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Changes in Price-Levels

Are accounting restatements worth the cost?



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*They own a modest piece of land
They didn't pay much for.
But that was many years ago
And now it's worth much more.*

*They also hid away some cash
Their old age to augment.
It seemed to be more than enough
Until its PuPU¹ went.*

*And so they sit and wonder
About their Balance Sheet;
To ascertain their status
Is really quite a feat.*

*The cash they saved so faithfully
Is scarcely worth a thing.
Their land that was near worthless
Could ransom any king.*

¹PuPU is John C. Burton's acronym for Purchasing Power Units; for example, see John C. Burton, "Financial Reporting in an Age of Inflation", *Journal of Accountancy*, February, 1975, page 70.

The little poem illustrates some basic aspects of the general price-level adjustment problem (hereafter referenced with the acronym PLAD). PLAD presents a cruel dilemma to individuals and is just as prevalent in financial reporting and data for decision making; in fact, it is apparent in all data for economic consideration.

How practical is it to present an asset at its historical cost when this historical cost is often totally meaningless? Consider the friend who in the 1930's purchased ten acres of forest (including 2,000 feet of lake frontage) for \$100; this land is currently in a prime recreational area where lake frontage is selling for \$110 per foot. Or, in the other direction, hypothesize an accounting firm which, repeating one of the author's mistakes a thousand fold — a few years ago purchased calculators for \$123.95 which

are now available for \$49.95.

Even naive citizens are aware of changing land values, sometimes painfully aware, and more than few have also felt cheated when competitive marketing has driven down the purchase price for a showy new toy only a few months after the owner bought it.

Many Americans further understand, all too well, what economists mean when the dollar is referred to as a rubber measuring stick that bends and stretches to show like quantities at different costs, year after year. The 1958 dollar was not the same as the dollar in the 1978 pocket. As U. S. dollars grow smaller in implication as exchange potential, so does the joy of the real-estate holder whose ten acres of forest and lake frontage have soared in "value". Those undependable dollars can be even more perfidious than calculators, and microwave ovens, that lure the eager into costly buying mistakes.

Of course, the dynamic dollar and the specific item considerations are interdependent. The dynamic dollar is a manifestation of the composite specific item changes, and each specific item change is in turn a composite of its own individual relative changes and the dynamic dollar.

This paper is a brief consideration of some aspects related to PLAD. In Sections 1 through 4 the authors consider some underlying questions: what index to use; how difficult is the application; what does one do with the problem child — monetary gains and losses; last, but very definitely not least, is it worth all the effort.

Problems with replacement cost in an age of rapid technological advances are discussed in Section 5.

Replacement cost has been advocated as an alternative to PLAD or as part of a combined technique in conjunction with PLAD. The Securities and Exchange Commission (SEC) adopted disclosure requirements for financial statements for fiscal years ending after December 25, 1976, The Commission requires (for the 1,000 largest nonfinancial corporations²) disclosure of certain specified replacement cost information on statements filed with the SEC. The footnote disclosure for assets must include the current replacement cost of inventories and the estimated current cost of replacing the productive capacity of depreciable, depletable, and amortizable assets on hand at the end of each fiscal year. Additionally, there must be a statement as to the amount of deprecia-

tion, depletion, amortization, and the cost of sales, assuming that they had been computed on the basis of replacement costs of the productive assets.

The authors' alternative to PLAD is presented in Section 6. Finally, a brief summary and conclusion is given in Section 7. The question to ponder is — if accountants don't find a final solution soon, will the new SEC disclosure requirements be expanded perhaps to the entire financial statements, be covered by the auditor's opinion, and subsequently become part of the generally accepted accounting principles?

The recognition of the problem dates to early U. S. history. In 1780, some notes were issued by the State of Massachusetts. Both the principle and the interest were adjusted by the ratio:

$$R = \frac{\text{cost (5 b. corn, 68\# beef, 10\# wool, 16\# leather)}}{\text{£130}}$$

The subject was mentioned infrequently in the accounting literature until 1935, when Henry W. Sweeney published an article on stabilized accounting⁴. (Many of the "new" current ideas are contained in that article!) Sweeney was concerned about rampant two percent inflation rates. Recent rates in some South American countries were over 100,000 percent. Rates in the United States and other developed countries are in two digits; a solution to this problem is badly needed!

What Index?

If one is going to adjust statements according to some price level index, then the choice of an appropriate index is an immediate problem.

Suppose that one is going to consider a product mix of N items. This must then be definition of the following quantities for each item i:

- q(0,i) = quantity used in base year;
- q(1,i) = quantity used this year;
- q(a,i) = average quantity used;
- p(0,i) = price in base year;
- p(1,i) = price this year.

