

PROFIT SIZE AND MEASUREMENT

The subject of profit is the focus of a bewildering array of opinions and a wide variety of interpretations. Popular views range all the way from a "fat cat" theory, which holds that profit arises from the rapacious exploitation of consumers and wage-earners, to a "seed corn" theory, which holds that profit is an indispensable source of capital expansion and economic growth. Economic theory, too, offers a diversity of explanations of profit. Does profit arise from monopolistic restrictions on output and access to the market? From unforeseen changes in demand and costs? From innovation? From the need to reward entrepreneurs for risk-bearing and decision-making? From frictions that delay the adjustment of firms, industries, and markets to equilibrium positions following the disruptions of dynamic change? Economists cannot agree. Each of these explanations has its adherents. Most likely, none of the explanations will ever be unanimously accepted as the most correct.

The abundance of profit theories is matched by the profusion of misconceptions about the magnitude of profit. The average American apparently thinks that accounting profit per dollar of sales of manufacturing corporations is about seven times its actual level. This was revealed recently when the Opinion Research Corporation asked a sample of 1,000 adults what they thought the average manufacturer makes in after-tax profit as a percent of each sales dollar. The median response was 28.0%, far larger than the 4.0% margins actually earned by manufacturers in 1970.¹ Moreover, two-thirds of those questioned displayed further ignorance of the size of profit margins when they agreed that firms could pay a ten cent per hour wage increase without raising prices.

With the purpose of dispelling some of the misconceptions about profit, this article discusses the size and behavior of corporate profits over the past 20 years and describes the chief empirical measures of profit.

Measures of Profit In economic analysis, relative magnitudes are usually more revealing than

absolute magnitudes. Thus, although profit may be expressed as an aggregate dollar total, it is often more meaningful analytically when expressed as a ratio to, or percentage rate of return on, related economic variables. The most widely used profit rates are the ratio of corporate profit to: (1) net national product (NNP), (2) income originating in the corporate sector, (3) sales, and (4) stockholders' equity. The first two of these ratios are measures of profit's share in the aggregate income distribution. Note that the denominator of the profit/NNP ratio is more comprehensive than the denominator of the second ratio, which includes only that portion (roughly 60.0%) of the NNP produced by private corporations. The third, or profit/sales, ratio is the margin of profit on each dollar of sales. It also indicates the ratio of average price to cost per unit of output. For example, a profit/sales margin of 5.0% implies that unit cost is 95.0% of unit price. Finally, the ratio of profits to equity measures the rate of return on the book or historical value of owners' investment in the corporations.

