# Faculty Working Papers

PRICE LEVEL RESEARCH AND THEORY CONSTRUCTION
AS A BASIS FOR POLICY DECISIONS

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An earlier version of this paper was presented at the Western Regional meeting of the American Accounting Association on May 2, 1975 as part of the Current Accounting Research panel discussion. Comments of colleagues attending that session and the critical comments of Professor Richard E. Flaherty of the University of Illinois substantially improved this paper.

# Price Level Research and Theory Construction As A Basis For Policy Decisions

The purpose of this paper is to argue that there is no significant research evidence or theoretical rationale to support a financial reporting policy requiring general price-level restated financial measures in published annual financial statements. This paper argues that a significant amount of additional research in both theory construction and empirical verification needs to be executed as a basis for such a policy decision. This paper asserts that the proposals contained in the Financial Accounting Standards Board Discussion Memorandum and subsequent Exposure Draft (FASB, 1974a and b) will result in no significant improvement in the quality or relevance of information rendered to financial markets and could represent a major step backward in the development of meaningful financial reporting practices.

The method utilized in this paper will be to examine the policy issue before the Financial Accounting Standards Board and to summarize relevant research that has been completed on this issue to date. From this analysis, this paper will develop a series of unresolved "researchable" problem areas which seem to need attention in order to evaluate the desirability of reporting general price-level restated financial information. The final section of this paper will argue that empirical research can be executed to evaluate market efficiency in respect to certain kinds of data potentially available through the price-level restatement and adjusted process.

## THE POLICY PROBLEM

The major conceptual question addressed by the Financial Accounting Standards Board in its recent Discussion Memorandum (1974a) asks whether or not the economic effects of general price-level changes be required as supplemental information to conventional historical-dollar financial statements. In respect to the related question of the treatment of specific price movements the board stated that they "...should, in the Board's judgment, be considered in or await completion..." (1974a), p. 6) of the forthcoming FASB project dealing with a conceptual framework for accounting and reporting. In its comments on the FASB Discussion Memorandum, the American Accounting Association's Sub-Committee of the Committee of Financial Accounting Standards indicated that "All members of the sub-committee agree that reporting the effect of price changes or price-level changes in financial statements should be required" (AAA, 1974, p. 1).

In reasoning about the significant factors considered by the Board in the development of its Exposure Draft, the Board indicated "..., investors and others often look to the income statement, or to ratios that are based in part, on measures of income, for information about the ability of an enterprise to <u>earn a return on invested capital</u>." (emphasis added) (FASB, 1974, p. 21).

One question raised by these statements is which "price level" concept is really being considered by the Board? It is clear that the Board feels that by general price-level restatement a better measure of economic returns can be achieved. Further, the American Accounting Association Sub-Committee in its response to the FASB's discussion memo, indicated no strong reservations regarding the kind of <u>economic</u> information which is likely to be generated through the restatement process.

Beaver, in a discussion of a strategy which he feels should be followed by the FASB in selection of rules governing disclosure, indicated that the FASB should, "...shift its resources to those controversies where there is nontrivial additional cost to the firms or to investors in order to obtain certain types of information (for example, replacement cost accounting for depreciable assets)" (1973, p. 52).

The major questions then, regarding the resolution of the restatement policy issue, seem to turn on the following three major issues: (1) What will the <u>impact</u> be on reported data? (2) What is the likely economic content (value) of the information to be generated? (3) What is the likely <u>cost</u> to those required to generate published financial information of complying with such a financial accounting reporting standard? Some research exists which bears on these questions. Unfortunately, there is not sufficient, conclusive research to obtain answers to any of the major questions posed. However, certain tentative conclusions can be drawn from an examination of research efforts to date. Further, a review of this work suggests new directions for productive research activity which would generate data on which to base answers to the policy questions faced by the FASB. The balance of this paper is devoted to a discussion of relevant research and its implications for policy making and research activities in the future.

## ACCOUNTING RESEARCH AND WRITING COMPLETED

The primary thrust of research activities carried on by accountants in the area of general price-level restatement has been heavily data oriented. This may be due to the accountant's penchant for examining impact on measured value rather than for examining potential impacts on economic choice. The earliest works by accountants were reported by Jones (1955, 1956), Hendrikson (1961) and Mason (1956). These research projects form the basis for measurement techniques which are accepted wisdom in the area today. These studies are well

known and will not be discussed further except to note that they were pioneering efforts in an area which was little understood at that time.

