RESEARCH ON ACCOUNTING AND REPORTING POLICY

by

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I have been asked to review research in the area of financial accounting and reporting policy and to discuss prospects for related dissertation work. Since the time available is only about 40 minutes, I shall concentrate my remarks on the major research problems in this area instead of an item-by-item review of specific research studies.

The literature on accounting policy can be divided into three categories. Because these three categories are roughly separated in time, we could also see them as three stages in the evolution of policy research. For ease of reference, I shall assign a label to each stage: external criterion research to the first, efficient market research to the second, and welfare economics research to the third. Let us start with the external criterion research.

Until approximately the late sixties, externally defined criteria such as verifiability, relevance, and timeliness, etc., formed the basis on which accounting and reporting policy was seen to be chosen. Accounting Principles Board's Statement No. 4 was, in a sense, the culmination and the best example of this way of looking at accounting policy. The Statement listed and defined 13 basic features, six basic elements, and fourteen important characteristics of financial accounting. It listed nine qualitative objectives of financial statements (e.g., relevance, verifiability, reliability, etc.) which were to form the basis of choice among accounting alternatives. Though the Statement mentioned the various parties who are interested in the financial reports, the link between these interests and accounting policy was not forged. Usefulness of financial information in making economic decisions was merely mentioned in the Statement without an explication of how accounting policy to fulfill this goal could be identified. The Statement used the language of economics in parts without applying the concepts of economics to accounting policy formulation. It is for this reason that this external criterion approach to accounting policy should be regarded as a pre-economic method.
In the external criterion literature, truth and fairness of representation in financial statements played a major role. If the balance sheet and income statement could not be relied upon to be truthful, they would cease to serve their function. The shareholders will no longer feel assured by financial statements about the current status of the capital they entrusted to the management; the creditors will be uncertain of the collateral on their loans and the audited statements will provide little assurance to the government that the taxes due have been paid. Thus the truthfulness of financial statements was seen to provide the very basis of their perceived value. Truthfulness of financial statements, it was argued, should be a key criterion for accounting policy.

However, application of such external criteria failed to help resolve the increasingly contentious policy issues on financial reporting placed before the Accounting Principles Board during the sixties. While the lists of external criteria were not controversial in and of themselves, little consensus could be found on the relative importance of various criteria. Even worse, accounting methods that were regarded as most relevant by some experts were seen to be the least relevant by others. This problem was common to other external criteria as well, to varying degrees. Dissatisfaction with the use of external criteria led researchers to look elsewhere for a new paradigm of policy research in accounting. Increasing emphasis on teaching of economics and statistics in the U.S. business schools and new research in finance in the sixties provided the basis of what became known as efficient market research in accounting.

**EFFICIENT MARKET RESEARCH**

The classical firm of microeconomic textbooks is run by an owner-manager with the objective of maximizing profit in a single-period framework and maximizing value of the firm in a multiperiod model. With this monolithic model of the firm with a clear-cut and unambiguous objective of value maximization in mind, accounting researchers sought to simplify the problem of choosing accounting policy. Why not choose accounting policy that maximizes value of the firm? The accounting methods could be seen as a part of the production technology of the firm; and financial statements and other disclosures could be seen as a part of the output of the firm.
The value maximization criterion provided by the classical firm still left open the question of how value is to be measured. If the practical problem of measuring values were resolved by falling back on accounting numbers, the value criterion would imply selection of accounting methods that maximize owners' equity, which is not of much help. The help for resolving the value measurement problem came from the security price research in finance. As evidence accumulated to suggest that in heavily traded securities such as those listed on the New York Stock Exchange, adjustment of prices to new information occurs quickly, the market price of securities, which was long seen to be dominated by unpredictable speculative bubbles, suddenly became an alternative means of measuring value of the firm. This alternative measure of value, the market price, was determined by a mechanism independent of the accounting methods, even though the accounting information played a role in the functioning of stock markets. Thus the classical model of the firm, the value maximization criterion, and an independent and reliable practical means of measuring value were combined by the accounting researchers to present a new criterion for choosing accounting and reporting policy: the market value.