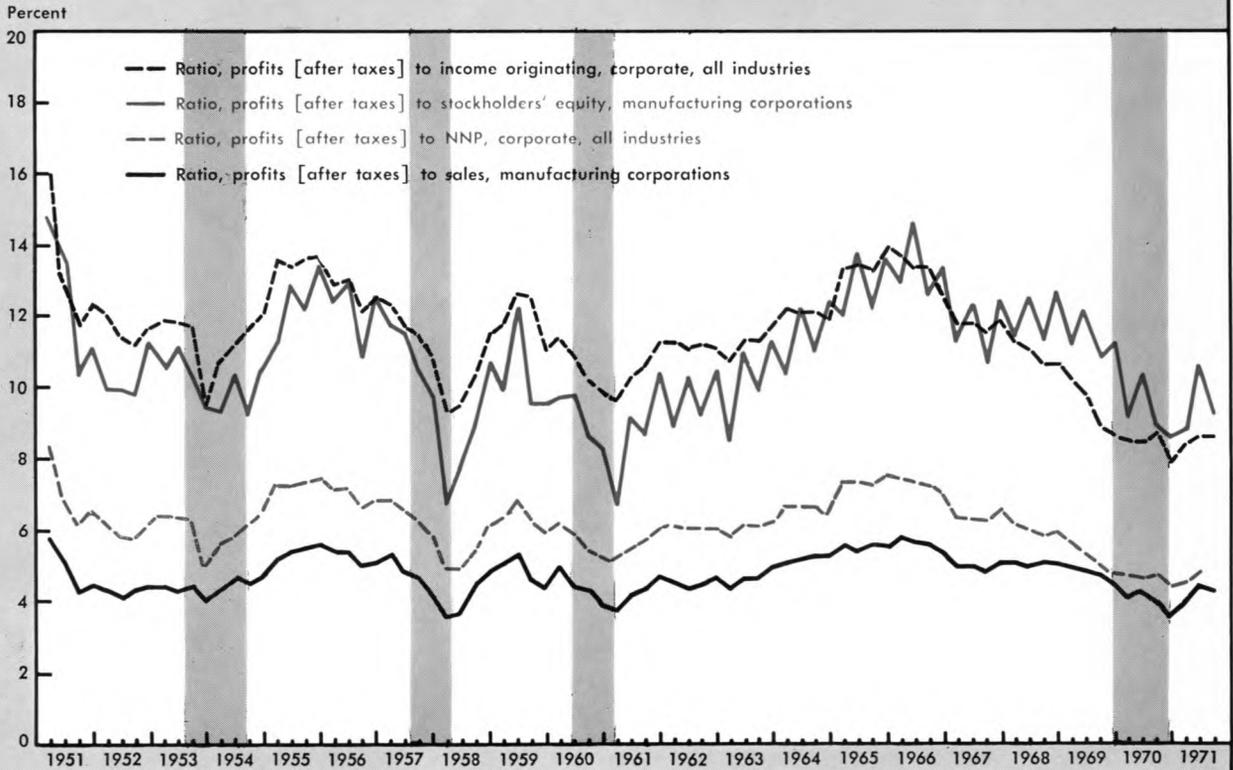
Chart 1 shows quarterly figures since 1951 for each of these profit ratios. The profit rates on sales and on equity refer to manufacturing only, whereas the other two profit rates are for the entire corporate sector. In all cases profits are measured after taxes. Notice that the profit rate on equity is about double or triple the profit rate on sales. The source of this disparity is the sales/equity or capital turnover ratio, which has a numerical value varying between two and three. Similarly, profit's share of NNP is approximately three-fifths the size of profit's share of income originating in corporations, reflecting the fact that only about 60.0% of the national product is produced in the corporate sector.

Behavior of Profit The information shown in Chart 1 reveals several noteworthy characteristics of the behavior of profit. First, profit rates are relatively low, contrary to the conviction held by many antibusiness critics and to the opinion of the man in the street. Over the entire 20-year period the share of profit in NNP and in income originating in corporations averaged only about 6.0% and 11.0% re-

¹ *Business Week*, December 18, 1971, p. 26.

Chart 1

VARIOUS PROFIT RATIOS: 1951-1971



Note: Shaded areas represent periods of business recessions as defined by the National Bureau of Economic Research.

Sources: U. S. Department of Commerce, *Business Conditions Digest*; Federal Trade Commission, *Quarterly Financial Report for Manufacturing Corporations*.

spectively. Even in the relatively high-profit years of 1951, 1965, and 1966 these two ratios did not exceed 8.5% and 16.0%. Similarly, manufacturing profit per dollar of sales averaged only about 4.8% over the whole period and rarely exceeded 5.5%.

Second, the four profit rate measures have shown no appreciable upward or downward long-run trend. Apparently, price increases over the long run have been sufficient to prevent rising unit labor costs from encroaching on profit's share and profit margins. More precisely, the trend percentage change in the price level has been approximately equal to the difference between the percentage rise in hourly wage rates (including fringe benefits) and man-hour productivity.

Third, in contrast to their long-run stability, the aggregate profit measures exhibit noticeable short-

run movements, generally rising in the recovery stage of the business cycle and falling in the boom and recession stages. Of the four series, profit's share of income originating in the corporate sector exhibits the most pronounced cyclical variation. As GNP rebounds sharply in the recovery stage, business firms normally experience declines in both unit fixed and unit labor costs, the former because of the spreading of overhead expenses over rapidly expanding output and the latter because of the registering of above-average gains in labor productivity. This decline in unit production costs leaves a growing share of sales revenue for profit. Profit's share may be further augmented if firms enjoying some degree of monopoly power respond to the increase in aggregate demand by raising prices as well as output.