Four formulae prevail currently, employing various combinations of the q and p values, but the formulation of the Gross National Product Implicit Price Deflator has the strongest support.⁵ The crucial differentiation among the

methods is quantity.

Proponents of PLAD acknowledge a problem caused by changing technology, and related to q(?i). They have decided that there should be a cutoff year Y (e.g., 1945), and that items purchased before Y should use the year Y index. The reason is that technological advances have made the product mixes of N items prior to Y noncomparable to the product mixes after Y. How many computers and TV sets would have appeared in the 1920 index listing?

The authors do not think that this analysis has been carried far enough. Although setting a time range which gives better item-to-item comparability, the intrinsic capabilities of items are apparently not sufficiently considered. For example, an early medium-sized computer might have cost \$100,000; a present machine of the same relative size scale, on the other hand, could easily cost several times that much. However, this modern machine is so much faster that the actual cost per computation is considerably lower.

A more realistic index would result if the components of the index equations were stated in comparable units. After all, isn't PLAD's *raison d'être* the standardization of measuring units?

2. From Theory to Practice

There is no question that the first year of PLAD would be difficult — all of the indices would have to be determined for the balance sheet items. However, after the initial hump, little extra effort would be required. To demonstrate this, the authors have developed a set of computer programs for adjusting the balance sheet, computing monetary gains/losses and adjusting the income statement.

The number of items has been limited in these programs. However, all the necessary basic logic is incorporated. Hence, the authors believe that reservations about PLAD founded on the premise that it is difficult to put into effect are not valid when compared to the application of other available alternatives such as current market value or replacement cost.

3. Monetary Gains and Losses

One of the problems of PLAD financial statements is the disposition of monetary gains and losses. Should the monetary gains and losses be taken through the income statement or should they be excluded from net income even on an adjusted statement? According to research published by Weil and Davidson⁶ in early 1975, there is a substantial

difference in adjusted net income expressed as a percentage of reported net income (by a factor of six or eight times) when monetary gains are included as compared to the exclusion of these gains. Note, however, that the results are not necessarily over statements. Many of these figures including monetary gains and losses were still below reported net income and the medians of thirty companies were near (99 to 100 percent) reported net income. Another sample of thirty companies showed a median adjusted net income including monetary gains and losses that was 92 percent of reported net income on the statements.

Schwieger and Dittrich⁷ provided a graph to estimate the effect of price-level adjustments on reported net income with various ratios of net monetary debt to fixed assets, both long-lived and shorter-lived assets. The larger the ratio the more the increase in adjusted net income, and the smaller the ratio the more the decrease in adjusted net income as compared to reported net income. The graphed results included adjustments for only net monetary position and fixed assets and some qualifying assumptions. The research indicated that the results of price-level adjustments are quite variable.

4. Is a General Price Index Preferable To Some Other Method?

There are many arguments for and against PLAD, but this paper will avoid debating them individually. Rather, one crucial question will be considered in detail.

Certainly PLAD does result in a uniform measuring unit. However, this measuring unit is applied to most items on the basis of historical cost. Do the results provide enough more information to justify all the effort?

As simple examples, consider the two situations mentioned in the introduction: the land at \$100 and \$1,000 calculators at a total of \$123,950. Assuming current index ratios for the times of purchase are 25 and 1.15, respectively, these items would be shown at \$2,500 and \$142,543. The first is still greatly understated and the second is even worse than the unadjusted figure since the going price for these items is \$49,950.

Of course, the preceding paragraph implies that a better evaluation technique is in order. Is a technique available that will meet the criterion of objectivity?

There is a compromise. Specific index

adjustments are very objective, and yet they allow groups of items to be adjusted independently within the general framework of PLAD. Many such indices are already available, since the GNP index is in essence computed from a vast set of subindices.

The objections of "difficult and expensive application" are heard again. "Think of General Motors and how many items they would have to adjust!"

First, there is no suggestion of treating each item separately — only groups of items. Second, computer programs designed for PLAD adjustments could be modified very easily to accomplish group translations. Instead of just a purchase-year monetary index, each item would be tagged with both this index and its classification code. At the end of the period, both the current general index and the list of specific indices for each classification would be read into the computer and the appropriate adjustments accomplished.

As with PLAD, there would be an initial hump coincident with the first application. Also, such a technique would not necessarily adjust each specific item to the absolutely "best" figure (the land probably would remain understated). However, the figures would be much better than single-index-adjusted historical cost, and would maintain the objectivity of historical cost.

