

ASSESSING THE IMPACT OF INFLATION ON BUSINESS PERFORMANCE UNDER CONDITIONS OF LIMITED FINANCIAL DISCLOSURE: THE CASE OF FIRMS OPERATING IN GREECE

By

Antonios A. Papas

The Athens University
of Economics and Business

Abstract

The proper assessment of the effect of inflation upon the performance of firms is seriously impaired by the absence of a suitable adjustment method and adequate historical-cost accounting data. The methodology proposed herein provides a sophisticated approach in evaluating inflation-related performance under conditions of limited financial disclosure. It is built around the General Price Level Adjustment model. Its significance is tested in assessing the impact of double-digit inflation rates upon the performance of a sample of firms operating in Greece.

1. Introduction

Inflation continues to be a fact of economic life in most countries. High inflation rates have seriously eroded monetary values in these countries over the past two decades, and have brought forth new patterns of economic behavior.

Even so, the effects of inflation on the performance of every economic unit go unrecognized in published financial statements. Businesses continue to report historical cost accounting data without providing supplementary information on management's ability to protect its financial capital from the erosive power of rising prices.

These conditions and the absence of adequate historical cost accounting data seriously impair investor capacity to properly evaluate management performance. Investors apply a common adjustment factor to all items in the income statement in assessing the impact of inflation upon a firm's performance.

The deflated income serves as the criterion of management's success in facing the effects of inflation. This approach yields unsatisfactory results since it is based on the erroneous assumptions that inflation affects all the components of a firm's income in the same way and that real income alone constitutes the only success/ failure criterion of management's anti-inflationary performance.

In this paper, a new methodology is presented for the assessment of a firm's performance under conditions of high inflation rates and limited financial disclosure. It is based on an adjustment mechanism (model) which is both concise and unambiguous. The new mechanism utilizes a number of ratios in adjusting historical-cost data to general price-level increases.

The procedural aspects of the proposed methodology are illustrated by applying it to a number of firms operating in Greece, a country of high inflation rates. The relevant findings demonstrate the significance of the new method to investors in assessing the impact of inflation on their command over resources, and its limitations in evaluating inflation-related performance on an industry-wide basis.

This paper is divided into three parts. The first refers to research material of previous studies and includes the methodology of this research. The second part contains the proposed evaluation model, and the last one indicates its application, the corresponding findings, its limitations, and the conclusions.

2. Previous Studies

Research on inflation accounting focuses on two basic issues. The first refers to the process of establishing the most suitable model of accounting for changing prices [Chambers R. and Dean G. (1979 p. 115)] while the second concerns the evaluation of the effects of inflation upon the performance of economic units. Most empirical research is of the latter kind.

It was the Accounting Principles Board in the United States that conducted the first field test on the effects of inflation on the profitability of a number of firms operating in the U.S [Rosenfeld P (1969 p. 45-50)]. Similar research was conducted by Davidson and Weil a few years later. They evaluated the effects of inflation upon the performance of a sample of industrial firms [Davidson S. and Weil R. (1975a p. 27-34)] and public utilities in the U.S (1975b p. 30-34). More recently, Norby (1983 p. 33-39) and Smith and Anderson (1986 p. 107-115) studied correlations between historical-cost income and imputed constant dollar income of a sample of U.S. firms.

In Greece, as in most nonindustrialized countries, inflation accounting research is non-existent. In spite of the fact that inflation rates over the last fifteen years were high and varied from 15 percent to 32 percent, neither the State nor the accounting profession has managed to introduce an acceptable system of monetary correction [Greek Management Association (1982 p. 5)]. Instead, the State has allowed businesses to revalue certain depreciable assets at a predetermined price index. So far, no research has been conducted on the impact of the price indexing policy upon the information contents of the financial statements published.

3. The Methodology

The standard unit for measuring management's success or failure in facing the effect of inflation is general purchasing power. Since investors are interested in maintaining and/or improving their consumption power, the success or failure criterion must reflect an increase or decrease in the holding, command over, or prospects of obtaining consumption goods and services rather than money.