In the boom and recession stages, however, profit's

share falls as increasing costs absorb a growing proportion of revenues. Labor productivity growth slackens and wage increases accelerate causing unit labor costs to rise. Moreover, unit fixed costs stop falling in the boom, as firms approach their capacity output levels, and may rise in the recession, as businessmen cut back production. In short, during the boom and recession stages, rises in unit production costs tend to exceed price increases, thereby reducing profit's residual share of revenues per unit of output.

Fourth, profit rates suffered a drastic decline in the late 1960's. By 1970 profit rates had fallen to their lowest postwar levels. Accounting for the abnormally severe squeeze on profits were: (1) stagnant productivity growth; (2) wage increases substantially in excess of the limited productivity gains, with the consequent rise in unit labor costs surpassing the rise in selling prices; and (3) high unit fixed costs associated with depressed rates of capacity utilization (Chart 2).

In 1971, as the economy emerged from its fifth postwar recession, profit rates began to recover from their lows of the preceding year. Economists are predicting a substantial rise in the *dollar volume* of profits in 1972 as a result of the expected 9.0% expansion of GNP. Only modest gains, however, are anticipated for profit margins and profit's share of GNP. In fact, these gains are not large enough to bring the profit's share of GNP up to its 20-year trend value.

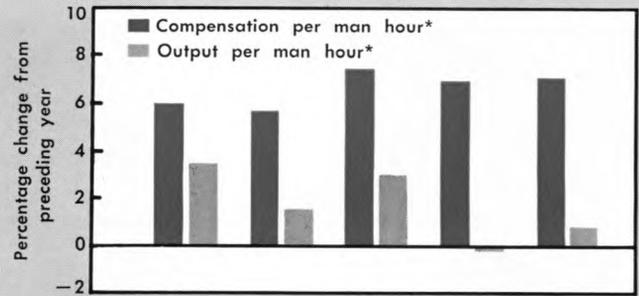
Overstated Profit Figures Some economists believe that reported statistics on corporate profit, such as those appearing in Chart 1, represent a considerable overstatement of true profit. In other words, as low as measured profit has been in recent years, actual economic profit was even lower. These analysts argue that certain corrections should be made to the official profit figures to eliminate the upward bias. Any downward adjustment would, of course, establish the profit ratios at levels below those shown in Chart 1. Profit overstatement springs from two sources: (1) understated depreciation charges and (2) implicit interest costs contained in the profit figures.

Inflation and Historical Cost Depreciation Historical cost amortization is one source of bias in the profit figures. Standard accounting practice spreads the original cost of capital equipment over its useful life by allocating to annual depreciation expense a portion of that original cost. In other words, the annual depreciation charge is expressed in terms of dollars of past, rather than current, purchasing

Chart 2

SOURCES OF THE PROFIT SQUEEZE: 1966-1970

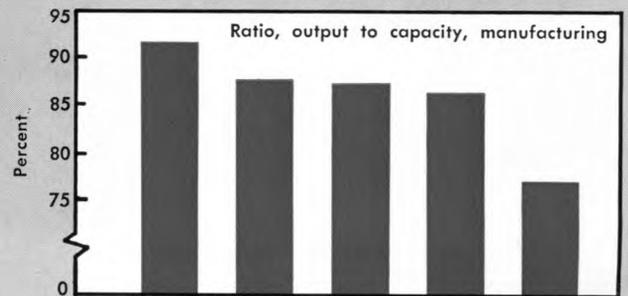
Rapidly rising wage rates combined with sluggish productivity growth to produce...



percentage rises in unit labor costs in excess of percentage rises in selling prices. These forces, together with...



falling rates of capacity utilization,



acted to squeeze profits' share.



*Private nonfarm economy.

Sources: Council of Economic Advisors, *Economic Report of the President*, January 1972; *Survey of Current Business*, January 1972; *Federal Reserve Bulletin*.

power. When inflation occurs, past dollars differ from current dollars. Each past dollar is now equivalent to more than one current dollar in purchasing power. Prevention of inadequate amortization charges during inflation requires that the historical cost of depreciation be translated into current dollars of equivalent purchasing power. But this usually is not done. Consequently, depreciation expense is understated, and profit is overstated.

