal treatment for identical transactions or events.

But no two events or transactions are exactly identical in their content, form or circumstance. If each transaction is different from the rest, each must be treated distinctly in a uniform system. If a rule were designed to cover all possible distinct transactions, the rule book would be very thick indeed. Each rule will be used only once because an exactly identical transaction will not occur again. In such a situation, each transaction will be scrutinized individually by whoever determines the accounting "rules" to decide how it should be recorded. Some may call this a system without rules and therefore without any uniformity because no two transactions are treated alike. Others can, with equal justification, refer to the system as the ultimate in uniformity in the sense that two transactions given the same treatments must be exactly identical. Both are right. The reason is that pursuance of uniformity carried far enough leads to complete diversity. If you go far enough east, you find yourself in the west. And every step you take towards the east is also a step towards the territory usually considered to lie in the west.

The apparent paradox can be analyzed more clearly if accounting rules are viewed as a scheme of classification. Each accounting rule consists of two parts: a set of criteria to help identify the transactions that will be governed by that rule, and a procedure for recording such transactions. A scheme of classification can be based on two separate criteria; (1) those transactions which show certain similarities are placed in the same class; and (2) those which show certain dissimilarities are placed in different classes. Both criteria appear to be reasonable and are used in practice. The fundamental problem arises from a conflict between these two criteria for classification.

If no two transactions are exactly alike, any scheme of classifying transactions which allows more than one transaction in any class can be faulted on the grounds that it permits identical accounting treatment of dissimilar events. For example, a part of the criticism of the pre-FASB accounting for leases was of this nature. At that time accounting classification of lease transactions was sufficiently coarse to permit short- and long-term leases to be given identical accounting treatment. Proponents of change thought that certain differences among lease transactions are sufficiently important to warrant a separate classification for lease transactions of certain types. This type of criticism of classification of transactions can be met by making the classification scheme so fine that each trans-

Classification of Four Objects on the Basis of Two Attributes

Criterion 1: Two objects which differ in any respect must be placed in different classes.

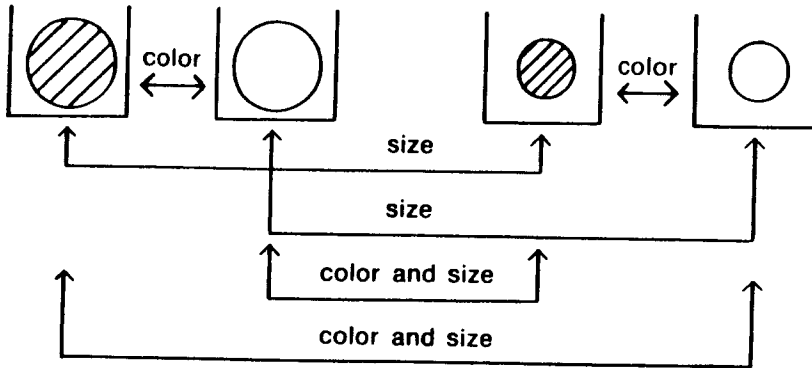


Figure 1A

Criterion 2: Two objects which are similar in any respect must be placed in the same class.

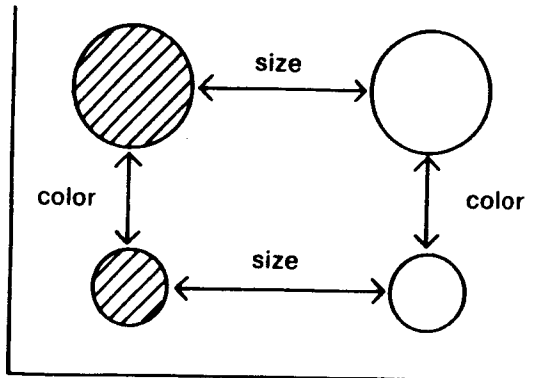


Figure 1B

action is in a class by itself (see Figure 1A). Each transaction is unique and therefore it is treated differently.