Gains in general purchasing power mean success, while losses mean failure in protecting investors command over resources. A gain (loss) in general purchasing power is observed whenever the firm reports (a) real, not inflationary, operating profit (loss), and (b) purchasing power gain (loss) on monetary items. A gain (loss) is also observed in cases where the sum of real income and gains (losses) on monetary items is positive (negative).

The application of the General Price-Level Adjustment (GPLA) model on historical cost accounting data yields information on the purchasing power firms gain or lose by operating under conditions of high inflation. Under this model, conventional balance sheet and income statement items are restated for changes in the general price level. The resulting GPLA income represents the amount of wealth that can be disposed of during an inflationary period while leaving intact the entity's level of general purchasing power.

Employment of other restatement methods, besides that of GPLA, is not possible under conditions of limited financial disclosure. For example, the application of current cost method depends on the availability of data on the price changes of certain balance sheet items. Such data are not usually available to investors.

The adjustment model presented in this paper is substantially different from the GPLA model that appears in accounting literature. Although both models employ the same success/failure criterion, their adjustment procedures are significantly different. The GPLA model requires the restatement of the balance sheet items for changes in the general price level, while the proposed model calls for the isolation of the inflationary factor contained in each component of the conventional income.

The two models differ also in terms of their information requirements. The proposed model is operative under conditions of limited financial disclosure, while the GPLA model requires more extensive disclosure. Data on sales, cost of sales, breakdown of costs and revenue are not usually available in countries with unsatisfactory level of accounting sophistication [Price Waterhouse, (1984, p. 6)].

The new model, applied on historical-cost data, yields information essential for the assessment of a firm's performance in terms of protecting the purchasing power of investors' cash flows. Investors' purchasing power is actually protected in cases where the purchasing power of the firm's capital is maintained. This takes place whenever the firm experiences real net operating profits and gains on monetary items.

A mathematical approach is followed for the development of the adjustment model. A number of conversion ratios are established for a) deflating the basic components of operating income, and thus determining the amount of real net income, and b) deriving the amount of purchasing power gain or loss from holding monetary items under conditions of high inflation.

The procedural aspects of the proposed methodology and the relevancy of its findings are demonstrated through the application of the model on the 1986 financial statements of twenty-five firms operating in Greece. These published accounts exemplify a case of limited financial disclosure. Data on sales, cost of goods sold, ordinary and extraordinary expenses were not disclosed in annual accounts published prior to 1987. With the introduction of the General Accounting Plan of Greece and its adoption by the local business community by 1987, the information content of financial statements has drastically been improved.

The twenty-five firms selected were profitable and followed the same accounting practices during the 1985-1986 period. The presence of these conditions ensures comparability of historical cost data and facilitates the illustration of the effect of an 18 percent inflation rate upon the firms' real profitability.

These same firms belong to different industries, i.e., food, beverages, tobacco, paper, textile, chemicals, metal products with varying degrees of debt exposure and capital intensity. This diversity helps exemplify the impact of inflation on monetary items, and the applicability of the model on firms with different capital structures.

The number of firms selected suffices for the illustration of the model's application. The group of firms chosen reflects a satisfactory degree of diversity in terms of scale and nature of operations, capital structure, and debt exposure. A greater number of firms would neither enhance the diversity nor alter the conclusions.

These twenty-five firms should not be viewed as a sample representing any population of firms in Greece. The evaluation of their inflation-related performance is not subject to generalisation. No conclusions can be inferred for any other group of firms, since inflation does not affect business performance uniformly.

4. The Model

The development of the model is based on a number of assumptions that refer to the entity's economic activities and concern the application of the model. Specifically:

- (a) Sales, purchases, cash expenses, and changes in monetary items occur evenly throughout the year (inflation period).
- (b) Beginning and ending inventories are purchased in the last two months of the prior and current year, respectively.
- (c) Cost of goods sold is determined on a FIFO basis, and
- (d) Gross operating profit is the top item in the income statement published.