Similarly, profit distortion may result during inflation if accountants charge to current expense the prior-period acquisition cost of inventory used up in current production. This source of upward bias in profit could be largely eliminated if accountants expressed inventory consumption cost in terms of the inflated price level of the current period, instead of the lower price levels of the past. But this remedy is not always applied either.

The magnitude of profit overstatement resulting from the failure to fully adjust depreciation and inventory consumption expenses for inflation has been estimated by several analysts, including George Terborgh,² former research director of the Machinery and Allied Products Institute, and Solomon Fabricant of the National Bureau of Economic Research.³ Terborgh's estimates indicate that the cumulative overstatement of profit since 1951 has been slightly in excess of \$90.0 billion, with about \$32.0 billion of the overstatement occurring in the three-year period 1968-1970 and \$25.0 billion in the two-year interval of 1969-1970 alone. These sums represent errors of 18.0%, 31.0%, and 39.0% respectively of the corrected profit figures for the indicated years. Apparently the degree of profit distortion tends to vary directly with the rate of inflation, which was 2.1%, 5.6%, and 5.9% respectively over the three periods.

The effect on the profit-share ratios of Terborgh's revision of the profit figures is indicated in the following table.

AVERAGE ANNUAL RATIO OF CORPORATE AFTER-TAX PROFIT TO INCOME ORIGINATING IN THE CORPORATE SECTOR, SELECTED PERIODS

	1951-1967	1968-1970
(1) Ratio as reported	.119	.091
(2) Ratio adjusted for price change	.103	.069
(3) Percentage overstatement of ratio $\frac{[(1) - (2)] \div (2)}$	15.8%	31.3%

² George Terborgh, *Essays on Inflation*. (Washington, D. C.: Machinery and Allied Products Institute, 1971), pp. 52-56.
³ Solomon Fabricant, "Inflation and the Lag in Accounting Practice" in *Accounting in Perspective: Contributions to Accounting Thought by Other Disciplines* (Cincinnati: South-Western Publishing Company, 1971), pp. 139-141.

The estimated percentage overstatement of the reported profit ratio is greater for the recent period of high rates of inflation than for the earlier period, which was marked by lower rates of inflation.

How would Terborgh's adjustments affect the other profit ratios? The adjusted profit/sales ratio would bear the same proportional relationship to the reported ratio as Terborgh's adjusted profit figures bore to the reported profit figures. The percentage adjustment to the profit rate on equity, however, would be expected to exceed the percentage adjustment to profits and to the profit/sales ratio. Unlike the latter ratio, which has only its numerator revised, the profit/equity ratio must have both numerator *and* denominator adjusted for inflation. The denominator of the profit/sales ratio needs no adjustment since it is already stated in current dollars. Stockholder's equity, however, is measured partly in terms of dollars of past periods. To eliminate the inflationary bias in the profit/equity ratio, both depreciation expense *and* equity must be translated into the current-dollar equivalents of the purchasing power of their historical or book values. If physical assets were to be measured at current rather than historical cost, stockholder equities would be larger than those shown on the balance sheets by the dollar difference between the current and historical stated net value (net of depreciation reserves) of the assets. The profit/equity ratio is, therefore, reduced more, proportionately, than are the ratios of profit to current flows such as product or sales.

Unfortunately, there are no reliable estimates for recent years of the aggregate profit/equity ratio adjusted for inflation. The closest substitutes are George Stigler's estimates of the adjusted profit rate on *total assets* of manufacturing corporations, 1948-1957. Stigler's estimates indicate that, in each year, the profit/asset ratio expressed in current dollars fell short of the ratio measured in terms of the book values of the assets.⁴ On the average, the size of the corrected ratio was only about two-thirds the size of the unadjusted ratio.