The market value criterion was to be applied to both the social choice of setting accounting standards and disclosure rules as well as to the choices made by individual firms among acceptable accounting alternatives.

At the social level, the market value criterion was clearly normative in the sense that it was presented to the rule-making bodies with a recommendation that they should use it instead of whatever other criteria they employed in selecting rules and standards. The use of this market value criterion at the social level was not presented as descriptive theory because such an argument would require evidence that, in general, new rules and standards increase the market value of affected firms. Such evidence, necessary as it was to present the market value criterion as descriptive theory, could not be found.

At the individual firm level, however, the market value criterion was presented in both descriptive as well as prescriptive forms. Since empirical evidence to support the descriptive hypothesis that firms choose accounting policy to maximize value has been weak, at best, the prescriptive form has dominated the literature at the individual firm level also.
The market value criterion for choosing accounting policy also presents several problems. I shall discuss three of these problems and call them the "needle in the haystack" problem, the "expectations" problem, and finally the "wrong model" problem.

When the size of the effect of accounting choice, or of any other event for that matter, on the market value is relatively small, the noisiness of market value which is influenced by a myriad of different events makes it difficult to identify such effects. Our knowledge of market parameters allows us to conduct an advance estimation of the chances of discovering the effects of a specified size. The market model residuals for individual stocks from monthly data have a variance in the neighborhood of 0.007. If we use a portfolio of N firms and cumulate residuals over T periods, under the independence assumption variance of CAR is $0.007 \frac{T}{N}$. For $N = 100$ and $T = 12$, CAR has a standard deviation of about 0.03. Assuming a normal distribution and two-tailed test, there is only 50 percent chance that an effect as large as 6% over 12 months will be successfully detected at 5% level of significance as shown in Figure 1. Chances of detecting smaller effects of accounting choices on the market value are even more remote. Smaller portfolio sizes reduce the probability of successful detection of the market value effects even more.

![Figure 1](image-url)
There are very few accounting and reporting policy decisions for which one could argue on a priori grounds that their effect on the market value is large enough to allow any reasonable chance of detection through analysis of stock prices. It is hardly surprising that for the vast majority of such studies conducted to date, the results have been negative. A needle in the haystack cannot be found by examining the haystack from an airplane. Upon conclusion of a thorough examination of this type, a conclusion that there is no needle in the haystack is not credible.

What can be done about the problem? Before proceeding with collection of data and analysis, it is reasonable to estimate the approximate size of the market value effect we intend to look for and the size of sample we need to have an acceptable chance of discovering such an effect if it exists. Such analysis is easily done as I have illustrated above. It will save much effort and disappointment if conducted in advance of the research study.

The major virtue of market value as a criterion for accounting policy was that the markets tend to anticipate the future events to the extent such information is available and incorporate it into prices. Ironically, this property also turns out to be a major obstacle to measuring the value consequences of accounting policy and I refer to this problem as the expectations problem. I shall discuss the consequences of the expectations problem first at the level of choices made by individual firms and then at the social level of standard setting and rule making.

Motivation for a classical firm to change accounting method is opportunity to increase value. As the firm's environment changes, management may switch from, say, accounting method A to method B in order to increase its value by, say, x dollars. In a rational market where participants observe these environmental changes, the accounting changes will not come as a complete surprise. Even if the market does not know the identity of specific firms who will make the changes, it will be able to assess the probability that any given firm will make this accounting change in a given period. Let \( \pi \) be this probability of change in accounting method. In a rational market, the expected gain from change in accounting method from A to B which is \( \pi \cdot x \) will be incorporated into the market value of the firm before the market has any information about the identity of specific firms that make the change. Upon announcement of the
change the full effect of accounting change on market value, \( x \), will be effected. However, the price change observed at this time of announcement will be only \( x(1 - \pi) \) because \( \pi \cdot x \) has already been incorporated into the price earlier. Note that the higher the probability of change, \( \pi \), the smaller the observed fraction of the total market effect. However, there is a consolation prize. High value of \( \pi \) also means that from a given universe of, say, \( N \) firms, a large expected sample size \( \pi \cdot N \) will be available. Conversely, small sample sizes are associated with larger fractions of the total market value effect being observable at the time of announcement. The t-statistic of the observed effect is therefore proportional to \( x(1 - \pi)/\sqrt{\pi \cdot N} \). The larger the collectible sample size, the smaller is the fraction of total market value effect that can be observed at the time of announcement. The ability of a competitive market to anticipate the future thus makes the task of measuring market value effects more difficult.