These assumptions allow for the building of a model which is straightforward and corresponds to requirements of Greek accounting practices.

The new model consists of a series of conversion ratios that express relationships between (1) adjusted gross operating income and reported gross operating income, (2) adjusted net operating income and reported net operating income, and (3) purchasing power gain (loss) on monetary items and reported net operating income. Each conversion ratio is determined, analyzed, and interpreted in the following paragraphs.

4.1. Gross Operating Income

Historical cost gross operating income at the end of year (t), is given by:

$$G_t = S_t - (B_t + P_t - E_t) \quad (1)$$

where:

S_t = sales of year (t)

B_t = beginning inventory for year (t)

P_t = purchases of year (t)

E_t = ending inventory for year (t).

Equation (1) is rearranged into:

$$G_t = (S_t - P_t) - (B_t - E_t)$$

The above equation, adjusted for changes in the general price level, becomes:

$$Gr_t = (S_t - P_t)a - B_t b + E_t c \quad (2)$$

Since $(S_t - P_t)$ is equivalent to $(G_t + B_t - E_t)$, equation (2) is rewritten as:

$$Gr_t = G_t a - B_t(b - a) + E_t(c - a), \quad (3)$$

where:

Gr_t = the gross income adjusted for changes in the general price level

$$a = \frac{\text{Year-end Price Index}}{\text{Average / year Price Index}}$$

$$b = \frac{\text{Year-end Price Index}}{\text{Prior year-end Price Index}}$$

$$c = \frac{\text{Year-end Price Index}}{\text{(Nov.-Dec.) Price Index}}$$

The G_r is equal to the amount of the reported gross operating income net of the inflation effect. The inflation component is given by the difference $(G - Gr)$. If the difference is positive (negative), then inflation has eroded (expanded) the purchasing power of the stated income by an amount equal to $(G - Gr)$.

The relationship between G_t and G_{r_t} is expressed, also, as:

$$r = \frac{G_t a - B_t (b - a) + E_t (c - a)}{G_t} \quad (4)$$

If G is positive and r is greater than 1, then a gain in the purchasing power of the reported income is observed. If r is less than 1, then a loss in purchasing power is experienced. A negative r implies that inflation has eroded the purchasing power of the stated income to the extent that a real loss has emerged. The opposite conclusions are drawn in case of negative G .

4.2. Net Operating Income

Once the adjusted gross income G_{r_t} is given, the adjusted net operating income N_{r_t} is derived as:

$$N_{r_t} = G_{r_t} - X_{t,a} - D_t e \quad (5)$$

where:

X_t = operating and financial cash expenses for the year (t),

D_t = depreciation and other noncash expenses for the year (t),

$$e = \frac{\text{Year-end Price Index}}{\text{Asset-Acquisition Date Price Index}}$$

Equation (5) is rewritten as:

$$N_{r_t} = G_t a - B_t (b - a) + E_t (c - a) - X_{t,a} - D_t e \quad (6)$$

The difference $(N_t - N_{r_t})$ is the inflation component of the reported net operating income. A positive (negative) difference indicates an erosion (expansion) in the purchasing power of the income earned equal the $(N_t - N_{r_t})$ amount.

The relationship between N_t and N_{r_t} can take the form:

$$k = \frac{G_t a - B_t (b-a) + E_t (c-a) - X_t a - D_t e}{N_t} \quad (7)$$

In the case that N is positive and k is greater than 1, the real operating profit exceeds the nominal income. If k is positive and less than 1, then the real profit is less than the stated, and a decrease in the level of purchasing power is observed. A negative conversion ratio k implies that a real operating loss has occurred, although a net operating profit is reported. The opposite conclusions are reached in cases where (N) is negative.