Implicit Interest A second deduction from the official profit statistics that should be made in arriving at a figure for true or purely residual profit is the implicit interest on owners' capital. Implicit interest is the yield or interest return that stockholders could realize on their capital if they invested it elsewhere. Although not treated as a cost in con-

⁴ George J. Stigler, *Capital and Rates of Return in Manufacturing Industries* (Princeton: Princeton University Press, 1963), Tables 2 and 5 of Errata Statement.

ventional accounting practice, implicit interest is actually the cost of attracting equity capital from its highest-paying alternative opportunity. In the long run, if these opportunity or transfer cost payments are not met out of reported profit, then stockholders will transfer their funds elsewhere. Deduction of implicit interest from reported profit is merely a way of stating that this portion of profit is not a true surplus but is a cost of attracting capital.

Instead of deducting implicit interest *return* from aggregate profit, it is easier to subtract the implicit interest *rate* from the profit rate on equity. For example, if the profit rate on equity is 9.0% and the implicit interest rate is 5.0%, then the net surplus profit rate would be 4.0%.

It is impossible, of course, to determine with absolute precision the implicit interest rate. Because of the heterogeneous nature of alternative investment opportunities and because of imperfections in the capital market, the same opportunity cost rate will not be applicable for all stockholders and firms. Moreover, even if the opportunity cost rate *could* be represented by a single market rate, it is difficult to determine whether the selected rate should exclude or include a premium for risk. One might argue for a riskless rate, such as the rate on government bonds, on the grounds that, for the entire population of corporations, the risk rewards of successful firms should cancel out against the losses of unsuccessful ones. Others might argue for a market rate that reflects some degree of risk, e.g., the yield on triple or double-A rated corporate bonds, on the grounds that in our dynamic economy, default risks are positive even for the aggregate of corporations and that some minimum risk premiums are necessary payments for the unpleasant task of uncertainty-bearing.

In the calculations below, the average interest rate on government bonds has been arbitrarily chosen to represent the implicit interest rate. The reader should be aware, however, that other analysts might, with equal justification, select other market yield rates to represent the implicit rate. The government bond rate serves as a proxy for the pure interest or riskless rate of return. Subtracting this rate from the estimated profit rate on equity, corrected for inflation, one obtains an estimate of the pure or surplus rate of profit. The inflation-corrected profit rate was estimated to be two-thirds of the reported profit rate, the same as in Stigler's study of the profit rate on assets, referred to previously. For want of more

appropriate estimates, Stigler's figures are employed.

**ESTIMATED PURE OR SURPLUS PROFIT RATE
SELECTED PERIODS**

	<u>1951-1960</u>	<u>1961-1968</u>	<u>1969-1970</u>
(1) Reported after-tax profit rate on equity, manufacturing.	10.68%	10.93%	10.40%
(2) Profit rate corrected for inflation [(1) x ⅔]	7.11%	7.28%	6.97%
(3) Less: Estimated Implicit Interest Rate	3.14%	4.27%	7.44%
(4) Pure rate of profit on equity	3.97%	3.01%	- 0.47%

The reader is warned not to put too much faith in the accuracy of these figures. As mentioned previously, it is doubtful whether the government bond rate appearing in line three of the table corresponds perfectly to the implicit interest rate. Furthermore, the two-thirds correction factor shown in line two was based on a study pertaining to 1948-1957, a period not entirely comparable to the period covered in this article. The applicability of this correction factor to 1969-1970 is especially dubious. It is quite likely that in these two years the inflation allowance should be larger and the inflation-corrected profit rate smaller than the rate shown in the table. In short, because of the crudeness of the estimated adjustments shown in lines two and three of the table, the pure profit figures appearing in line four are rough approximations only, still subject to error. Nevertheless, the figures are indicative of the direction of movement of the surplus profit rate over the past two decades. The figures suggest that in the late 1960's sharply declining accounting profits combined with a high opportunity cost rate of interest on equity to reduce noticeably the surplus profit rate below its 1951-1968 levels.

Conclusion Over the past 20 years reported profit rates generally have been lower than many people realize. Toward the close of the 1960's, moreover, some of these rates plunged precipitously and by 1970 had reached their lowest levels since World War II. Removal of historic cost error further shrinks the profit rates, and when the element of implicit interest cost is extracted, they become even more slender. The cushion of pure surplus or residual profit, upon which business enterprise is often said to rest, has never been very thick, and in recent years it may have vanished altogether.

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