More recent research efforts have been devoted to various replications of the basic research mentioned above and can be classified as Data Impact Oriented, Feasibility Oriented or Decision Oriented. The reader should recognize that no single study falls completely into any of these three categories, but in fact, may embrace characteristics of two or more of the classifications. However, the classification scheme will help identify the significant contributions made by a widely diverse group of research designs.

Data-Impact Oriented

Studies performed to examine the magnitude of the impact of general price-level restatement on financial data have been of the "estimation" variety, based on large-scale randomly-selected published financial information or they have been of the smaller, single industry detailed analysis and restatement variety. The larger scale studies have relied on heuristic methods in order to approximate the financial information which "would have" been published had the measurement rule specified general price-level restatement. While these studies have provided some inter-industry data on which to gauge the data effect of restatement, conclusions based on them are always limited by the quality of the estimation procedure developed by the researcher. The first of these studies was performed by Petersen (1973a) and reported in THE ACCOUNTING REVIEW. In summarizing the results of that study, the author states, "..., no conclusive evidence exists that a significant change in the sequential ordering of companies would occur as a result of changing the cost measurement rule." (Petersen, 1973a, p. 43) A similar study was recently completed by Davidson and Weil. (1974) In this study, the authors selected 30 companies from the Dow Jones listing and 30 from Fortune 500's largest industrial companies on which

to base their analysis. Davidson and Weil utilized a variety of estimation techniques to develop approximations of the magnitude of the general price-level gain or loss and the restated net income of these companies for the 1973 reporting period. While this study was limited to an examination of the impact on net income only, and used somewhat different estimation techniques than that developed by Petersen, the philosophy and approach were quite similar. The conclusions drawn based on the data developed in the Davidson and Weil study are thus subject to the same limitations as that mentioned for Petersen. Davidson and Weil suggested a fairly significant impact on the data as a result of their analysis; however, no statistical tests or other procedures were reported to evaluate the decision implications of the shift in reported net income.

The second type of data-impact oriented study has involved the specific restatement of a limited number of financial statements on a detailed basis. Jones performed the first of these types of analyses in his examination of four companies. (1956) More recently, McKenzie (1970) has completed a similar study for a limited number of airline companies. While this study provides interesting information, its single industry nature limits its usefulness as a basis for policy decisions affecting financial reporting in general markets. The McKenzie study has, however, provided a rich amount of information, specifically restated, which can be useful in the development of estimation procedures of the kind designed by Petersen and Davidson and Weil. Therefore, in this sense, it has made a valuable contribution.

Feasibility Studies

Probably the best known of the recent feasibility evaluations performed in the general price-level restatement area was reported by Rosenfield. (1969) In this study, the American Institute of Certified Public Accountants sought the aid of 18 companies to test the feasibility of implementing the recommenda-

tions suggested in Accounting Research Study Number 6. (ARD, 1963) Rosenfield reported that the companies encountered no significant barriers to carrying out the restatement procedures. However, some indicated that alteration in the basic information retained in accounting records would be required if restatement was a routine reporting requirement. As an additional benefit of this study, the data have been made available to other researchers for the development of estimation procedures. Both Davidson and Weil and Petersen utilized this information in evaluating the behavior of their estimation procedures. In this sense, like the specific re-statements discussed above, this study has had a significant impact on the development of later research through providing a rich amount of detailed restatement data.

## Decision Oriented Studies

Additional work has been reported in the general price-level restatement area which focuses on the probable impact on decisions which might be implied by changing the basic historical cost measurement rule. These studies are always severely limited, however, because little is really known about the way in which investment decisions are made. Certain behavioral field experiments have been performed which attempt to deal with this problem by empirically assessing the decision impact of restatement under controlled conditions.

A market oriented study performed by Petersen and based on the data generated by his estimation procedure utilized the portfolio assembly algorithm and certain concepts from the capital asset pricing model developed by Sharpe to attempt an evaluation of the investment implications of restatement. (1974) While the approach involved the naive estimation of beta values for each of the 43 companies in the study based on accounting information, the result seemed to suggest that the book value of portfolio returns will most certainly "appear" to be more variable after restatement than before. Each individual must take his own assessment of the decision implications of that result.