4.3. Purchasing Power Gain/Loss On Monetary Items

The purchasing power a firm gains or loses from holding monetary items is the other determinant of the purchasing power of an entity's capital. It is the result of the exposure of monetary items to inflation.

A purchasing power gain (loss) on monetary items is observed whenever the firm (1) maintains a net monetary liability (asset) position during the period of inflation, and (2) enters into transactions that cause either an increase in its net monetary liability (asset) position or a decrease in its net monetary asset (liability) position.

The amount of purchasing power a firm gains or loses on monetary items is given by:

$$I_{m_t} = M_t (b - 1) + \Delta M_t (a - 1) \quad (8)$$

where:

M_t = net monetary position at the beginning of year (t)

ΔM_t = change in M_t during the year (t)

$(b - 1)$ = annual inflation rate for the year (t)

$(a - 1)$ = average inflation rate for the year (t).

A negative (positive) I_{m_t} suggests that a gain (loss) in purchasing power is experienced due to the net monetary liability (asset) position maintained during the period of inflation. This gain (loss) can be expressed as a percentage ℓ of the reported net operating income N :

$$\ell = \frac{M_t (b-1) + \Delta M_t (a-1)}{N_t} \quad (9)$$

A positive N and a negative (positive) ℓ suggest that a purchasing power gain (loss) on monetary items is observed. Conversely, a negative N and a positive (negative) ℓ imply the presence of a purchasing power gain (loss) on monetary items.

4.4. Total Gain/Loss In General Purchasing Power

The sum of equations (6) and (8) represents the total amount of purchasing power a firm gains (loses) by operating under conditions of persistent inflation. This is the total adjusted income I_{r_t} for the period t .

$$I_{r_t} = N_{r_t} + I_{m_t} \quad (10)$$

The adjusted income I_{r_t} can be expressed as a function s of the reported net operating income:

$$s = \frac{N_{r_t} + I_{r_t}}{N_t}$$

which is equivalent to

$$s = \frac{G_t \alpha - B_t (b-a) + E_t (c-a) - X_t a - D_t e + M_t (b-1) + \Delta M_t (a-1)}{N_t} \quad (11)$$

Equation 11 represents the complete model. Its components are the basic determinants of historical-cost gross income and the relevant inflation rates. This model reflects the methodology proposed for the assessment of a firm's inflation-related performance.

5. The Application of the Model

The procedural aspects of the proposed methodology are illustrated by applying the model to the 1986 financial statements of twenty-five Greek firms. These financial statements did not disclose any information on the level of the firms' annual sales, purchases or cost of goods sold.

In the financial statements, two major adjustments were considered essential before applying the model. First, the depreciation expense of all depreciable assets (except buildings) was adjusted to the 1982 price level. Second, the reported gross operating profit was increased by the amount of the depreciation expense firms in Greece deduct from their revenue to derive the reported gross operating income.

Under these adjustments, the 1986 depreciation expense for each firm includes (1) the portion of the expense added back to the profit stated, (2) the portion of the expense reported separately in the income statement, and (3) the adjusted depreciation expense on fixed assets (except buildings) acquired prior to 1982. The annual depreciation expense varied significantly from one firm to another and considerably influenced the computation of the real net operating income.

For the calculation of the purchasing power gain or loss on monetary items, the balance sheet items were separated into monetary and nonmonetary. Such classification is possible by reference to the definition of the relevant concepts and to a list of monetary and nonmonetary items provided in accounting literature [Financial Accounting Standards Board (1979, statement 33)].