A scheme of classification can also be criticized for a second reason — for allowing two transactions which bear certain similarities to each other to be placed in different classes. For example, one aspect of criticism of the pre-FASB practice in lease accounting was of this type. Critics observed that there are certain similarities between long-term buy-leaseback and borrow-and-buy transactions. On the basis of these similarities they argued that these two types of transactions should be in the same class for accounting treatment (see Figure 1B). This argument, pursued to its logical extremity, will result in a single classification of all transactions and their identical accounting treatment. If we examine all possible features of a transaction, it should be possible to find some similarities between almost any pair. If two transactions having any similarities must be placed in the same class, a single class will result. However, identical treatment of all transactions will be about as unacceptable as a unique treatment of each transaction. Subdividing a set into a single subset and into as many subsets as there are elements are two extreme schemes of subdivision.

When the fineness of transaction classification is increased, the result is a simultaneous increase in uniformity as well as diversity. A finer classification of transactions results in greater uniformity *within* each class because there are fewer transactions in each class. It also results in greater diversity *among* classes since there are more classes and the accounting accorded to each class is different. (If it were not different, this class could be combined with some other without any observable change in the accounting system.) Consider now the two extremities of transactions classification schemes. In the coarsest possible classification, a single class, there is the greatest possible diversity of treatment within each class and complete uniformity across the classes (there is only one class and therefore there can be no interclass differences). At the other extreme where each transaction constitutes a class by itself, there is complete uniformity of treatment within each class (there being only one transaction in each, there can be no intra-class differences) and maximum possible diversity between classes.

If each event which is recorded as an accounting transaction has more than one attribute there is no way of completely eliminating the diversity of the accounting treatment of transactions except in some special cases. In general, any pair of transactions will have similarities as well as dissimilarities; their identical treatment is just as vulnerable to criticism as a dissimilar treatment. There is no

universally acceptable criterion for selecting attributes of transactions that can serve as the basis of classifying the transactions. Different attributes are considered important by different people in different contexts.

Now we can return to the term uniformity and try to examine what, if any, useful meaning can be assigned to it. In statements like "it is desirable to have uniform accounting rules" the term is so vague as to be almost empty of an operational meaning. If there is no way of making an accounting system more uniform without also making it less uniform at the same time, the term uniform must be operationally inadequate.

Apparently, the term uniform applied in the present context is too fragile and weak to be useful at this level of analysis. At a higher level of abstraction it has obviously been a useful vehicle to convey certain ideas. My criticism is that the term is too vague to be used at the operational level to choose alternative accounting classifications of transactions. The phenomenon is hardly unique to this term alone. The term liberty, for instance, has been a powerful moving force in history and is a very useful concept in framing the constitution of a democratic country. And yet, the term is of little use, and is hardly ever used, in legal proceedings. At that operational level, the term is not very useful in determining the guilt or innocence of a person. Greater liberty for one often means less for one's neighbor. Civil or criminal proceedings may therefore be determined not on the basis of liberty, but in terms of compliance with whatever the law of the land is. The same thing happens to uniformity at the operational level of accounting.

There is another aspect of the usage of the term uniformity in accounting. Uniformity of accounting rules also implies a reduction in the level of discretion available to the individual managers or their auditors in determining how an event is recorded. If managers are deprived of such discretion, the argument goes, application of accounting rules across firms will be more uniform and the resultant accounting statements will be more comparable. The issue is basically one of discretion. How detailed should the criteria be to determine the classification of a transaction and to what degree should the classification be left to the discretion of the managers or the auditors? No criteria can be detailed enough to eliminate all management discretion except one — placing each transaction in a class by itself. If specification of the classification criteria is to be limited to any reasonable length, management must exercise its discretion to classify transactions. Thus the need for management discretion is obvious and unavoidable in any practicable system.

The presence of discretion leads to the problems of interfirm comparability of data; the cost of more detailed specification of criteria grows fast as does the volume of accounting rules and regulations. Increased complexity of regulations has several serious effects of its own besides the direct cost of framing and using them.