Simmons and Gray (1969) completed a simulation study designed to evaluate the impact on predictive power of basic, restated and replacement cost financial information. The data developed in this study were entirely synthetic, based on a computer simulation model. The authors asserted no significant conclusions based on this research but rather extended the hope that the simulation approach would be developed more thoroughly by others as a basis for resolving financial reporting policy issues. The authors did not observe a major data impact of general price-level restatement from their simulation model.

Samuelson (1972) recently reported the result of his research in this area which utilized a forecast criterion as a basis for evaluating the significance of restatement. Samuelson utilized the Miller-Modigliani theoretical asset valuation model as a basis for estimating the value of certain electric utility firms during the period 1935 to 1940. Samuelson used estimation techniques to develop the restated data on which to evaluate the quality of forecasts of earnings streams calculated on a restated and on a basic basis. Samuelson noted only a weak improvement in forecasts based on general price-level restatement. It is interesting to note that the general price-level was declining during this period. The results developed by Samuelson are probably the only data existing to evaluate the impact on financial information of restatement during a period of declining general price-levels.

Behavioral laboratory experiments represent the last of the studies performed to attempt an evaluation of general price-level restatement on decision making. Dyckman performaned a study for the American Accounting Association in which synthetic data for two firms were submitted through a mail questionnaire to a large sample of financial analysts. The data were presented to test groups on a basic and restated basis. Dyckman found a weak effect on investment decisions as a result of including the general price-level restated data.

Another, somewhat different example of a similar experimental design was recently reported by Heinz. (1973) In this experiement, undergraduate and graduate students were utilized as respondents to evaluate the basic and restated financial statements of Indiana Telephone, Cummings Engine and J.C. Penney Co. The financial period over which one-period decisions were developed was 1958 through 1967. In summarizing the results of his experiment, Heinz stated that: "The evidence from this research indicates that price-level restated information does not lead to different investment forecasts or decisions." (1973, p. 688)

## Research Implications

It seems safe to conclude from the results of all the research performed in this area, that the restatement impact on the data has not been demonstrated to be significant. Further no decision oriented study was able to identify a significant impact on investment decision as a result of restatement. On the other hand, the feasibility oriented research suggests that some significant effort will be required of firms in order to comply with a policy requirement for restatement. One is then led to wonder why the issue of general price-level restatement is now an important topic before accounting practitioners. Since some cost must be incurred to comply with such a change in financial reporting rules, and no benefit has yet been satisfactorily demonstrated, it would seem reasonable to conclude that such a policy decision would at best be unproductive.

## CONCEPTS AND PROBLEMS

A significant number of major questions and problems in the area of price-level restatement remain to be addressed. Some of them represent

conceptual problems which deal with the problem of identifying major causes of shifts in wealth. Other questions are essentially empirical in nature and center on the question of whether or not financial markets are efficient in respect to the economic content of the information generated by the restatement process. It is the purpose of this section to identify and discuss those areas which seem to need additional theoretical and/or empirical development as a prerequisite to adopting or rejecting general price-level restatement as a required measurement principle.

## The Index Problem

There are at least two significant problems in the use and construction of price indexes. First, current literature exists which *seems* to indicate confusion between the meaning of specific price movements, that is, the movement of the equilibrium price of a *particular* asset in a *particular* market as opposed to a disproportionate shift between the quantity of money in an economic system and the system's output of goods and services. There is apparently still a need for refinement of the meaning of these different price movement concepts. The FASB, in its recent Exposure Draft on the subject of *general price-level restatement*, correctly indicated; "holders of nonmonetary items also gain or lose general purchasing power, but not solely as a result of general price-level changes; the gain or loss is caused by a change in the *relationship* between the specific price of individual nonmonetary items and the general level of prices." (FASB, 1974b, pp. 23-24) However, in the same document, the following statement appears: "In periods of inflation, depreciation and cost of goods sold tend to be understated in terms of the

purchasing power sacrificed to acquire the depreciable assets and inventory." (FASB, 74b, p. 21) The implication to this writer of that statement is real, not nominal. I fear that others will also imply that the general price-level restatement proposal suggests economic content in financial statements that is unlikely to exist as a result of the restatement process alone. In addition to the statements of the FASB on this matter, the Sub-Committee of the American Accounting Association Committee on Financial Accounting Standards indicated the following preference with respect to a policy choice between specific and general indexes: "It was our consensus that a general index was more appropriate than specific indexes for overall financial statement purposes." (1974, p. 3) Again, the implication seems to be that overall financial statement conversion requires an "overall" index. Further, and more importantly, it is not clear what is meant by "more appropriate" in these circumstances.