The Consumer Price Index, employed in this paper, measures changes in the general price level observed in urban areas in Greece. The base year is 1982. The price indices PI utilized are:

- January 1986 PI = 130
- December 1986 PI = 153.5
- Average for 1986 PI = 137.4
- Average PI for Nov.-Dec. 1986 = 152.4

Assigning these values of the price indices to the parameters a, b, c and e in equations 4, 7, 9 and 11, the following conversion ratios are obtained:

$$r = \frac{1.1172G - 0.0636B + 0.11E}{G}$$

$$k = \frac{1.1172G - 0.0636B + 0.11E - 1.1172X - 1.535D}{N}$$

$$\ell = \frac{0.1808M + 0.1172\Delta M}{N}$$

$$s = \frac{1.1172G - 0.0636B + 0.11E - 1.1172X - 1.535D + 0.1808M + 0.1172\Delta M}{N}$$

6. Limitations

The new methodology is limited in application by the assumptions of the model and the adequacy of the data used. Thus, the new methodology is not suitable for assessing the inflation-related performance of firms with highly seasonal operations, erratic flow of goods, or inconsistent application of accounting practices. The use of inventory valuation methods other than FIFO, variations in the nature and extent of financial disclosure, and the absence of a concise criterion for the classification of items into monetary and nonmonetary further restrict the model's applicability.

The results from the application of the new methods are not subject to generalization. They could not be used to infer the inflation-related performance of any other group of firms operating in Greece or elsewhere. This is so because inflation affects firms in distinctively different ways. Firms present no uniform structure of assets and liabilities, debt exposure, flow of funds, and use no identical valuation methods or rates of depreciation.

The new model does not cope with the effects of rising specific prices on a firm's performance. Thus, gains in purchasing power obtained by holding non-monetary items under these conditions were not taken into consideration in building the proposed method.

The prevailing rates of inflation have no bearing on the applicability of the proposed model. Slight modification of the price indices in the model suffices for making the new method suitable for assessing a firm's performance under conditions of low, high, or hyper-inflation.

7. The Findings

The new model (conversion ratios r , k , ℓ , s) applied on the financial statements selected yields useful information on the inflation-related performance of

these twenty-five firms. The relevant findings appear in the Tables of this paper. They refer to the capacity of each firm to protect investors' cash flows, i.e. its capacity to (1) generate real gross or net operating profit, and (2) secure purchasing power gains on monetary items.

Are these findings in conformity with generally accepted principles of inflation accounting? Is the proposed methodology of value to investors in assessing a firm's performance under conditions of limited financial disclosure? To answer these questions, the relevant findings are analysed and interpreted in the following paragraphs.

7.1. Real Operating Income

The positive values of ratio r , in Table 1, indicate that all firms had realized real gross profits in 1986. The amounts of these profits in thirteen firms exceed the reported. For the remaining firms, the real gross profit is lower than that reported and varies in size from a minimum of 78.4 percent (KERANIS) to a maximum 99.9 percent (VIS) of the reported (nominal) income.

The ranking of the firms according to the amount of their real gross profit reflects the known principle that inflation does not equally affect all firms [Peterson R. J (1973, p. 34-43). Firms with relatively low inventory in relation to total assets are less affected by inflation than firms with expensive inventory. Firms in the first quartile of variable r , in Table 3, possess a low average inventory in relation to their total assets (Table 1). On the other end of the range, firms in the third quartile own expensive average inventory.

With respect to the capacity of each firm to generate real net operating profit, the positive values of ratio k in Table 1 indicate that seventeen firms realized real net profit. This income varies in amount from a minimum of 10.3 percent (EVGA) to a maximum of 99.5 percent (ARVANITIS) of the corresponding nominal net profit. The negative values of ratio k indicate that the remaining eight firms experienced real losses while reporting net profits. The amount of this loss varies from 4.5 percent (VIELEX) to 241.9 percent (YOULA) of the reporting profit.

The ranking of the twenty five firms according to the amount of their real operating income (ratio k) illustrates the significance of capital intensity upon the bearing of inflation on a firm's performance. The values of the ratio Net Fixed Assets to Net Total Assets in Table 1, reflect the degree of the firms'

capital intensity. Adjustment of historical-cost depreciation expense to rising prices always bears upon the level of the reported income and its inflation component [Davidson S. and Weil R. (1975a p. 27-34)].