The greater the length and complexity of accounting rules, the greater is the diversity in their interpretation by different managers and accountants, and the larger is the volume of questions asked about their meaning and intent, and the faster is the growth of written interpretations, clarifications, and guides for application of these rules. This has been happening in financial accounting rules at an increasing pace in the recent years as a running count of the number of pages in the *Financial Accounting Standards* will easily confirm. A more popular example is the Internal Revenue Code. Whether the increased complexity of the code with all its rules, and interpretations leads to a more uniform application of tax laws across individual and corporate taxpayers is a matter of doubt. A case can be made that much less detailed specifications of tax laws may actually be more equitable than the present code. A more complex specification of rules allows for more loopholes for the diligent to discover and to take shelter. It also makes it more difficult to discover whether the rules have been violated, and even if it is discovered, it is more difficult to prove it. Whether an attempt at narrowing the discretion of the management in classification of accounts can actually succeed in accomplishing the desired goal is not obvious. Detailed specification of rules is not synonymous with reduction of discretion in their application.

Accounting treatment of research and development outlays is the case in point. Until FAS2 was issued, capitalization of these outlays was left largely to the discretion of the management. Practice varied considerably across firms. Demands for uniformity led the FASB to search for rules which would reduce the management discretion in capitalization decision and closely approximate the economic nature of the event. It soon became evident that there was no way of satisfying both these requirements. The nature and circumstances of research and development outlays and their results vary so greatly that it is not feasible to lay down rules that will remove the discretion of management without also weakening the link between the economic consequences of the R and D outlays and their accounting treatment. FASB opted for increased uniformity in the sense that all (with a few exceptions) outlays were required to be expensed, thus removing management discretion. But this is uniformity by label and not uniformity by economic sub-

stance. The underlying event that is supposed to be recorded is not the R and D expenditure alone; it is this expenditure coupled with its consequences. Compulsory expensing the R and D outlays irrespective of the results produced creates a greater divergence between the underlying event and its accounting treatment than might be the case under a discretionary system. Certainly FAS2 has led to greater uniformity of financial statements in one sense; it is equally certain that it has also led to greater diversity in another important sense. Unfortunately this logical problem, fundamental to all schemes of classification, cannot be avoided. The policy implication is that the slogan of uniformity cannot be used to promote the information content of financial statements by the rule makers.

2. *Economic Equilibrium*

The second limitation of information financial statements can carry arises from the presence of economic incentives in the accounting environment. These incentives do not permit financial accounting to exist as a mere passive observer and reporter of events. Instead, alterations in the accounting system themselves induce changes in events being reported and thus limit the amount of information financial statements can effectively convey.

Financial accounting attempts to record the economic events in the environment surrounding the business entity. Some, if not all, of these events are effected by the management actions. Corporate managers are concerned not merely with the cost of accounting rules they have to work with, but also with the effect of the accounting system on their actions and the firm. When accounting rules are changed, it is a fair assumption that such changes are followed or accompanied by certain changes in management behavior, and therefore in the events that the accounting system is supposed to record. Thus, the accounting system is not a mere neutral observer of the business environment; it often determines this environment in a nontrivial way. Every observation affects what is observed.

This role of the financial accounting system in influencing the business environment limits its ability to communicate information. For example, if an accounting change brings about a change in management's business actions, there is no way of knowing what, for example, the business income would have been, had the rule not been changed. A change in an accounting rule has meant not only a change in the method of measuring a given economic event, it has also changed the economic event to a certain degree. Thus,

a so called improved financial accounting system gives us not an improved accounting measure of the same events but a different accounting measure of a different event. This leads to obvious problems of intertemporal comparability of data. The fact that most such comparisons choose to ignore the problem of the effect of the accounting system on economic events need not blind us to this limitation of financial accounting in transmitting information.

3. *Robustness Requirement of the Legal Environment*

The third limitation on information content of financial statements derives from the legal environment. The legal environment that surrounds the financial accounting systems has had a profound influence in shaping financial accounting. In spite of the exclusively economic perspective used in much of accounting literature today, the legal system continues to be a major determinant of financial accounting development. The court rulings on accounting issues have a substantial impact on financial accounting.