A separate, but possibly related problem in the area of indexes, and their use in general-price restatement and specific-price adjustment involves the conceptual significance of a general index. For example, in a recent paper decrying the notion of general price-level restatement, Gynther indicated: "It might be physically possible to calculate a general index in any country, but it will have no real meaning to any one entity (e.g., person, firm, company, etc.). At any point of time the U. S. dollar does not mean the same thing to every entity in the U. S. A...." (1973, p. 5) Further, in a recent policy oriented paper published in the Journal of Accountancy, Revsine and Weygandt indicate: "Insofar as individual-firm and economy-wide purchasing powers diverge (in either direction), it is inappropriate to use general purchasing power changes to adjust individual firms' statements." (1974, p. 76) Further, these authors indicate, "...it is the specific purchasing power of the indiv-

idual firm that is important;..." (1974, p. 78) (emphasis added) Questions raised by these authors are significant because they challenge the very meaning of holding money and money rights and obligations. They seem to question the generality of holding cash balances. "Conventional" wisdom embodied in Accounting Principles Board Statement No. 3 (AICPA, 1969), and all of the technical research preceding it---together with the theory of Macro Economics (Alchian and Allen, 1972), would indicate that holding money or money claims entitles an economic entity to enter any market where certain resources are being traded, and that any money offer in those markets will be regarded by a seller as equivalent to any other offer. However, these challenges to the fundamental meaning of a general purchasing power index should be examined in depth since they appear more and more regularly by persons who have distinguished themselves as scholars in the area of measurement in accounting.

An additional aspect of the index problem centers around the technical nature of index construction, and the selection of an "optimal" index from among those available. Tierney, in her contribution to ARS-6 has developed a thorough analysis of the issues in this area. (ARD, 1963, pp. 61-115) In contrast, Hannum and Wasserman, in a recent discussion of the index problem stated: "This assumption that a meaningful average exists or can be obtained for prices in general is highly questionable." (1968, p. 297) These authors suggest that the development of a "special-purpose" index based on weighted average goods and services believed to be relevant to all accounting entities would more nearly meet the needs of general price-level restatement. Further, in a recent paper, Stickney and Green make an argument which creates significant "...uncertainty about the wisdom of employing what may be an unsuitable tool in an attempt to make accounting reports more meaningful." (emphasis added) (1974, p. 28) There can be no question,

that a great deal of additional meaningful research should be conducted to develop fundamental principles underlying the nature of general purchasing power indexes.

## The Question of Monetary Balances

Only a limited amount of conceptual work has been done to date on the question of defining the meaning of monetary balances in a consistent and operational way. The most recent treatment of this problem was developed by Heath who recommended the following definition: "Monetary assets are those assets whose holders gain or lose general purchasing power during inflation or deflation simply as a result of general price-level changes." (1972, p. 467) While this is an interesting definition, it depends for operationality on the validity of the notion of general purchasing power which seems to be in serious question by Gynther, (1973) Hannum and Wasserman, (1968), and others. It seems that the ultimate definition of monetary balances must await substantial additional theoretical underpinning.

## The Question of Aggregation

Moonitz is probably the most quoted author on the subject of the significance of common measurement scales in general price-level restatement. One proposition developed by those advocating general price-level restatement involves suggesting that it makes no more sense to aggregate basic historical cost measures than it does to measure the length of a room by alternately using "rods" and "feet". On the "uniform scale" measurement question Moonitz indicates: "From the standpoint of measurement theory, the need for a uniform scale would seem to be paramount, since it is always required for valid comparisons, whether the data to be compared are on a historical basis, a projected basis, or a current market-price basis." (1970, p. 471) But, some confusion potentially exists, when one examines the following statement discussing the desirability of "rolling forward"

the restated results to the most current period: "This is a desirable practice because the reader of the statements then gets the data reported in the most recent dollar, with whose exchange value he is most familiar, and in terms of which he will make his decisions.", (Moonitz, 1970, p. 472) which seems to imply economic significance of restated data beyond the nicety of common measurement bases. But, in the same paper, "the resultant data still reflect a scale adjustment, nothing more, nothing less." (1970, p. 473) However, perhaps the central theme underlying the seeming advocacy of uniform measurement scales by Moonitz can be achieved by examining an earlier paper which presented the following rationale underlying the need for restatement: "Unless the changes in the general price-level are known, and the accounts restated for their effects, no determination can be made of the extent to which the changes in specific prices represent a mere restatement of capital or a genuine profit or loss, realized or unrealized as the case may be... Both specific price changes and general price-level changes are of significance, and in an ideal accounting, both would be reflected.". (1965, p. 254) This seems to be one sensible and to date unrefuted rationale for the restatement process. That is, holding profits and losses are not measurable without consideration of monetary measurement disparities.