The adverse effect of adjusted depreciation on reported income is offset, either fully or partially, dependent upon the firm's profitability. The inverse relationship of depreciation expense to reported gross profit (Table 1, last column) measures the relative significance of a firm's profitability. Certain firms (BDF, BEBELAC, JOHNSON, REFINERY, VIS) with immaterial depreciation to their gross profit, presented significant real profits (ratio k) in spite of their high degree of capital intensity. On the other hand, firms like TITAN and YOULA failed to generate real net profits and experienced real losses. Their reported profits were not adequate enough (high depreciation to gross profit ratio) to fully counteract the adverse effect of depreciation on their profitability.

Similar conclusions are derived from Table 3. Firms with low level of depreciation expense in relation to reported gross profit belong to the first quartile of variable k , while firms with a high level of depreciation expense to gross profit belong to the third quartile.

7.2. Purchasing Power Gain/Loss On Monetary Items

The amount of purchasing power each firm lost (gained) in 1986 on monetary items is given, in Table 2, as percentage 1 of the reported net operating profit. Three firms experienced losses that vary in amount from 1.2 percent (THRACE MILLS) to 2.2 percent (ARVANITIS), to 33.4 percent (VELPLAST) of their reported net income. The remaining twenty-two firms experienced a gain. For seven of those firms the gain is greater than the reported net operating income and varies from 107 percent (ELAIS) to 566.5 percent (TITAN) of the nominal profit. For the other fifteen firms, the gain is a fraction of the income reported.

The ranking of the twenty-five firms, according to the purchasing power gain experienced (ratio l) is significantly different from the corresponding one on the reported net income (ratio k). These variations demonstrate the principle that a firm's ability to generate gains on monetary items is not influenced by its capacity to realize operating profits.

Firms with net monetary liability position gain from inflation, while firms with net monetary asset position lose. Firms like TITAN, BOUTARIS, EVGA with the highest ratio of monetary liabilities to monetary assets are in the first

quartile of variable 1 in Table 3. On the other hand, firms like VELPLAST, ARVANITIS, THRACE MILLS with limited net monetary liability position or extensive net monetary asset position experienced either an insignificant gain or a substantial loss on their purchasing power on monetary items and belong to third quartile.

7.3. Overall Performance

The values of ratio s , in Table 2, indicate the overall performance of each firm in terms of their capacity to maintain or even improve the purchasing power of their capital. All firms, except one (FULGOR), succeeded in increasing their general purchasing power. In seven firms (BOUTARIS, COLGATE, ELAIS, KERANIS, TITAN, VIELEX, YOULA) gains on monetary items absorbed their real operating losses (Table 1, ratio k), while in another three firms (ARVANITIS, THRACE MILLS, VELPLAST) real operating profits absorbed losses on monetary items. In the remaining fourteen profitable firms, the general purchasing power was increased by the sum of the gain on monetary items and the amount of their real operating profit.

Interpretation of these findings is affected by the model's main assumptions, *us*, gains on fixed-amount obligations add to purchasing power of investors' cash flows provided that those obligations have been discharged with inflationary means (money). Otherwise, outstanding obligations do not generate cash flows of higher purchasing power.

These findings are indicative of the significance of the new method to investors in assessing a firm's inflation-related performance. Employment of the proposed model enables investors to isolate, even under conditions of limited financial disclosure, the sources of gains and the causes of losses in the general purchasing power of their cash flows.

The proposed methodology yields information on the major inflationary components of historical-cost income, and on purchasing power gains (losses) on monetary items. This serves investors' interests more so than does the application of a single deflator to total income reported. It allows investors to identify all elements of management performance, evaluate the effectiveness of any anti-inflationary policies, and assess their investment performance.

8. Concluding Remarks

Under conditions of continuous inflation, investors are primarily concerned with the protection of the purchasing power of their cash flows. Purchasing power is maintained as long as management succeeds in realizing real operating profits and generating gains on monetary items.