This legal aspect of financial accounting imposes a robustness requirement on its rules. These rules must be defensible in the courts against partisan criticism in an adversary environment. In addition, whether or not a rule has been violated by the management or the auditors should also be determinable through the same process. This requirement translates into a definite limit on the fineness of that part of the information system in which data are not hard and discretionary judgments must be used to produce finer classifications. Legal proceedings push the financial accounting system towards robustness and tend to make the information system coarser than it might otherwise be. Too fine an information system, which needs a very large number of classificatory judgments from the managers and the auditors, may not be legally defensible, and therefore be inadmissible in the business environment.

Managers as well as auditors have tended to resist increases in fineness of information transmitted by financial accounting statements. The judgments necessary to make these finer classifications are less defensible in the legal environment and expose them to damage suits by various parties. This legal limit on fineness of financial accounting information was exemplified by the "safe harbor" granted by the SEC for current valuation and reserve recognition accounting for the oil and gas exploration industry. Beyond the experimental stage, safe harbor will have to be discontinued to achieve any degree of uniformity. It is certainly conceivable that a

government body such as the Securities and Exchange Commission (SEC) may try to force managers and auditors to accept greater responsibilities through acceptance of a finer information system without a safe harbor. Even if such attempts appear to be successful in the short run, they are likely to fail in the long run for two reasons.

Faced with the greater probability of personal liability suits from investors, managers will either demand higher compensation from the business to operate a finer information system or demand higher liability insurance. The effect on business will be the same — higher costs of management.

Similarly, auditors will seek to cover themselves by closer scrutiny of the finer financial statements (which now carry more numbers and will take longer to verify) and raise their auditing fees. They will also seek to protect themselves with higher insurance coverage and add the premia to their fees. This too will add to the corporate burden of operating the financial accounting system. Some businesses which are profitable under the older system will no longer be so and will go out of business. Reduction in economic activity due to the higher cost of operating the business will result in a pressure to change the financial accounting system to reduce this cost. Alternatively, forms of industrial organizations such as proprietorships and privately held corporations which do not have to carry this burden will gain a relative advantage over the publicly held corporate form and their share in the economy will grow relative to publicly held corporations. In either case, the ultimate effect will be to adjust the fineness of the financial accounting system to a point where the cost of operating the system is balanced by its benefits. The existence of the legal environment places rather strict limitations on how much information can be effectively transmitted through financial statements.

Several of the recent attempts by the Financial Accounting Standards Board to enhance the information content of financial statements appear to have failed. FAS 8 and FAS 33 are cases in point. Before I end, may I suggest that conspicuous failure of these prestigious, time and money consuming rule making projects, in increasing the information content of financial statements deserves a close scrutiny. I am not yet prepared to argue that we have already reached the limits of information that financial statements can effectively carry. However, an appreciation and understanding of these limits may, perhaps, help moderate the drive towards standardization of accounting now in progress at Stamford.

FINANCIAL ACCOUNTING RESEARCH: THEORETICAL AND APPLIED

D. Gerald Searfoss
Director of Accounting Standards
Touche Ross & Co.

The invitation to discuss financial accounting research gives me the opportunity to share with you some thoughts and insights that I have developed in trying to assess the impact and role of research. As part of this presentation I am going to deal with the following:

- the need for and value of research
- concerns about the quality of research
- research that needs to be done
- methodologies that should be used
- the changing environment and areas that will need to be researched in preparing for the future

THE VALUE OF RESEARCH

Miller (1977) classified research in the following way:

THREE CLASSIFICATIONS OF RESEARCH

	<u>Basic</u>	<u>Applied</u>	<u>Usable</u>
Impact on practice	No obvious effect	Implication for the future	Immediate change
Contribution to accounting	Identification of new problems and new approaches to old problems	Testing of new solutions	Implementation of new solutions
Appeal for: Practitioners Academics	Low High to moderate	Moderate to high Moderate to low	High Low
Media for distribution	Monographs <i>The Accounting Review</i> <i>The Journal of Accounting Research</i> Academic meetings and seminars	<i>The Journal of Accountancy</i> <i>The CPA Journal</i> <i>Management Accounting</i> Accounting research studies	Professional meetings Continuing education Popular periodicals Business school curricula Textbooks