At the social level of standard setting and rule making, the ability of the market to anticipate the future creates an even more serious problem. Suppose the FASB makes the following announcement:

We propose that effective next January 1, all firms should use accounting method A and method B should no longer be used. We think such a change will increase the market value of firms. But just to be sure we have commissioned a research study to assess the effect of the proposed change on the market value. If this effect is found to be negative, we shall withdraw this proposal.

Suppose the effect of such an accounting change on cash flows of the firm is negative. Consider what will happen in a rational market. Price will decline by, say, \( x \); the market will conclude that the FASB will withdraw the proposal; therefore the decline in price will not occur; which in turn implies that the FASB will not withdraw the proposal; which implies that the market price will go down by \( x \) and so on. In a noiseless market which acts rationally to anticipate the future, it is not clear what the equilibrium point of this process is. A careful consideration of the rational expectations in security markets renders the interpretation of empirical results and especially their use for making policy far more complicated than is generally recognized.

The two problems of the market value criterion I have mentioned so far, the "needle in the haystack" problem and the "expectations" problem, are merely measurement and identification problems and are minor in comparison with the
third and more fundamental problem that this criterion is based on the wrong model of the firm. A discussion of this problem will lead us to consider the third criterion for choice of accounting and reporting policy—the welfare economic criterion.

Recall that the market value criterion is firmly rooted in the monolithic classical model of the firm which is run by its owner-manager with the objective of maximizing its value. The problems of financial accounting and reporting policy that have attracted so much attention in the recent years hardly exist for a firm run by owner-managers. Publicly held, and professionally managed corporations for which financial accounting and reporting policy is an important issue hardly resemble the owner-managed firm of the classical model. Predictions of the value maximization rule about the choice of accounting policy by individual firms have not been supported by the data. Failure of a large number of firms to adopt LIFO is a glaring example which suggests that value-maximization is the wrong criterion for accounting policy and the classical model of the firm is the wrong model to seek an understanding of accounting problems. Indeed, in the perfect information environment of the classical firm, accounting system, or any other information system for that matter, has no role to play. Analysis of accounting issues requires a model of the firm with uncertainty and less than perfect information so accounting can play a nontrivial role in the firm.

This brings us to the welfare economic criterion, but before I talk about it, permit me to say a word about a second model of the firm, the contract theoretical model of the firm.

**CONTRACT THEORETIC MODEL OF THE FIRM**

Contract theoretic model views the firm as a set of contracts among numerous independent agents or homogenous groups of agents, each of whom seeks to maximize his or her own welfare. The firm is merely an arrangement arrived at among these agents through negotiations and bargaining; it is not a maximizing entity in itself. Only the agents maximize and take action to seek this goal. The agents involved, for the purpose of analyzing accounting issues, include the shareholders, managers, creditors, auditors, and government, etc. As
with all models, which agents are included in analysis depends on the purpose of analysis.

The contracts obligate each agent to contribute certain factors of production to the firm and give rights to obtain a share of the gross revenues of the firm. The managers provide their skills in exchange for salary and compensation, shareholders provide capital in exchange for dividends, and auditors provide their services in exchange for their fees. The obligations and rights of each party are negotiable and are regulated in part by the markets for the respective factors of production. If a manager does not think he gets a good deal from the firm, he can leave and sell his services elsewhere. The same is true of all other parties to the contract.