The methodology developed in this paper allows for a concise assessment of management capacity to protect investors' command over resources. It is built around the General Price Level Adjustment model. Its application is simple and the interpretation of its findings straightforward.

Under the new approach investors secure information on management performance which is more extensive and reliable than that currently available. Present methodologies rest on the simplistic assumption that real operating income alone is a satisfactory success/ failure criterion of management's inflation-related performance. The application of a common deflator on all income items does not suffice for the recognition and evaluation of all forms and causes of the impact of inflation on business performance.

The proposed method isolates the inflationary factor contained in each component of conventional income and the effects of inflation on monetary items. This facilitates investors to trace, even under conditions of limited financial disclosure, the exact causes of purchasing power gains or losses experienced.

The methodology developed in this paper is not suitable for the evaluation of inflation-related performance on an industry-wide basis. New research in this field is essential for improving our understanding of the various complex problems firms face by operating under conditions of severe inflation over prolonged periods.

Table 1
Adjusted 1986 Gross and Net Income as Percentage of Reported Income

FIRMS	Ratio (r)	Rank	Av. Inventory Total Assets	Ratio* (k)	Rank	Net Fixed Assets Net Total Assets	Depreciation Gross profit
ARVANITIS	109.9%	1	8%	99.5%	1	21%	7%
BDF	104.6	9	32	64.4	9	40	3
BEBELAC	105.2	8	23	26.9	13	53	7
BOUTARIS	99.1	16	34	(102.1)	22	33	18
COLGATE	106.1	7	30	(18.6)	19	16	3
ELAIS	96.7	17	39	(77.5)	21	28	16
EVGA	108.7	4	13	10.3	17	26	8
FOURLIS	102.2	11	18	81.7	5	23	3
FULGOR	92.9	18	25	(155.7)	23	36	19
HELLENIT	90.8	20	41	50.2	11	34	5
JOHNSON	106.8	6	25	80.1	6	41	6
KERANIS	78.4	25	58	(41.0)	20	23	19
KORINTHOS M.	89.8	21	57	71.0	7	34	3
KOURTAKIS	89.2	22	55	12.5	16	22	15
METAXA	101.9	12	35	64.5	8	28	6
REFINERY ASPR.	109.7	2	4	98.4	2	54	6
THRACE MILLS	107.4	5	31	90.3	4	35	8
TITAN	99.6	15	23	(218.5)	24	96	31
TRYLET	101.1	13	31	56.3	10	32	10
VELPLAST	109.3	3	8	92.5	3	26	8
VIELEX	102.6	10	11	(4.5)	18	11	17
VIOCARPET	83.6	24	33	41.1	12	17	11
VIOCHROM	85.2	23	51	20.0	14	25	12
VIS	99.9	14	21	19.9	15	50	13
YULA	91.0	19	34	(241.9)	25	38	30

* Values of ratio (k), within parentheses, represent real operating loss.