5. Determining Replacement Value

Replacement value is a value based on replacement cost after adjustment for the already expired service potential. Replacement cost is the lowest amount that would have to be paid in the normal course of business to obtain an asset of equivalent operating capacity. How does one determine such a cost in an age of rapidly changing technology? There seem to be four basic approaches in use:⁸

1. specific prices;
2. estimates based on product reproduction;
3. expert valuation;
4. a combination of the above with specific price index adjustments.

Suppose the market offers no replacement with the same capacity. A pro-rata cost based on ratios of capacities has been suggested in that event. Complete knowledge is required, however, of the implicit cost structure of each alternative. Complications mount when the only comparable output is the

product of a system with an entirely different mode of operation. Replacement cost in such a case might represent an adjustment of new system costs to equate that output to present processes, but that might imply a decision to switch to the new system — a decision which has not been made, and may never be made.

When problems like the above arise, some proponents of replacement value recommend reversion to reproduction cost, valuation, or indexed historical cost. The author's comments are twofold. In the first place, reproduction cost is usually worthless because it involves an estimate on a custom-make device to replace one that was probably mass (in some sense of the word) produced. The cost of the two processes of production are scarcely comparable. More important, the vast repertoire of alternative replacement cost determination methods would result in a conglomeration of unreliable figures on the statements!

The SEC recognizes a wide variety of "valuation" alternatives, not necessarily in the same order as those listed above. Determination of maintenance costs for current production capacity also presents problems of judgement.

6. A Different Idea

In this section the authors present their view of how statements can be made more meaningful. Most aspects of the approach have been supported in earlier sections; hence this presentation is mainly a summary.

Non-monetary assets should be adjusted using specific indices. These changes should be split between the PLAD change (taken directly to retained earnings) and the individual change (taken directly to retained earnings) and the individual change (taken through the income statement). Depreciation expense should be based on current cost determined by the application of specific price indices, and the balancing entries then split between historic accumulated depreciation and the asset valuation adjustment account, as discussed by Edwards.⁹

Monetary gains and losses should be computed using PLAD. Any losses should be taken to a special account in owners' equity. Gains should be recognized only to the extent that they cancel previous losses. In neither case should the values be taken through the income statement. This procedure is mandatory to recognize managements'

decisions (good or bad) without allowing the potential misunderstandings created by reporting monetary gains and losses as income, as discussed in Section 3.

Conclusion

It is difficult to try to summarize the points presented in the previous sections. Instead, a little bit of philosophizing will be substituted.

There are several workable approaches to making statements more meaningful; obviously, the authors think that theirs is best. The SEC has moved to establish its version, which the authors do not think is best. The accounting profession is apparently sitting on its hands, which the authors also deplore.

The accounting profession needs to look at the FASB exposure draft, and comments received about it, and work out some new plan, and do it *soon*. In the United Kingdom, the government stepped in and came up with a reasonable plan. It appears that the same thing may be happening in this country. John C. Burton, when he was Chief Accountant of the SEC, stated that the exemption for small companies may be eliminated in two or three years.¹⁰ The SEC plan should be considered very carefully to determine if it is the most reasonable plan. It seems to lack careful consideration of several problem areas.

Footnotes

¹John C. Burton, "Financial Reporting in an Age of Inflation", *Journal of Accountancy* (February, 1975), pp 68-71

²*Wall Street Journal*, "Replacement-Cost Accounting Plan Adopted by SEC", (New York, New York), March 25, 1976, p 4

³Securities and Exchange Commission, "Accounting Series Release No. 190", March 23, 1976

⁴Henry W. Sweeney, "The Technique of Stabilized Accounting", *Accounting Review* (June, 1935), pp 185-205

⁵Financial Accounting Standards Board, "Financial Reporting in Units of General Purchasing Power", (December, 1974)

⁶Roman L. Weil and Sidney Davidson, "Inflation Accounting", *Financial Analysts Journal* (January-February, 1975), pp 27-31, 70-84

⁷Bradley J. Schwieger and Norman E. Dittrich, "Variability in the Effect of Price-Level Changes on Reported Income", *Cost and Management* (July-August, 1975) pp 6-11

⁸R. J. Flew and B. F. Trump, "Establishment of Replacement Values with Particular Emphasis on Technological Change", *Australian Accountant* (December, 1975) pp 652-656

⁹Edgar O. Edwards, "Depreciation Policy Under Changing Price Levels", *Accounting Review* (April, 1954) pp 267-280

¹⁰*Wall Street Journal*, op. cit.