In this model of the firm, the accounting system itself forms a part of the contracts that bind various agents together and it is a part of the mechanism for enforcement of these contracts. At the time a shareholder buys stock of the firm, he is buying a package of rights and obligations of which the measurement and enforcement mechanism of accounting is an integral part.

If we move from the owner-manager oriented classical model of the firm to this multi-party contract theoretic model in which the shareholders' position is considered no more special than the position of other parties involved, the role of financial accounting in the firm is more easily recognized. Such firms need an accounting system to measure inputs of various agents in order to determine if each agent has met his obligation; they also need the accounting system to apportion the wealth of the firm to various agents in accordance with the contract.

Under this model of the firm, an accounting change will affect all parties involved, including shareholders, managers, and auditors. Moreover, it will trigger a sequence of readjustments on the part of various agents; and these readjustments will continue until a new equilibrium is reached.

However, changes in the market value measure only the effect of a change in accounting method on the holders of equity shares of the firm. A change in the market value tells us very little, if anything, about the effect of such a change on other parties; it doesn't tell us what happens to the manager's interests; it doesn't tell us what happens to auditors' interests.
For example, a change that increases the market value may actually hurt the manager and cause a change in the manager's behavior. If a change in accounting method hurts the managers badly enough, they will resign and go elsewhere, and that may hurt other people in the firm as well.

Therefore, the contract theoretic model forces us to view the accounting problem in welfare-economic terms; that is, to examine it in terms of the multiple interests of a multi-party environment. In such an environment you can't say whether a given accounting method is good or bad on the basis of market value. Let us look at the effect of an accounting change on the various parties involved. Some people might benefit, others might be hurt. In order to evaluate these effects, one must choose a welfare criterion, which might take the form of a Pareto criterion or a compensation principle, to name just two possibilities.

The major implication of using a welfare-economic criterion, such as a Pareto criterion or a compensation principle, for future research in accounting is that it will have to measure the impact of accounting changes on all parties involved, or at least all the major parties involved, and not just on shareholders.

The ready availability of stock market makes the job of measuring the effect on equity holders fairly easy, but an increase in stock price does not mean that the change is good from the society's point of view. A decrease in stock price does not mean that the change is bad for the social order. We need to measure the effects of accounting changes on the interests of auditors, creditors, and managers, as well as stockholders. This will be a very difficult task.

The difficulty of the task is evident from some recent efforts in this direction. It is very costly in both time and money to dig into the managerial compensation contracts, debt covenants, and other contracts to determine the effect of an accounting change on parties other than shareholders. Since the interest of managers and auditors in the firm cannot be capitalized and they cannot be sold directly in a market, the economic effect of accounting change on these parties is very difficult to measure.

One may be tempted to use the stock price data to measure these effects, but the gross cash flows of most large firms are several orders of magnitude larger than the compensation paid to the auditors or managers. A one-billion-
dollar firm may pay its managers no more than a few million dollars and may pay its auditors no more than a few hundred thousand dollars. Such differences imply that market methodology is not apt to yield a suitable measure of the effect of accounting change on their compensation paid to managers or auditors.

In recent years, I have done some work on trying to address the question of what happens to equilibrium price in a competitive market when the information system changes. Now, that question is very difficult to answer by using data from the stock market, because we lack experimental control over the entire information system associated with the market in the real world. However, experimental methods enable the researcher to exercise such controls. Let us consider several examples of such experimental work.

Theory leads us to expect that a change in information system means a change in price, but we haven't had empirical data to support that answer until recently. From the experimental data we have, the answer so far is yes; in general, you would expect different information systems will result in different equilibrium prices in the marketplace.

We have also been trying to identify the key features of the market structure that result in full digestion of information from the marketplace. Full digestion of information could mean that the market is efficient, although efficiency has been, to a large degree, a qualitative criterion. Either the market is efficient or it is not efficient. There has been no satisfactory matrix for measuring the degree of efficiency or how efficient one market is in comparison to another. Experimental work allows us to compare the economic efficiency of different market structures and different information structures. It allows us to quantify the efficiency measure of various market structures, and it tells us under what kind of market structures we may or may not be able to digest various kinds of information.