Table 2
Purchasing Power Gain/Loss as a Percentage of Reported 1986 Net Income

FIRMS	Ratio* (ℓ)	Rank	Mon.Liab./ 1983	Mon. Assets 1984	Ratio (s)	Rank
ARVANITIS	2.2%	24	62.2%	53.6%	97.3%	11
BDF	(47.9)	14	248.5	221.2	112.3	7
BEBELAC	(125.0)	6	260.4	322.5	151.9	3
BOUTARIS	(208.4)	2	225.5	209.0	106.3	9
COLGATE	(93.5)	8	155.4	136.0	74.9	20
ELAIS	(107.0)	7	235.3	157.9	29.5	23
EVGA	(197.2)	3	409.5	278.3	207.5	2
FOURLIS	(21.7)	19	111.3	106.0	103.4	10
FULGOR	(129.1)	5	269.8	284.2	(26.6)	25
HELLENIT	(44.5)	15	258.1	232.8	94.9	13
JOHNSON	(1.3)	22	176.4	182.2	81.4	19
KERANIS	(153.0)	4	513.0	397.0	112.0	8
KORINTHOS MACH.	(14.0)	21	153.1	132.0	85.0	16
KOURTAKIS	(71.0)	10	295.9	361.3	83.5	18
METAXA	(32.2)	16	227.8	170.3	96.7	12
REFINERY ASPROP.	(22.9)	17	106.0	154.6	121.3	5
THRACE MILLS	1.2	23	134.4	80.0	89.1	15
TITAN	(566.5)	1	519.6	244.2	348.0	1
TRYLET	(62.8)	12	202.9	200.0	119.1	6
VELPLAST	33.4	25	76.3	36.0	59.1	21
VIELEX	(22.3)	18	108.2	100.9	17.8	24
VIOCARPET	(18.7)	20	106.7	128.9	59.8	22
VIOCHROM	(70.7)	11	261.8	290.0	90.7	14
VIS	(61.8)	13	177.6	162.8	81.7	17
YULA	(91.9)	9	218.6	222.8	150.0	4

* Values of ratio (ℓ), within parentheses, indicate purchasing power gains.

Table 3
Quartile Distribution of Real Income and Purchasing Power Gain/Loss
as a Percentage of Reported 1986 Income

Variable	First Quartile	Second Quartile	Third Quartile
r	106.3%	101.1%	90.9%
k	73.3	26.9	(24.2)
ℓ	111.5	61.8	21.0
s	114.0	94.9	79.8

T. R.
References

- Backmaster D. B.* (1974): "The Effects of Price-Level Changes on Operating Income." *The CPA Journal*.
- Boersema J. M.* (1975): "The Monetary, Non-Monetary Distinction in Accounting for Inflation". *Cost and Management*.
- Chambers, R. J. and G. W. Dean eds.* (1986): *Chambers on Accounting*. Vol. 4, Price variation accounting. New York and London: Garland Publishing.
- Davidson, Sidney and Roman L. Weil.* (1975a): "Inflation accounting". *Financial Analysts Journal*.
- , (1975b): "Inflation accounting: Public utilities". *Financial Analysts Journal*.
- Dyckman, T. R.* (1979): "Investment Analysis and General Price Level Adjustments". *Studies in Accounting Research* No 1.
- Financial Accounting Standards Board (FASB)* (1979): Financial reporting and changing prices. Statement of Financial Accounting Standards no 33. Stamford. Comm.: FASB.
- Greek Management Association (GMA)* (1982): *Inflation and efficiency* (In Greek). Athens: GMA.
- Miller, E. L.* (1978): "What's Wrong with Price Level Accounting". *Harvard Business Review*.
- Murdoch B.* (1986): "The Information Content of FAS 33 Returns on Equity" *Accounting Review*.
- Norby, William C.* (1983): "Applications of inflation-adjusted accounting data". *Financial Analysts Journal*.

- Packer J. E.* (1977): "Inflation's Impact on Corporate Tax Rates. Taxes.
- Peterson, Russell J.* (1973): "Interindustry estimation of general price-level impact on financial information". *The Accounting Review* 48.
- Price Waterhouse* (1978): *A Survey of International Accounting Practices*. The Price Waterhouse Company.
- Rosenfeld, P. H.* (1969): "Accounting for inflation". *Journal of Accountancy*.
- Smith, L. Douglas, and J. J. Anderson* (1986): "Inflation accounting and comparisons of corporate returns on equity". *Accounting and Business Research*.
- Sterling R. R.* (1975): "Relevant Financial Reporting in an Age of Changing Prices". *Journal of Accountancy*.
- Swieringa R. J.* (1984): "When Current is Noncurrent and Vice Vers". *Accounting Review*.
- Zimmerman V. K. ed.* (1979): *The impact of inflation on accounting: A global view*. Urbana: University of Illinois.