It is interesting to note that specific price adjusted data also meet the "common measurement scales" criterion discussed by Moonitz. However, is this sufficient basis to justify aggregation in financial statements? Larson and Schattke were among the first to register concern about the additivity of price-level adjusted numbers in the sense of the significant of the totals or aggregates resulting from the summing of price adjusted data (1966). What is the significance of numerically summing a series of current asset values? Does this suggest that the firm as a whole is valued at this total? McKeown deals with this aspect of the aggregation problem in a recent paper. (1972) These concerns raise an interesting line of reasoning most often associated with Arthur L. Thomas which deals with the significance of allocating measure values

in financial statements. Therefore, one is led to ask, if one changes the measurement basis of balances in financial statements to a restated or an adjusted basis, is it logical to conclude that readers will ascribe economic significance to category aggregates appearing in those statements? These authors raise serious and relevant questions not adequately addressed by accountants which bear directly on the restatement policy issue.

The Question of Anticipation

Probably one of the most significant measurement problems in the general price-level restatement area is the problem of measuring the "true" economic effect of holding monetary balances in light of financial strategic decisions to compensate for anticipated inflation through adjustments to monetary return rates. APBS-3 advocates the presentation of "gross" monetary gain or loss as a final item to determine net income. One comprehensive example of how such a "gross" number is estimated is contained in a recent paper by Petersen. (February, 1973) However, it is generally accepted among economists that the nominal interest rate is a function of not only the expected real rate of growth but also some adjustment factor for anticipated changes in the general price-level. To the extent that this theory of interest reflects actual behavior, it may be possible for financial managers to compensate for the effects of inflation on wealth by adjusting nominal growth rates on monetary balances. Shwayder was among the first to criticize ARS-6 for failure to deal explicitly with this problem. (1971) Bradford, in a recent paper using economic analysis, argued that the current measurement of general price-level gain or loss in accordance with ARS-6 or APBS-3 will not correctly estimate the "net" result of managerial decision making in respect to monetary balance management. (1974) The sub-committee of the American Accounting Association's Committee on Financial Accounting Standards attempted to call this problem to the attention of the FASB with the following statement: "There is some sentiment on

the committee for charging the interest payment in anticipation of inflation directly against the price-level gain from debt.". (1974, p. 2) (emphasis added) One should recognize, however, that it is the marginal nominal interest rate which is thought to be a strategic managerial control variable in compensating for the effects of inflation on wealth.

An important aspect of this question heretofore not addressed by accountants is whether or not financial managers do act in such a way as to offset the negative effects of inflation by advantageous selection of nominal interest rates. Economists have attempted to inquire into the questions of the degree of anticipation apparent in financial markets. Bradford (1974) provides a summary of the work of De Alessi (1963), Bach and Ando (1957), Bach and Stephenson (1972), Bradford (1971), Brousalian (1961), Gonzales (1973) and others on this important problem. In summarizing the result of this research to date, Bradford indicated: "Examination of the methodology and data used in the studies shows that as a group they were plagued by measurement errors and disturbance factors such that theoretically sound conclusions concerning the empirical value of $B_1$ still cannot be made." (1974, p. 298) ($B_1$ in this circumstance refers to a factor used to measure the degree of market anticipation of inflation.) It would seem reasonable that data generated by one of the estimation models discussed in the first section of this paper might provide data which would assist in reducing the "measurement errors" mentioned by Bradford. Certainly this area of research is a necessary step which should be performed as a prerequisite to asserting a policy regarding general price-level restatement. Also, it may be true that accountants have some of the research experience and measurement expertise required to further this important line of research activity.

Another aspect of the problem of anticipation and its effect on accounting policy decisions was raised by Bierman (1971) in a recent paper

which pointed out that in a circumstance in which the firm has correctly anticipated the change in the general price-level and reflected it in its negotiated nominal borrowing rate, conventional general price-level restatement results in a kind of "double counting." Dyckman (1972), Greer (1972), and Petersen and Keller (1972) commented and enlarged on the observations contained in the Bierman paper. While this discussion was entirely theoretical, it represented an attempt to provide a specific set of propositions and statements reflecting the precise meaning of anticipation and its possible effects on one aspect of financial measurement.

## The Problem of Conceptualizing the Co-ordinated Model

In a recent paper intended to advocate the specific price adjustment as an alternative to restatement, Revsine and Weygandt extended the following proposition: "Given the objective to predict, compare and evaluate cash flows, what type of adjustment for inflation should be made?". (1974, p. 73) (emphasis added) Later, in the same paper, the authors ask: "Which of the two inflation accounting alternatives generates an income figure that reflects the amount of resource inflows that could conceivably be distributed as a dividend without impairing the physical operating level of the firm?" (1974, p. 76) (emphasis added) Here, the implication seems to be that general price-level restatement and specific price-level adjustment (according to some concept of current value) are policy alternatives which are mutually exclusive. In its recent Discussion Memorandum the FASB indicated: "There are some persons who believe that the Financial Accounting Standards Board should address the question of accounting for changes in the "current values" of various assets and liabilities, instead of accounting for the effects of changes in the general price level." (1974a, p. 6) (emphasis added) Further, in response to the Discussion Memorandum, the AAA Sub-Committee

indicated: "Perhaps we should emphasize that while we recognize that if the FASB should mandate the provisions of APB No. 3 (or something similar), such action would tend to rule out reporting on a current value basis, in another sense the two are conceptually different as not to be alternatives." (AAA, 1974, p. 3) Finally, the FASB, in its Exposure Draft indicated, "the Board believes, however, that general purchasing power accounting and current value accounting are proposals with different objectives, and each should be evaluated on its own merits." (1974, p. 22) In a recent paper intended to clarify the concept of price level adjustments, Sterling stated:

> "It is important to recognize that both adjustments are necessary and that neither is a substitute for the other. Confusion on this point is widespread. For example, a business executive recently announced that his firm had converted to current value accounting when, in fact, the firm had done nothing but make price level adjustments to historical costs. In addition, several CPAs seem to be saying that current value accounting is a substitute for price level adjustments." (1975, p. 51)

It may be time to abandon the notion that general price-level restatement by itself can be a solution to any financial measurement problem. It may be more productive to view the restatement process for what it is, a subset of the specific adjustment process, where a general index is applied (implicitly) to monetary balances and specific indices (or some other current value estimation process) are applied to appropriate nonmonetary balances in order to measure resources at their current value. The relevance of general price-level restatement to nonmonetary accounts only exists in the sense of the measurement of the shifts in values of resources owned relative to disparities in the money supply. This point is consistent with the earlier positions of

Moonitz (1965 and 1970), Sterling (1975), and with a recent position stated by Rosenfield as follows: "General price-level restatement and current value accounting are complementary responses to independent questions, not competing responses to a single question." (1972, p. 68) It is extremely important to recognize that the measurement issue is not one of evaluating general price-level restatement vs. specific price-level adjustment, but rather an issue of selecting basic historical cost vs. some notion of current value of which general price-level measurement is a necessary component part of the current value measurement process.

## EFFICIENT MARKETS AND FUTURE RESEARCH DIRECTIONS

The results of research which has been performed to evaluate the degree to which information is properly impounded in security prices can provide significant guidance for the design of new research which could be executed in the general price level area. Clearly, it seems reasonable to wonder if the wealth shifts occurring between holders of monetary balances during periods of unanticipated changes in the general price level are properly reflected in security prices. This kind of financial information would not now be available (except by estimate) to those receiving published financial data and as such, would be classified as "insider information".

Unfortunately, there still exists a significant amount of confusion about the policy implications of the "efficient markets hypothesis" and its likely future research implications. Further, a major amount of conceptual work needs to be completed to properly identify and measure the change in wealth which occurs between economic entities as a result of a shift in the general price-level. The purpose of the following section of this paper is to discuss these problems and suggest implied research directions.

In a recent paper devoted to reviewing the research devoted to evaluating the efficient markets hypothesis in light of its possible implications for accounting, Downes and Dyckman indicate, "..., we believe the efficient markets research as it bears on financial accounting to be perhaps the most significant thrust made by accounting researchers in the past decade." (1973, p. 317) In order to clarify the reasoning underlying this statement, we should first examine what is meant by an "efficient" market. In a classic paper appearing in The Journal of Finance, Fama stated that, ". . . . a market in which firms can make production - investment decisions, and investors can choose among the securities that represent ownership of firms' activities under the assumption that security prices at any time 'fully reflect' available information is called 'efficient'". (1970, p. 383) It is important to note that efficiency refers to the quality of the market in respect to its ability to process and reflect <u>available</u> information in security prices. In its semi-strong form, the efficient market result refers to the information content of financial statement data, and concludes that security prices tend to reflect most of the information contained in annual financial statements in the sense that no significant shifts in expectations can be discerned (by shifts in security prices) in response to earning announcements. In an accounting policy sense, this is a rich and established result of a vast amount of research which is relevant to the improvement of financial reporting.

However, this does not suggest that the research in this area is complete. Downes and Dyckman state that: "It is perhaps also worth pointing out that the empirical research to date has been carried out using only data from the commodity markets and the American and New York Stock Exchanges. There is no reason to believe that the value of accounting information needs to be the same for other less familiar markets as, for example, the National Stock Exchange and the Over-the-Counter market. One could hypothesize,

for example, that for such smaller and less well-known firms, few (and in some case maybe no) analysts follow their activities.". (1973, p. 317) It is also important to be quite careful about extending conclusions beyond the strict definition of efficiency. For example, in a recent paper Dyckman made the following statement: "The efficient-markets hypothesis predicts that if the accounting function fails to provide needed information, say information on economic values, other sources will.". (1972, p. 798) The statement that other sources "will respond" to a perceived information need is based on an assertion of rational economic behavior, rather than a logical extension of the implications of the semi-strong form of the efficient markets result. Actually, very little is really known about the way in which the market behaves in respect to unpublished financial information. In a recent paper Beaver indicated: "Much more research is needed regarding market efficiency with respect to inside information. Such research will help to specify what the costs of non-disclosure are.". (1973, p. 54) And further, in an earlier paper responding to comments about the implications of efficient markets by Bierman, Beaver states, "..., undisclosed data provide one social 'cost' in the sense that those who have access to such data reap speculative profits at the expense of the rest of the investors." (1974, p. 566) Therefore, one can conclude that a potentially profitable direction that financial accounting research may take in the future could be to evaluate the efficiency of the market in respect to numbers and data not presently reported. Current value accounting and its necessary component, general price-level restatement certainly form one class of financial data currently not readily available in the market. For example, it might be worthwhile to consider extensions of the research earlier described by Bradford, using data estimation models developed in the "data impact" studies to test "efficiency"

with respect to the monetary gain or loss number. Other possibilities also exist.

A Shopping List of Research Implications

Several areas seem to need additional theoretical development and verification. The following list is based on the assumption that if it is worthwhile to test market efficiency with respect to general price-level gains or losses, a required first step is to develop knowledge about how to measure them.

1. What are the conceptual foundations underlying general purchasing power?
2. What is the proper adjustment and/or restatement basis for transforming account balance?
3. How should all price-level indexes be constructed given a known set of decision objectives?
4. What is meant by monetary balances?
5. What is the meaning of aggregation in price-level adjusted financial statements?
6. How does one reflect the degree of financial anticipation of future changes in the general price-level?
7. Do financial managers undertake strategic adjustments in borrowing rates (and flow patterns) in order to minimize the effects of changes in the general price-level?
8. What is the theoretical relationship between general price-level restatement and specific price adjustment?
9. Is the market "efficient" with respect to real holding gains and losses?
10. Is the market "efficient" with respect to managerial gains and losses?
11. Is the market "efficient" with respect to monetary gains and losses?

## CONCLUDING COMMENTS

In summary, we can draw some tentative conclusions. First, the amount of general price-level comprehensive restatement research in the data impact and feasibility areas is extensive. One can conclude that restatement is feasible, but not cost less. Further, data impact studies vary in their conclusions regarding the likely way in which information will be transformed if restatement is a requirement. It is certain, however, that some impact will result, and it seems intuitively obvious that no significant economic information can be contained in restated financial data save, possibly, the monetary gain or loss number. Finally, it would seem that a great deal of work needs to be designed, executed and reported before a rational policy decision could feasibly be executed by the FASB in this area.

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